2018 Scientific Research Poster Competition Abstract Booklet

Experimental Research and Case Studies
Submitted by Students, Interns, Residents & Fellows

Judging: Friday, November 9, 2018 – 9:00am – 4:00pm
Consortium for Excellence in Medical Education (CEME)

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Dear CEME Residents, Fellows, & NSU-KPCOM Students,

On behalf of the Consortium for Excellence in Medical Education - CEME, we would like to thank you for your participation in the 10th Annual CEME Poster Competition.

Scholarly activity is essential to the pursuit of excellence in clinical and academic medicine. Sharing with your colleagues interesting findings, unusual presentation of common disease, therapeutic options or the results of a various research activity, contributes to the body of medical knowledge and ultimately to the benefit of patients care.

We commend you for your commitment to osteopathic medical research and life-long learning. Best wishes in the Poster Competition!

Sincerely,

Anthony N. Ottaviani, DO, MPH
President
Consortium For Excellence In Medical Education
Dr. Kiran C. Patel College of Osteopathic Medicine

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Dear CEME Residents, Fellows, and Interns & NSU-KPCOM Students,

Let me take this opportunity to personally thank and commend each of you for your participation in CEME’s Annual Student/Intern/Resident/Fellow Research Competition.

You bring great pride to yourselves and your institutions as you have gone above and beyond expectations by completing the scholarly activity that you are displaying today. Your work demonstrates the commitment that you have made to excellence as a clinician, scholar, and educator.

I hope this is not the end or your research endeavors but just one mark along your pathway to increasing the body of knowledge of your chosen profession. I wish to challenge all of you to continue your research efforts as you move forward in your career.

On behalf of all the faculty and administration of CEME & NSU-KPCOM, we wish you all success in achieving your personal and professional goals!

Sincerely,

Janet Hamstra, Ed.D.
Executive Director, CEME-OPTI
Assistant Dean, Graduate Medical Education
Associate Professor, Internal Medicine
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine
Table of Contents

Methotrexate and Sunbathing, An Ancient yet Effective Treatment for Chronic Plaque Psoriasis .......................................................... 16
Rehana Alam, OMS-3, DPM., Annabelle Alvarez, OMS-4, MPH. Syed A. A. Rizvi, PhD, MS, MBA., Zafar Qureshi, MD.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Pulmonary Cryptococcosis in an Immunocompromised Patient .......................................................... 16
Zahava Alishaev, Daniel Ricci, Pedro Rabionet, M.D.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Pulmonary Amyloid Complicating Asbestos Related Lung Disease .......................................................... 17
Patricia Almeida, D.O., Hutch Stilgenbauer, M.D., Raiko Diaz, D.O., James B. Gleason, M.D.
Pulmonary Disease and Critical Care Fellowship, Aventura Hospital and Medical Center

Cauda Equina Syndrome, a Tale of the Prostate .......................................................... 17
Annabelle Alvarez, OMS-4, MPH, Mohktar Radwan, D.O., PGY-1
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

The Boy Who Cried Wolff - An Isolated Case Of Wolff-Parkinson-White Syndrome .......................................................... 17
Lillian Alvarez, TY-1; Nicole Cohen, PGY3, Zachary Smith, MS3; Julio Mercado, MD
Transitional Year Program, Kendall Regional Medical Center

Incidental Finding of Completely Porcelain Gallbladder .......................................................... 18
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Stevens-Johnson Syndrome Secondary to Mycoplasma Pneumoniae infection in a 4 year old male .......................................................... 18
Nicholas Arcos, D.O., PGY-III, M.B.A, Janet Kowalski, M.D., Gee Yoon Suzie Park, OMS-IV, NSU-KPCOM
Family Medicine Residency Program, Palmetto General Hospital

Intact Neurological Function after Prolonged Submersion Injury in a Toddler Patient .......................................................... 19
Ramsey Ataya, MD, PGY-2, Daniel Sirovich, PGY-3, Daniela Valenzuela, PGY-2, Kent Martin, PGY-3
Emergency Medicine Residency Program, Kendall Regional Medical Center

Acute Limb Ischemia Associated with Daily Cannabis Use .......................................................... 19
Isaac Azar, MD, PGY3; Laurence Dubensky, MD, FACEP,
Emergency Medicine Residency Program, Aventura Hospital and Medical Center

A Clogged Heart can be a Broken Heart Too – A Rare Case of Reversible ACS due to Takotsubo’s Cardiomyopathy in the Presence of Mild Ischemia .......................................................... 20
Jilla Azarbal, MD MPH MBA, Gustavo Vargas, MD MBA; Rajesh Tota-Maharaj, MBBS FACP FACC.
Internal Medicine Residency Program, Kendall Regional Medical Center

Seizure and Pregnancy: A Case of Third Trimester Seizure With Hypotension .......................................................... 20
Spencer E. Barela, M.D., Amanda Haan, M.D., Isabel Brea, M.D.
Emergency Medicine Residency Program, Kendall Regional Medical Center

Cervical spine Cord Infarct: A 56-year-old male with incomplete quadriplegia .......................................................... 21
Batista A, Forteza A, Checo R, Gascon J, Gonzalez D, Capote R
Transitional Year Residency Program, Kendall Regional Medical Center

A Case of Mollaret’s Meningitis in a woman of early adulthood .......................................................... 21
Arian Bethencourt Mirabal, MD; Parth R Parikh, MD; Jose Barros, M.D; Abraham M.D, Robert Hernandez, MD; Gina Domingo, M.D.
Internal Medicine Residency Program, Kendall Regional Medical Center

Kounis Syndrome with Takostubo Cardiomyopathy .......................................................... 22
Cardiology Fellowship Program, Broward Health

“Embolization of Bio-Alcamid Gluteal Injections in a Female Patient with Patent Foramen Ovale Leading to ARDS and Embolic Stroke”. 22
James Bolduc OMS-III, Beshoy Abdalla OMS-III, Mansoor Choudhry OMS-III
Nova Southeastern University Dr. Kiran C. Patel College Of Osteopathic Medicine

Management of complications due to failed intraoperative intubation in a patient with severe scoliosis and hiatal hernia .......................................................... 23
Johann P. Braithwaite OMS III, Simone Phung-Lyn OMS III, Neel Kapoor OMS III, Joshua Godur OMS III
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine
Subacute Milary Tuberculosis
Pediatrics Residency Program, Palms West Hospital, PBCGME

“A Quest for the Occult Primary Perpetrator”
Jennifer Bustamante, DO; PGY III; Melissa Armas, DO; PGY III; Otto Marquez-Mendoza, MD; Luis Diaz-Rangel, MD
Family Medicine Residency Program, Palmetto General Hospital

Case report of a patient with a past psychiatric history of treatment resistant depression along with relevant literature assessing the usage and efficacy of L-Methyl Folate for treatment resistant depression
Jordan Calabrese, DO; PGY-I - Aventura Hospital and Medical Center Psychiatry Residency Samuel Neuht, MD
Psychiatry Residency Progarm, Aventura Hospital and Medical Center

Intraoperative Aortic cannulation for traumatic external iliac artery repair
Kevin Carr MD; Julio Zayas MD; Orlando Enrizo MD
Radiology Residency Program, Aventura Hospital and Medical Center

Erosive Pustular Dermatosis Arising in Two Sisters
Marissa Ceresnie, OMS-III; Matthew Uhde, D.O.; PGY-VI; Igor Chaplik, D.O
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Delayed Type II endoleak causing critical limb ischemia
Zeeeshan Chauhan, MD; Michele Iguina, MD; Mauricio Danckers, MD
Pulmonary and Critical Care, Aventura Hospital and Medical Center

Merkel Cell Carcinoma of the Mandible: Spontaneous Acceleration of Growth & Immunohistochemistry
Mansoor Choudhry, OMS-3; Muhammad Danial, OMS-3; James Bolduc, OMS-3
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Dry Beriberi, the Forbidden “Fruit” of Alcoholics
Cleland, D.; Rubenstein, M.; Ugalde, I.; Armas, F
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Heavy Hearted: An Extensive Presentation of Aggregatibacter Actinomyces Endocarditis
Nicole Cohen, PGY3; Andres Sobrado, PGY1; Spencer Streit, MS4; Robert Hernandez, MD
Internal Medicine Residency Program, Kendall Regional Medical Center

Hairy Cell Leukemia in a Patient Presenting with PE: A Case Presentation
Alexander A. Collazo OMS-III; Mohammed Ahmed, PGY-III; Mohammad A. Rizvi, PGY-III
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic

Case Report: A Rare Case Of Oral Mucosal Amelanotic Melanoma In A 77-Year-Old Immunocompromised Male
Hassie Cooper, DO; Jason Solway, DO; Melanie Wolf, OMS-4; Richard Miller, DO
Dermatology Residency Program, Largo Medical Center

Overdose due to Phantom Limb Pain: A Case Study on the Negative Impact of Opioid Use in Chronic Pain Patients with Phantom Limb Pain
Lauren Michelle Jean Cuenant, OMS-3; Gabrielle McDermott; Arthur Strzepka
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Surgical Approach to Substernal Goiter
Juan M. Dangond OMS-III; Joshua Godur OMS-III
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Complications from an Atypical Presentation of a Cholecystoduodenal Fistula and a Review of Preoperative Diagnostic Strategies
Muhammad Danial, OMS-3; Mansoor Choudhry, OMS-3; Matthew K. Creech, OMS-3; Ariel Rodriguez, MD
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Type A Right Heart Thrombus in the Setting of Acute Pulmonary Embolism
Daylis Delgado, D.O., Wai Tam, D.O., Vianka Perez, D.O., Raul Alonso, M.D., FACC
Internal Medicine Residency Program, Palmetto General Hospital

Testicular mixed germ cell carcinoma presenting with unusual inguinal lymphadenopathy
Tej Desai, B.A., OMS-III, Roya Garakani, O.D., M.S., OMS-III
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine
Spontaneous Intra-orbital Arteriovenous Fistula- A Rare Cause of Proptosis
Raiko Díaz, DO, Patricia Almeida, DO, Zaimat Beiro, MD
Pulmonary Medicine Department, Aventura Hospital and Medical Center

Prone to Failure, Prone-Positioned to Success; The Use of Advanced Prone Positioning Techniques in a Case of Severe ARDS Respiratory Failure
Mohammad Dlewati, OMS III
Nova Southeastern University, Dr. Kiran C. Patel Collge of Osteopathic Medicine

ADEM-More Than Just A Pediatric Headache
Michael Drechsler D.O., PGY-1
Emergency Medicine Residency Program, St Lucie Medical Center

A Rare Presentation of Autoimmune Liver Disease Overlap Syndrome: Autoimmune Hepatitis & Primary Biliary Cholangitis (Cirrhosis)
Brinsley E. Ekinde, MD, Zachary W. Smith, OMS-III, Haleem Abdul, MD, Nadiusa Sanchez, MD, Silvia Bentacor, MD, Andres Sobrado, MD, Carlos Nasr, MD
Internal Medicine Residency Program, Kendall Regional Medical Center

Campylobacter-associated Abscess
Andrea M. Estevez, M.D., Katherine Medrano, M.D., Julio Valdes-Liste M.D., Mailin Rivero-Ortega, M.D., Robert Hernandez, M.D
Internal Medicine Residency Program, Kendall Regional Medical Center

Two hours Early Stent Thrombosis with Drug Eluting Stent after successful Percutaneous Coronary Intervention in Acute Coronary Syndrome
Ferrer Linda, MD, Stipp Lauren, MD, Curry Bryan, MD, Smithson Shaun, MD, Correa Luis, MD
Cardiovascular Disease Fellowship Program, Aventura Hospital Medical Center

Prompt Diagnosis of Atypical Case of Diffuse Alveolar Hemorrhage
J. Flanagan DO, V. Lassalle DO, R. Brink DO, M. Plum DO, R. Kanaan MD, S. Al-Andary MD
Internal Medicine department Largo Medical Center

Cocaine Induced Very Late In-Stent Restenosis
Christopher Foth, DO, PGY-2; Jose Contreras, MD
Internal Medicine Residency Program, Palmetto General Hospital

Spontaneous Biliary Peritonitis in Adults: A Rare Etiology of Acute Abdomen
Sadys Fuentes MD, Marice Conejo-Ruiz MD, Glenda Abreu
Internal Medicine Residency Program, Palmetto General Hospital

20/20 vision post-CRAO in a patient treated with intra-arterial rtPA
Roya Garakani, O.D., M.S., OMS-III, Tej Desai, B.A., OMS-III
Nova Southeastern University, Dr. Kiran C. Patel Collge of Osteopathic Medicine

Bedside Ultrasonography as an Adjunct Diagnostic Tool in the Setting of Cardiac Pacemaker Lead Perforation
Nikkitta Georges, M.D., Colin Hagen, M.D., Andrew Napier, M.D., Tony Zitek, M.D., Valorie Slane, M.D
Emergency Medicine Residency Program, Kendall Regional Medical Center

Peri-arrest secondary to Massive Pulmonary Embolism from Post Traumatic Inferior Vena Cava Thrombosis
Jaskirat Gill, MD, PGY2, Isaac Azar, MD, PGY3, Laurence Dubensky, MD, FACEP,
Emergency Medicine Residency Program, Aventura Hospital and Medical Center

Dieulafoy’s, Dismissal, and Death : A rare and complicated case of potentially fatal gastrointestinal bleeding
Stephany Giraldo MPH, OMS-III, Ilda Isaza, D.O.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Appendical Mucoceles: Implications and Therapeutic Approach
Michael Girard, MD, PGY I, Xavier Ramos, MD, PGY II; Harena Syal, Rohith Nair, MS IV,
Internal Medicine Residency Program, Palmetto General Hospital

Immobilization Induced Hypercalcemia In the setting of Septicemia
Joshua D. Godur, OMS-III, Neel Kapoor, OMS-III, Johan P. Braithwaite, OMS-III, Juan M. Dangoud, OMS-III
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Toxic Megacolon-Just a Seemingly Innocent Antibiotic Use Away?
Christine R. Gonzalez, DO, PGY2, Dennis Cardricle, MD,
Emergency Medicine Residency Program, St Lucie Medical Center, PBCGME
Gastrointestinal stromal tumor of the rectum with metastasis to the liver in a patient with high grade endometrial carcinoma: report of an unusual case

Priya Gupta OMS-III, Megha V. Patel OMS-III, Ronald E. Moore, MD
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

More than a Concussion with Extraordinary Return to Play Implications

Clay Guynn DO, Alessandra Posey DO, Lalith Issac DO, Lisa Lashley PsyD, and Roddy Joseph DPT
Sports Medicine Fellowship, Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

The Epic Mimic: Epiploic Appendagitis

Justin Hahn, OMS-III, Jonathan Wu, OMS-III, Laura Ziton, D.O.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

How Anovulation and Infertility Led to the Work Up of Polycystic Ovarian Syndrome in 17 Year Old Female

Jodiana Hemming M.S., OMS-III, Madhurya Mulla OMS-III, Monique Michel OMS-III, Renee Alexis MD, Winston Alexis, MD
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine Obstetrics

Schwanna Know More? Laparoscopic Removal of A Sigmoid Schwannoma: A Case Report

Tahia Hossain, OMS-III, Bassam Sayegh, M.D.
Palm Beach Gardens Medical Center

Subglottic Web Causing Severe Airway Stenosis

Austin Hudson, DO, PGY III; Liza Gonzalez-Benitez, MD
Emergency Medicine Residency Program, St. Lucie Medical Center, PBCGME

Group A Necrotizing Fasciitis Induced by Haitian Herbal Remedy Cerasee

Tarik Jaber MD MPH, PGY-2; Amy Surdi DO MS, PGY3
Internal Medicine Residency Program, Broward Health

Paraplegia Following Endovascular Aneurysm Repair of Abdominal Aortic Aneurysm

Jacobs, A., OMS-III, Rubenstein, M., OMS-III
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Heartbreaking COPD: A Case of Bronchogenic Takotsubos Cardiomyopathy

Arvinder S. Jandu, M.D., Ana I. Pineda, M.D., Nicole M. Aviles, M.D
Emergency Medicine Program, Kendall Regional Medical Center

CABG Averted, By An Interesting Case of “Nitroplasty”

Asif Jawaid DO, Rohit Bhandari DO, Violet McCormack MD
Cardiology Fellowship Program, Broward Health Medical Center

Testing for the Known Unknown

Marie Jean-Baptiste, D.O. MA, Evan Layton, D.O.
Pediatric Residency Program, Palms West Hospital, PBCGME

Glass Cleaner and Drug Paraphernalia Causing Undifferentiated Toxicities

Stefan Jensen MD, Nicole Aviles MD
Emergency Medicine Residency Program, Kendall Regional Medical Center

Are Your Symptoms MILDLY Better?: A Case Study of the “Ideal” Candidate for the MILD® Procedure

Reena John, DO; Jacob Topfer, MS3; Christian Gonzalez, MD
Anesthesiology Program, Kendall Regional Medical Center

Violaceous Nodule of the Upper Limb: A Rare Case of Glomangiosarcoma

Dermatology Residency Program, Largo Medical Center

A 17 month old female with a feather in her neck

Hoon Kim, D.O.
Pediatrics Residency Program, Palms West Children’s Hospital, PBCGME

Something’s Got to Stiff: A Rare Case of Stiff Person Syndrome

Minjoo Kim, D.O., M.S., PGY-III, Benjamin Morrison, D.O., PGY-III; Peter Cohen, D.O., Shane Williams, D.O.
Family Medicine Program, Palmetto General Hospital

ATYPICAL HAND FOOT AND MOUTH DISEASE

Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine
Multiple Myeloma was Never a Misnomer

Isolated intracranial rheumatoid nodule

Not Every Red Leg is Cellulitis: A Case of Calcinosis Cutis of the Lower Extremity

Symptomatic Rare Retroperitoneal Liposarcoma Concomitant with Polycythemia Vera

Squamous Cell Carcinoma of the Lung with Cutaneous Metastasis to the Scalp in a Young Adult

Trials and Trabeculations: a case of Non-

A Unique Case of Scleromyxedema

Treatment Refractory Brachioradial Pruritus Treated with Topical Amitriptyline and Ketamine

Tethered Cord Syndrome: A Case of Chronic Constipation and Recurrent UTIs

Shortness of Breath: An Unusual

Bipolar Disorder and Comorbid Synthetic Cannabis use in a Patient: A Case Report

Thrombotic Thrombocytopenic Purpura - Act Fast

Thrombotic Thrombocytopenic Purpura - Act Fast

Dr. Edward Missinne; Jacob L. Miller, MD; Thomas Cowen, MS4. Daniel Aboubechara, MD; Roberto Fourzali, MD; Kristina Siddall, MD

Nova Southeastern University, Dr. Kiran C Patel College of Osteopathic Medicine

Emergency Medicine Residency Program, St Lucie Medical Center, PBCGME

Jennifer Maldonado, OMS- II; Kate Oberlin, MD; Michelle Demory Beckler, Ph.D.

Trials and Trabeculations: a case of Non-compacted cardiomyopathy

A Histological Surprise: Eccrine Gland Carcinoma

Neonatal Hypoglycemia

Squamous Cell Carcinoma of the Lung with Cutaneous Metastasis to the Scalp in a Young Adult Patient

Rare Retroperitoneal Liposarcoma Concomitant with Polycythemia Vera

Symptomatic Bochdalek Hernia and Intrathoracic Left Kidney in an Adult Patient

Guillain Barre Presenting with Ear Pain

Not Every Red Leg is Cellulitis: A Case of Calcinosis Cutis of the Lower Extremity

Isolated intracranial rheumatoid nodule

Multiple Myeloma was Never a Misnomer

Dr. Edward Missinne; Dr. Kristina Siddall, Program Director,

Radiology Residency Program, Aventura Hospital and Medical Center
A Rare Cause of Infant Pancreatico Pericardial Tamponade Secondary to S Prophylactic Bilateral Mastectomy: Giving Women a Second Chance

An investigation into the relationship between diagnosis and treatment management for patient diagnosed with persistent asthma

Hemorrhagic cholecystitis after rivaroxaban and dual antiplatelet use

Dabigatran Induced Acute Interstitial Nephritis: An Important Complication of Newer Oral Anticoagulation Agents.

No More Tears - Nasolacrimal Duct Obstruction in Young Adults

A Rare Look into Squamous Cell Carcinoma of the Scrotum: A Surgical Approach

Polymethylmethacrylate Pulmonary Embolism following Kyphoplasty

99

A Rare Cause of Infant Stridor: Innominate Artery Compression Syndrome

Page 9

Pediatric Residency Program, PBCGME, Palms West Hospital

Nicole M. Pietras, D.O, MPH, Ira M. Stein, M.D.

Chelsea Pierce PGY-3, Sarah Arvaneyh PGY-3, James Flanagan PGY-3, C. Hallemman DO

Internal Medicine Residency Program, Palmetto General Hospital

Harry Nguyen, D.O., Rosalyne Amante, D.O., Adrian Perez, M.D.

Internal Medicine Residency Program, Palmetto General Hospital

Trends in cervical disc arthroplasty and revisions in the Medicare database

An investigation into the relationship between diagnosis and treatment management for patient diagnosed with persistent asthma

Prophylactic Bilateral Mastectomy: Giving Women a Second Chance

Acute Rheumatic Fever: A Diagnosis That Cannot Be Missed

Pericardial Tamponade Secondary to Stage IV Adenocarcinoma of the Lung

Myositis: From Nondescriptive Chief Complaint to Diagnosis

Pancreatico-pleural Fistula, a Rare Complication of Chronic Pancreatitis

A Rare Cause of Infant Stridor: Innominate Artery Compression Syndrome
Diffuse Alveolar Damage within a Month of Initiating Amiodarone Therapy
Nicholas Pigg, DO, MPH; Laurence Dubensky, MD; Kristina Siddall, MD
Diagnostic Radiology Residency Program, Aventura Hospital & Medical Center

Acute Urinary Retention following Cyclobenzaprine Use
Nora Quattrocchi D.O, PGY II, Hemang Thakor D.O, PGY II, Shane Williams D.O,
Family Medicine Residency Program, Palmetto General Hospital

An Unusual Presentation of Pediatric Fever: a rare diagnosis of PFAPA syndrome
Reeka Raj, Anais Roig-Cantansano, MD, Physician
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

“Lost in The Forest” – A Rare Case of Forestier’s Disease (Diffuse Idiopathic Skeletal Hyperostosis).
Ram, A., Gandhhi, PS., Myers, B., Mansour, J.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Solitary Fibrous Tumor of the Kidney
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Pneumoretroperitoneum secondary to Osteomyelitis
Abby Regan, D.O., MSc., Jason Morris, D.O., MSc.
Emergency Medicine Residency Program, St Lucie, PBCGME

Parasystole in a Dyspneic Patient
Joseph Reimon, M.D., Dana Kajans, Medical Student, Monica Ramirez, Nikkieta Georges, M.D., Walter Ramirez, M.D.
Internal Medicine Residency Program, Kendall Regional Medical Center

Mid-Tendon Palmaris Longus – Dissection Presentation and Literature Review
Chad Richards, Sean Bacha, Kayla Brown, Aakash Trivedi
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Cardiac Amyloidosis: Look for the Signs for an Early Diagnosis
Amin Rmelieh, D.O. Neda Naderi, OMS-IV. Arnoux Blanchard, M.D.
Cardiology Fellowship Program, Broward Health Medical Center

A Curious Case of Clots: Normal Platelet Count gets HIT
Christina Rodriguez, MD, Sima Patel, MD; Nadiuska Sanchez, MD; Jose Gascon, MD
Internal Medicine Residency Program, Kendall Regional Medical Center

Osteochondroma: The Clinically Classic Presentation
Anna Roman-Pleschko, OMS-3; Blaze Emerson, D.O., PGY-2; Joel Rush, D.O.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Chronic lumbar osteomyelitis leading to pyogenic saccroilitis
Ilana G. Rosner, OMS III; Charlotte M. Jornlid, OMS III
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Hypercoagulable State in a Patient with Patent Foramen Ovale, a Perfect Set-Up for Paradoxical Embolism and Embolic Stroke
Nadiuska Sanchez, MD, Brinsley E. Ekinde, MD, Jordan Best, OMS3, Carlos Nasr, MD, Haleem Abdul, MD, Hannish Kumar, MD, Gerard Acloque, MD, Zachary Smith, OMS3
Internal Medicine Residency Program, Kendall Regional Medical Center

When Pulsess Disease Presents with a Rapid Pulse
Taylor Schwartz, OMS-IV, Daniel Aboubechara, M.D., PGY3, Kristina Siddall, M.D., Program Director
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Cognitive Research Comparing the Effects of Light Alcohol Drinking on Cognition
Tyler Seidman, OMS-3; Alex Fleischhacker, OMS-2; Raymond L. Ownby M.D., Ph.D., M.B.A
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Hypoglycemic episodes and atypical MRI findings in child with novel t(18;22) (q22.3;q13.2) translocation
Alejandro Serrat, OMS-3, Gianfranco Molfetto, OMS-3, Paulina Gines, OMS-3; Dr. Mislen Bauer
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine
Coronary Artery Air Embolism Following a Percutaneous Lung Nodule Biopsy
Dustin Tew DO, Julio Zayas MD, Orlando Enrizo MD
Department of Radiology, Adventura Hospital and Medical Center

80

Posterior Reversible Encephalopathy Syndrome Presenting as Severely Altered Mentation
Neil Thacker, OMS-III, Joseph Villavicencio, M.D., Scott Netto, D.O.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

81

Serum lactate, a misleading marker in the acute phase of Mesenteric Ischemia
Hemang J Thakor, DO PGY I; Eve MacLean DO PGY III; Muhammad Arsalan Karim- residency applicant; Dr. Nora Quatracci, DO PGY II; Attendings; Dr. Anna Cortes, MD, Dr. Ilan Rzatkowsky-Raoli, MD; Dr. Peter Cohen, DO
Family Medicine Residency Program, Palmetto General Hospital

81

Urinothorax: A Radiologists Role in Expanding the Differential Diagnosis
Zachary Thwing MD, Kristina Siddall MD
Radiology Program, Adventura Hospital and Medical Center

82

Advanced Nonseminomatous Germ Cell Tumor in a Young Male Presenting as Back Pain and Melena
Yale Tiley, D.O., Andres Rodriguez MS4, D.O., MBA, Jose Sanchez M.D., Andrea Dager, D.O., Juan de la Ossa, D.O., Anabelle Alvarez, MS4, Renuka Tolani, MS3, Samuel Harris, D.O., Raoul San Juan, D.O.
Internal Medicine Residency Program, Palmetto General Hospital

82

New-Onset Pathological Compulsive Gambling and Hypersexuality Due to Parkinson Disease-Related Medications
Cuong T. Ton, D.O., Lorynn Hunter, D.O., Ashok Patel, M.D.
Psychiatry Residency Program, Largo Medical Center

83

Effectiveness of Hemodialysis as Treatment of End-Stage Renal Disease Associated with Granulomatosis with Polyangiitis (Wegner’s Granulomatosis)
Renée C. Tornea, OMS-III, Mansoor A. Choudhry, OMS-III
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

83

The Best Tissue is Your Own Tissue: Innovative Hybrid Surgical Approach for Spigelian Hernia Repair
Danny Tran, OMS-III, Jonathan Wu, OMS-III, Michael Lopez, D.O., Darren Koppel, M.D.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

84

Loss of CDKN1C in a Recurrent Atypical Teratoid/Rhabdoid Tumor
Dustin Tran, OMS-III, Sandra Camelo-Piragua, M.D., Avneesh Gupta, M.D., Kate Gowans, M.D., Patricia L. Robertson, M.D., Rajen Mody, M.D., Carl J. Koschmann, M.D.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

84

Case Report: Hyponatremia and Respiratory Distress in an Adolescent Female
Ashley Van Putten, DO PGY1, Alyson Trillo, DO PGY2; Dr. Bobby Kumar, MD
Pediatrics Program, Broward Health Medical Center

85

The Shear Terror of Baseball: Spontaneous Coronary Artery Dissection in a Male Athlete
Gustavo Vargas, MD MBA; Jilla Azarbal, MD MPH MBA, Marco Mejia MD FACC, Rajesh Tota-Maharaj, MBBS FACP FACC
Internal Medicine Residency Program, Kendall Regional Medical Center

85

Relationship between mold exposure and Myalgic Encephalomyelitis (ME)/ Chronic Fatigue Syndrome (CFS) in female patients
Varona Berdial MD, Aurelio ; Sanchez Artiles MD, Angel E; Lopez MD, Lorena A; Gonzalez MD, Hector;Rey MD, Irma
Internal Medicine Residency Program, Palmetto General Hospital

86

Treatment of Post-ECT Agitation in a Patient with Bipolar Disorder and Alcohol Use Disorder: A Case Report
Angela T. Vittori, M.D., Samuel Neuhut, M.D., Clara Alvarez Villalba, M.D.
Psychiatry Program, Adventura Hospital and Medical Center

86

Acute Promyelocytic Leukemia Presenting as a Stroke
By Thomas Walsh DO, Christopher Foth DO, Jose Sanchez MD
Internal Medicine Residency Program, Palmetto General Hospital

87

IgG4-Related Lymphadenopathy
Crystal Wang, DO PGY3; Rakhee Shah, DO; Don Luong, MD
Department of Internal Medicine, Largo Medical Center

87

A Rare Cause of Dysphagia: Esophageal Small Cell Carcinoma
John Wang, OMS-III, Sae-In Kay, OMS-III, Dinh Pham MD
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

88
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroendocrine neoplasms: a diagnostic challenge and therapeutic dilemma</td>
<td>88</td>
</tr>
<tr>
<td>Jessica Waserstein OMS-4, Elizabeth Akselrud OMS-4, Alochana Ragula PGY-2, Jennifer Reyes Linn MS-3</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Hepatocellular Carcinoma: A Unique Case Presentation of Tumor Thrombus to the Right Atrium</td>
<td>89</td>
</tr>
<tr>
<td>Jessica Y. Wassef OMS III, Shelley Xu OMS III, Kiara Singer OMS III, Farid Isaac M.D. PGY-1, Rajiv Chokshi, M.D</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Acute Hypereosinophilic Syndrome: Spontaneous Non-Obstructive Arterial Emboli with Septic Shock, Acute Kidney Injury, and Hypereosinophilia</td>
<td>89</td>
</tr>
<tr>
<td>Tyler M. Webster, OMS-3, Jonathan Lam, MD, PGY-1</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>The fatal storm: Cardiac arrest from thyroid storm in a patient with previously undiagnosed hyperthyroidism</td>
<td>90</td>
</tr>
<tr>
<td>Sharon Wesley Dev Sahadevan, MD, Lianne Zaragosa, MD, Bonilla Diego, MD</td>
<td></td>
</tr>
<tr>
<td>Internal Medicine Residency Program, Kendall Regional Medical Center,</td>
<td></td>
</tr>
<tr>
<td>Progression of Discoid Lupus to Lupus Profundus: An Unexplained and Likely Underreported Phenomenon</td>
<td>90</td>
</tr>
<tr>
<td>Christopher White, DO, PGY-2, Katherine Braunlich, DO, PGY-3, David Baltazar, OMS-4, Richard Miller, DO, Program Director</td>
<td></td>
</tr>
<tr>
<td>Dermatology Program, Largo Medical Center</td>
<td></td>
</tr>
<tr>
<td>A Case of Hereditary Hemorrhagic Telangiectasia in an Aspiring Female Collegiate Athlete</td>
<td>91</td>
</tr>
<tr>
<td>Everett Wilson, M.S., OMS-3, Mark Sakr, DO, CAQSM, FAAFP; David Espinoza, MD</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Don’t Look Inside the Air Conditioning Unit: Legionnaires’ Pneumonia Complicated by Aspergillosis</td>
<td>91</td>
</tr>
<tr>
<td>Nova Southeastern University Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Cri du Chat Syndrome: A Case Study on Development and Therapies</td>
<td>92</td>
</tr>
<tr>
<td>Shelley Xu, OMS-III, Katiana Garagolzo, M.D., PGY-II, Cyril Blavo, D.O., MPH &amp; TM</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>IgA vasculitis in a Plaque psoriasis patient on Humira</td>
<td>92</td>
</tr>
<tr>
<td>Natalie Yanes, D.O., Robert DiGiovanni, D.O., Rakhee Shah, D.O.</td>
<td></td>
</tr>
<tr>
<td>Rheumatology Fellowship Program, Largo Medical Center</td>
<td></td>
</tr>
<tr>
<td>Magnetic Resonance Imaging Myelogram for the Diagnosis of an occult Cerebral Spinal Fluid Leak in the Thoracic Spine</td>
<td>93</td>
</tr>
<tr>
<td>Yi Yang, M.D., M.P.H., Kevin Carr, M.D., Yafell Serulle MD, PhD, Ravishankar Shivashankar, M.D</td>
<td></td>
</tr>
<tr>
<td>Department of Radiology, Aventura Hospital and Medical Center</td>
<td></td>
</tr>
<tr>
<td>Medulloblastoma and the Importance of Taking a Detailed History and Physical Exam</td>
<td>93</td>
</tr>
<tr>
<td>Zhao Zhang, M.S., Joseph Wirth, M.D</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Rapid identification of large ovarian cyst with point-of-care ultrasound</td>
<td>93</td>
</tr>
<tr>
<td>Sean Zhao, M.D., Huy Tran, M.D., Isaac Azar, M.D., John Childress, M.D</td>
<td></td>
</tr>
<tr>
<td>Emergency Medicine Residency Program, Aventura Hospital and Medical Center</td>
<td></td>
</tr>
<tr>
<td>Evaluation of the TeleStroke/Vascular Neurology Clinic in Rural Minnesota</td>
<td>94</td>
</tr>
<tr>
<td>Crystal Acosta, OMS II, Sarah Zastrow, RN, Deborah Loer, PhD, Nicole Cook, PhD</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Normative Values for Inter-Hand Tissue Dielectric Constant Ratios with Possible Applications in Post Mastectomy Lymphedema</td>
<td>94</td>
</tr>
<tr>
<td>Evelina Arzanova, OMS-II, Samar Eisa, OMS-II, Scarlett Somarriba, OMS-II, Harvey N. Mayrovitz, Ph.D.,</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
<tr>
<td>Correlation between abnormal pap smears and CD4 counts in women with HIV</td>
<td>95</td>
</tr>
<tr>
<td>Jamie Bolduc, PGY-1, Elizabeth Phillipe, MD, Divy Mehra (M2 DO student), Nicole Cook, PhD</td>
<td></td>
</tr>
<tr>
<td>Family Medicine Residency Program, Community Health of South Florida, Inc.</td>
<td></td>
</tr>
<tr>
<td>Assessing Knowledge of HIV Post Exposure Prophylaxis Protocol Among Healthcare Workers</td>
<td>96</td>
</tr>
<tr>
<td>Eric Copell MD, Pavel Antonov MD, Tony Zitek MD, Antoinette Golden MD</td>
<td></td>
</tr>
<tr>
<td>Emergency Medicine Residency Program, Kendall Regional Medical Center</td>
<td></td>
</tr>
<tr>
<td>External Demands of Manual Wheelchair Propulsion</td>
<td>96</td>
</tr>
<tr>
<td>Barbara Dominguez, Rachel Cowan</td>
<td></td>
</tr>
<tr>
<td>Nova Southeastern University, Dr. Kiran Patel College of Osteopathic Medicine</td>
<td></td>
</tr>
</tbody>
</table>
Anti-Tuberculosis Infection Treatment Using Direct Observed Therapy and Evaluation (ANTIDOTE) Project

Peter Edemekong MD, MPH, PGY-3; Manuel Lorenzo Hurtado, Ryan Burke MPH; Wanda Frazier MPH, Giselle Bedasse MSPH; Robert Parkes MD, MPH, Alina Alonso MD
Preventive Medicine Fellowship Program, Nova Southeastern University College of Osteopathic Medicine

Physiological Effects of Eccrine Gland Activation on Skin Tissue Dielectric Constant

Benjamin Eisenman, OSM-II, Harvey N. Mayrovitz, PhD, College of Medical Sciences
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Robotic Transhiatal Esophagectomy: THE only approach

Vladimir Faustin, OMS-II, MS; M.D. Gonzalez; Michelle Demory Beckler, PhD; A.S. Rosemurgy, M.D.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

The Relationship between Cognitive Work Load and a Power Ratio of Frontal Theta over Parietal Alpha Brain Waves

Alex Fleischhacker, M2; Tyler Seidman, M4; Raymond Ownby, MD,
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Skin Tissue Dielectric Constant of Women Participating in a Weight Loss Program

Jessica Forbes OMS-II, Aditi Vemuri OMS-II, Harvey Mayrovitz PhD,
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Transcutaneous Electrical Nerve Stimulation (TENS) for back pain in the ED

Daniel Gable; Clay Ritchey, MD; Jason Wilson, MD, MA, FAAEM
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Barriers and Motivating Factors Associated with Volunteering at Local Free Clinics

Ronak Gandhi OMS-III, Vishal Patel OMS-III, Dr. Brian McDaniel, MD, Dr. Nancy Hardt, MD
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Relationship between Sleep quality and Pain in female patients with Myalgic Encephalomyelitis (ME)/Chronic Fatigue Syndrome (CFS)

George-Palop MD, Monica Varona Berdhal MD, Aurelio Sanchez Artilles MD, Angel E; Fuentes MD, Sadys ; Ruiz-Conejo MD, Marice Internal Medicine Residency Program, Palmetto General Hospital

Prevention of HIV and HCV Infection in Persons with Severe Mental Health Disorders

Sindhura Kompella, M.D Clara Alvarez, M.D Karl Goodkin, M.D Steven Kendell M.D
Psychiatry Residency Program, Aventura Hospital and Medical Center

Normative Lower-to-Upper Limb Tissue Dielectric Constant Ratios with Possible Application to Lower Extremity Edema

Maria Labra, OMS II, Glenda Abreu, OMS III, Harvey N. Mayrovitz, Ph.D.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Attachment style as a framework to understand osteopathic medical student’s confidence discussing weight management with patients

Farah Leclercq OMS III, Patrick Hardigan PhD, Isa Fernandez PhD
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Get It Right the First Time, Measure Twice, or Third Time’s a Charm? Single vs. Multiple Tissue Dielectric Constant (TDC) Measurements

Alexander Mikulka, M.B.S., OMS-I, Don Woody, M.B.S., OMS-I
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Stress reduction and coping strategies in relation to personality types among adolescents

Alokika Patel, M1; Eden Hebron; Todd Keitz; Nicole Cook, PhD, MPA
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

An Overview of STD Rates in Broward County’s Geriatric Population

Milee Patel OMS-III, John Wang OMS-III, Naushira Pandya M.D., CMD, FACP
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine

Identified Single Nucleotide Polymorphisms (SNPs) Trends and the Associated Metabolic Pathways in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome Patients: A Pilot Study

Melanie Perez, Rajeev Jaundoo, Kelly Hilton, Pallavi Samudrala, Mary Ann Fletcher, Nancy G. Klimas' Travis J.A. Craddock, Lubov Nathanson
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine,

Usage of Florida’s Prescription Drug Monitoring Program by Behavioral Health Providers

James Pfeifer, D.O., Nicole Cook, PhD, MPA,
Psychiatry Program, Community Health of South Florida, Inc
Understanding School Safety Concerns among Parents in Broward County, Florida
Shivanie Ramdin, OMS-I, M.P.H., Nicole Cook, Ph.D., M.P.A., Maria Montoya, Ph. D., M.P.H.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

The Impact of Parents’ Nutritional Knowledge on Preschool Age Children’s BMI
Nicole E. Salach OMS IV, Julian J. Zorrilla DO, Kiara Jennings OMS IV, Lauren Olsen- Harrichi OMS III, & Patrick Hardigan PhD
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Analysis of How Common Opioids are Prescribed within the CHI Community of South Miami as First Line Therapy to Chronic Pain Patients.
Schisani, Holly D.O. PGY-2; Lyon, Jacob D.O. PGY-2; Redwood, Abiona M.D.; Shaykut, Saad
Family Medicine Residency Program, Community Health of South Florida, Inc.

Hip Range of Motion: Which plane of motion is more predictive of Lower Extremity injury in Elite Soccer Players? A Prospective Study
Aalok S. Shah, OMS III, Sarav S. Shah, MD ; Edward J. Testa, BS ; Isaac Gammal, MD , Joseph Sullivan, PT, OCS ; Roger W. Gerland, MSPT, ATC ; Jeffrey Goldstein, MD ; Brian Sheridan, PT ; Michael Mashura, MD ; Andrew Goodwillie, MD ; Randy M. Cohn, MD
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Michael B. Taylor, PGY-3, Tamara Wright, M.D.
Family Medicine Residency Program, Community Health of South Florida, Inc

Children’s Wellness Program: Enhancing Educational Attainment through Improved School Health
Gabriela Teixeira, OMS-III, Danielle Gilbert, BA , Christina Baxter, OMS-IV, Marie Florent-Carre, DO, MPH, Nicole Cook, PhD
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Development of an Innovative Population Based Pediatric Cancer Registry in Rwanda
Jenny Tran, OMS II, Cyril Blavo, DO, MPH & TM, Fidel Rubagumya, MD, Samantha Spencer, B.S.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

I-Angiotensin 1-7 Protection From Enzymatic Degradation in Mas Receptor Binding Assays.
Jason Vadhan, OMS-II; Filipe Fernandes Stoyell-Conti, Ph.D; Hanna Stewart,H.S., Sarin Itty, Christy Abraham, Joseph Puthenthayaril, Marina Youssef, Mahnoor Asif, Robert Speth, Ph.D., FAAAS
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

Where Comfort and Confidence Diverge: Missed Opportunities for Sexual and Gender Minority Competency in Osteopathic Education
Elizabeth Weirich, OMS-III, Alexandra Lenox, OMS-III Nickolas Schenck-Smith, OMS-I, Hammad Sheikh, OMS-I, David Boesler, DO
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine

“Assessing Prevalence of Vitamin B 12 Testing Among Patients on Chronic Metformin”
Jheannel White, MD; Kelly Mudon, DO; Elizabeth Philippe, MD, MPH; Edgard Nunez, MD; Tamara Wright, MD; Kaydean Brown, MPH; Nicole Cook, PHD, MPA
Family Medicine Residency Program, Community Health Of South Florida, Inc,
Title: Pulmonary Cryptococcosis in an Immunocompromised Patient

Authors: Zahava Alishaev, Daniel Ricci, Pedro Rabionet, M.D., Nova Southeastern University College of Osteopathic Medicine
Department of Pathology, Bethesda Memorial Hospital East

Introduction: Cryptococcus neoformans is an opportunistic fungus well known for infecting immunocompromised patients. It remains a major cause of morbidity and mortality in AIDS patients [1]. The preponderance of cryptococcal infections can be explained by the increased effectiveness of cryptococcal virulence in patients with immunocompromised states.

Case Description: This is a case of a 41-year-old Haitian female with a past medical history of HIV, who presented to her primary care physician after many years of being lost to follow up, with complaints of weight loss, poor appetite, headache, and neck pain. She reported that she was not taking any retroviral medications. Her initial bloodwork at that time showed a CD4 count of 50 cells/mm³ and significant viremia. Patient was admitted to the hospital, where CSF and serum antigens were positive for cryptococcus. Treatment with Amphotericin B and flucytosine for cryptococcal meningitis. She was discharged from the hospital several weeks later after negative CSF cultures.

Three weeks after discharge, she returned to her primary care physician with complaints of headache and neck pain. A repeat CSF culture showed a return of cryptococcal meningitis and she was readmitted to the hospital for treatment. Repeat CD4 count was 15 cells/mm³, MRI of the brain demonstrated diffuse ependymal enhancement with nodularity, suggesting CMV ventriculitis. Further investigation revealed a 1.5x1.7cm cavitory lesion in her left lower lobe on chest CT that was not present on her first admission. The patient had no pulmonary complaints. Subsequent CT guided lung biopsy was positive for cryptococcus and acid-fast bacilli. A follow up PCR of the biopsied sample was negative for mycobacterial infection. She continued treatment inpatient with Amphotericin B and flucytosine for cryptococcal meningitis, Valgancyclovir for suspected CMV ventriculitis, and prophylaxis for opportunistic infections with TMP-SMX and Azithromycin. Thus far, the patient appears to have tolerated the regimen well and has not had any further hospital readmissions.

Discussion: This case illustrates that patients with severely immunocompromised states may not always exhibit symptoms for each organ system that may be infected. Improper inflammatory responses against cryptococcosis among AIDS patients hinders granulomatous formation due to insufficient immunologic mediators. In effect, cryptococcal organisms have increased access to the host’s iron stores allowing for a more favorable condition to express virulence and facilitate invasion [3]. Increased cryptococcal antigen titers found in the serum or CSF hinders the host’s immune response, further decreasing therapeutic responses to Amphotericin and Flucytosine [6]. As demonstrated in this case, strict precautions must be taken when managing minimally symptomatic or asymptomatic immunocompromised patients to ensure prompt treatment. In similar immunocompromised patients, it would also be helpful for the clinician to broaden the investigation to search for other sources of infection that have yet to declare themselves.
Title: Pulmonary Amyloid Complicating Asbestos Related Lung Disease

Authors: Patricia Almeida, D.O., Hutch Stilgenbauer, M.D., Raiko Diaz, D.O., James B. Gleason, M.D.  
Pulmonary Disease and Critical Care Fellowship, Aventura Hospital and Medical Center

Introduction: Pulmonary amyloid is usually the result of systemic amyloidosis and is typically manifested as amyloid deposits within the pulmonary vasculature. We present the case of an 85 year old male with underlying asbestos related lung disease that was complicated by the uncommon finding of parenchymal amyloidosis.

Case Description: An 85 year old Caucasian male presented with a seven year history of dyspnea on exertion, nonproductive cough, and weight loss of 30 pounds. He recently started requiring supplemental oxygen at night. He had asbestos exposure about 60 years ago. Other past medical history included atrial fibrillation and hypertension. He had a one pack year smoking history over 60 years ago.

Physical exam was notable for thin habitus, bibasilar inspiratory crackles, and mild pretilial edema. Complete blood count and chemistry panel were unremarkable. Serum protein electrophoresis showed an M-spike and urine protein electrophoresis showed IgG in the urine.

Pulmonary function tests were notable for a restrictive pattern, with decreased DLCO and TLC. Transthoracic echocardiogram revealed a preserved ejection fraction and myocardium with a speckled pattern. Chest CT revealed calcified pleural plaques and extensive interstitial changes consistent with pulmonary fibrosis. Multiple lung nodules were visualized, the largest of which was in the right middle lobe (RML) and was spiculated in appearance. PET scan showed three pulmonary nodules, but only the one located in the RML showed hypermetabolic activity.

The patient underwent VATS and RML tissue biopsy. Pathology revealed multiple giant cells and granulomas in a background of amyloid deposition, confirmed by Congo Red stain.

Discussion: Our patient represents a case of pulmonary asbestosis with the incidental finding of a suspicious pulmonary nodule, which clued us into a separate systemic disorder. This serves to elucidate a possible clinical correlation between pulmonary asbestosis and pulmonary amyloidosis.

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Title: Cauda Equina Syndrome, a Tale of the Prostate

Authors: Annabelle Alvarez, OMS-4, MPH., Mokhtar Radwan, D.O., PGY-1  
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine, Palmetto General Hospital

Introduction: Cauda equina syndrome is a surgical emergency associated with large space-occupying lesions affecting the lumbosacral nerve roots. Prompt diagnosis and treatment are crucial as neurological deficits can become permanent, making it equally as important to find the cause. Prostate cancer is the second most common cancer in men worldwide. The most common site of prostatic metastasis is bone, which cause pain, functional impairment, and severe complications such as pathologic fractures and epidural spinal cord compression.

Case Description: The patient is a 53 y.o. Male with past medical history of chronic low back pain, and L4-L5 herniated disc presented to the hospital for evaluation after a 2-month history of gradually worsening low back pain. He reported bilateral patchy radicular numbness, paresthesias, progressive proximal and distal flaccid leg weakness, recent perirectal/testicular numbness, constipation, and urinary retention. The patient’s back pain improved under chiropractic treatment, until one particular session where his back pain got worse. He started to walk with a cane then a walker, and becoming concerned when he could not longer hold himself up. Acute urinary retention prompted his emergency department visit. An MRI of the lumbar spine found a 4.3 cm enhancing mass in the left T11 vertebral body into the left pedicle and lamina causing severe spinal and neuroforaminal stenosis, as well as a 2.2 cm enhancing lesion in the right inferior endplate of L3 causing right neural foraminal stenosis. Posterior decompressive thoracic laminectomies of T10-T11 and T12 for removal of extradural spinal neoplasm and spinal cord decompression were performed. PSA level was >1,000 ng/mL. The suspicion of prostatic origin was confirmed by immunohistochemical stains on pathology; the patient had metastatic adenocarcinoma, diffusely involving the majority of the tissues excised.

Discussion: Prostate cancer has a strong correlation to age, rapidly increasing after age 40. The use of serum prostate-specific antigen (PSA) for screening has increased the frequency of prostate cancer diagnosis worldwide. There are conditions such as benign prostate hypertrophy and prostateitis, which can cause false elevations in PSA. Nonetheless, it is important to pursue preventive measures in regards to prostate cancer. The incidence of metastases to the bone is high in advanced prostate cancer, with a significantly negative impact on functional status and quality of life. Thus, it is vital to pursue better understanding of the mechanism connecting bone metastases with prostate cancer as it could lead the way to new targeted therapies.

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Title: The Boy Who Cried Wolff- An Isolated Case Of Wolff-Parkinson-White Syndrome

Authors: Lillian Alvarez, TY-1; Nicole Cohen, PGY3, Zachary Smith, MS3; Julio Mercado, MD  
Transitional Year Program, Kendall Regional Medical Center
Introduction: Wolff-Parkinson-White (WPW) syndrome is a rare condition characterized by a symptomatic arrhythmia induced by an accessory conduction pathway that bypasses the Atrioventricular node with the presence of a uniquely identifiable pattern on electrocardiogram. The accessory pathway is due to a congenital defect that can be found at any point along the atrioventricular ring or interventricular septum. The resulting pathological conduction demonstrates distinctive electrocardiography, containing a short PR interval, widened QRS, any may also demonstrate pathognomonic delta waves. WPW syndrome requires urgent diagnosis and therapeutic intervention to mitigate the risk of life-threatening arrhythmias.

Case Description: A twenty-year-old Hispanic male without any significant past medical history presents to the emergency room after experiencing a witnessed syncopal episode at home. Patient reports that he woke up that morning with palpitations, weakness, and lightheadedness. He describes similar episodic symptoms over the past five years. Patient denied any significant family history of arrhythmias or sudden cardiac death. Physical examination was negative for acute pathology. EKG upon arrival showed normal sinus rhythm with sinus arrhythmia and delta waves, suggestive of Wolff-Parkinson-White syndrome. Because of his symptoms, the patient underwent electrophysiology study with radiofrequency ablation and transseptal right and left cardiac catheterization. After the procedure, the patient was in sinus rhythm. Initiated treatment with aspirin 325 mg PO daily for one month after ablation and was discharged, hemodynamically stable, after close monitoring and observation overnight. Patient was advised to avoid beta blockers and calcium channel blockers.

Discussion: This case exhibits an example of a fairly infrequent condition that occurs in less than 1% of the general population, an uncommon symptomatic WPW syndrome in a young patient otherwise healthy. This case stresses the importance of having a low threshold for evaluating young patients with syncopal episodes or palpitations since WPW can often present with vague symptoms. Syncope is concerning in a patient with Wolff-Parkinson-White syndrome, as it is associated with increased risk of sudden cardiac death. Electrophysiologic studies and other noninvasive tests are used to identify patients at greatest risk. Fortunately, the incidence of sudden cardiac death in patients with WPW syndrome is quite low.

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Title: Incidental Finding of Completely Porcelain Gallbladder


Introduction: Although Gallbladder cancer (GBC) is the fifth most common neoplasm of the gastrointestinal tract and the most common cancer of the biliary tree, its worldwide incidence is less than 2/100,000 making it an orphan disease with minimal research efforts in the United States. GBC is an extremely aggressive cancer with a mean survival of six months. The disease progresses rapidly and is rarely diagnosed in its earlier stages, which may contribute to its poor prognosis. Several risk factors have been found to be associated with its development such as porcelain gallbladder, gallstones, female gender, obesity, choledochal cysts, gall bladder polyps, old age, and environmental factors. Specifically, porcelain gallbladder is a rare manifestation of chronic cholecystitis characterized by intramural calcifications of the gallbladder wall. It is only detected in 0.06 to 0.08 percent of cholecystectomy specimens and recent literature suggests its risk malignancy to be approximately 2-8%. The association of porcelain gallbladder with adenocarcinoma entails special emphasis on timely diagnosis and prompt management.

Case/surgery Description: We present the case of a 69 year-old female who presented by referral from her primary care physician with a diagnosis of porcelain gallbladder. The patient had been in the hospital a few months earlier with diverticulitis. During her visit to the hospital she had an abdominal ultrasound which incidentally revealed that she had a partially porcelainized gallbladder. She then presented to our office to discuss treatment for her gallbladder. During her office visit she denied any recent weight loss or weight gain or changes to her appetite. She denied any jaundice/yellowing of her skin, or nausea/vomiting or any abdominal pain. Although she denied any current symptoms, the risk of cancer associated with a porcelain gallbladder was discussed and a cholecystectomy was scheduled. During the procedure, the gallbladder was found to be completely porcelainized and firm, so much so that it was not able to be grasped with a laparoscopic grasper. Due to this unexpected presentation and the risk of extensive gallbladder cancer, photographs were taken and it was decided that a conservative approach should be taken and she would be referred to a hepatobiliary surgeon with the pictures for further treatment.

Discussion: Being the incidence of porcelain gallbladder and gallbladder cancer are very rare occurrences, this patient provides a great opportunity to discuss what the literature reveals in regards to the pathophysiology and management of such a presentation. Porcelain gallbladder refers to the condition in which the inner gallbladder wall is encrusted with calcium. The wall becomes brittle, hard and often takes on a bluish hue. Although the pathogenesis of porcelain gallbladder is debated, it has been found that more than 95% of cases are associated with cholelithiasis. Two theories are accepted that seek to explain the development of porcelain gallbladder from cholelithiasis. Varying degrees of calcification may determine the proper course of action when dealing with patients but the risk of cancer dictates that a cholecystectomy is necessary. In patients who present with completely calcified gallbladders down to the gallbladder neck, as seen in our patient, the treatment of choice should be referral to a specialized hepatobiliary surgeon. A specialist is needed to perform an open gallbladder removal as well as a partial liver resection.

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Title: Stevens-Johnson Syndrome Secondary to Mycoplasma Pneumoniae infection in a 4 year old male

Authors: Nicholas Arcos, D.O., PGY-III, M.B.A, Janet Kowalski, M.D., Gee Yoon Suzie Park, OMS-IV, NSU-KPCOM

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Introduction: Stevens-Johnson syndrome (SJS), along with toxic epidermal necrolysis (TEN), represents a continuum of mucocutaneous disease in which epidermal detachment and necrosis occurs. Although a rare disease affecting approximately one in two million people, the mortality rate may be as high as 10% for SJS and as high as 50% for TEN. Prompt suspicion of SJS is therefore critical to preventing mortality. Most cases of SJS occur...
as a reaction to medication. However, in this case report, an unusual case of SJS in a pediatric patient secondary to infection with *Mycoplasma pneumoniae* is discussed.

**Case presentation:** A 4 year old male was brought to the ER by his mother with complaint of intermittent fever, cough, and rhinorrhea with subsequent development of perioral lesions and eye redness.

In the ER, initial vital signs revealed an afibrile patient (99.9°F) with heart rate of 144, respiratory rate of 30, blood pressure of 129/78 mmHg, and oxygen saturation of 97% on room air. He did not appear in acute distress. HEENT examination revealed bilateral conjunctivitis, cracked and inflamed lips, and stomatitis. Lungs were clear to auscultation bilaterally and heart rate was regular with no murmurs. Skin examination noted multiple erythematous, maculopapular lesions affecting both the torso and extremities with some lesions appearing targetoid. Genitourinary examination noted peeling of the glans penis. Labs in the ER noted leukocytosis with an elevated C-reactive protein. Upon admission, he was started on acyclovir for potential herpes simplex and coxsackie virus infection and placed on multiple antibiotics for a suspected secondary skin infection. Initial blood, urine, and wound cultures showed no growth. However, the patient remained intermittently febrile with maximum temperature of 103.9°F and also developed an increasing amount of target lesions. A diagnosis of SJS was made and the patient received a single dose of IVIG after which his fever, mucosal lesions, and conjunctivitis gradually resolved. IgM antibodies for *Mycoplasma pneumoniae* later returned positive. After 10 days in the hospital, he was discharged and referred to ophthalmology, urology, and immunology for further evaluation.

**Discussion:** This case illustrates the importance of early suspicion and prompt diagnosis of SJS in preventing mortality.

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**Title:** Intact Neurological Function after Prolonged Submersion Injury in a Toddler Patient

**Authors:** Ramsey Ataya, MD, PGY-2, Daniel Sirovich, PGY-3, Daniela Valenzuela, PGY-2, Kent Martin, PGY-3

**Introduction:** Submersion injuries are one of the leading causes of accidental death and neurologic dysfunction in children worldwide, particularly those who present in cardiac arrest. Risk factors for drowning include those younger than 14 years of age, rural residency, and lack of supervision. Studies suggest that early recognition and interventions are key in not only resuscitation, but neurological outcomes as well. The Pediatric Risk of Mortality (PRISM) score has been used in critical care settings to calculate expected mortality and morbidity risk.

**Case Description:** We describe the case of a 2-year-old female who not only survived submersion for 11 minutes, had a cardiac arrest with findings suggestive of cerebral edema, Acute Respiratory Distress Syndrome (ARDS), Acute Kidney Injury (AKI), Disseminated Intravascular Coagulopathy (DIC) and a PRISM score inferring a mortality rate of 63%, but recovered with intact baseline neurologic function.

**Discussion:** This case is an exception to the generally observed trend, with many experiencing significant morbidity, mortality and permanent neurological deficits following short submersion times. In addition to ensuring safeguards to prevent such injuries, prompt recognition and aggressive resuscitation are key in maximizing survival chance and neurologic recovery.

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**Title:** Acute Limb Ischemia Associated with Daily Cannabis Use

**Authors:** Isaac Azar, MD, PGY3 Resident Emergency Medicine Program
Laurence Dubensky, MD, FACEP, Director of Medical Education, Emergency Medicine Program, Aventura Hospital and Medical Center Department of Emergency Medicine

**Introduction:** This is the case of a healthy 39-year-old-female, daily marijuana only smoker, with repeated events of acute limb ischemia.

**Background:** Since the 1960’s there has been case reports of Cannabis Arteritis in chronic marijuana user, most or all reported in Europe and Africa. Cannabis Arteritis is a rare peripheral vascular disease similar to Thromboangiitis Obliterans, Buerger’s Disease, seen in patient with daily marijuana use. Cannabis is the most consumed psychoactive drug by young people. Currently over 50% of the states in the United States of America have legalized the use of medical marijuana, and 9 states have legalized recreational use of marijuana. Worldwide, 21 countries have legalized or decriminalized the medical and/or recreational use of cannabis.

**Case Description:** We present the case of a 39-year-old female, with past medical history of acute limb ischemia, secondary to vessel occlusion of the right lower extremity - status post bypass procedure, as well as thrombectomy, and thrombolysis - of unknown etiology, after thorough rheumatological and hematological investigation - who presented to the Emergency Department, as a transfer from an Urgent Care facility, for evaluation of left arm, forearm, hand, and finger pain, paresthesia and cold fingers. Patient’s acute onset of left upper extremity symptoms started around 11 AM the day of presentation to urgent care. Patient reported taking Bayer aspirin when pain started prior to going to the Urgent Care. Patient denied any traumatic injury. Patient was examined with Doppler US in Urgent Care, placed on a heparin drip and transfer to our hospital for further care. Upon presentation in our Emergency Department around 5PM, patient complained of extreme pain, 10 out of 10, of the left upper extremity, severe and sharp in nature. Patient was in significant, severe distress. Patient also endorsed numbness of the left hand, and inability to use the left hand and digits. Patient was immediately examined by ED Provider, Vascular Surgery and Interventional Radiology providers.

**Focused Physical Exam:** Left Upper Extremity: Coolness, pallor, motting of the left upper extremity from the mid upper extremity distally was noted. No palpable pulses without and with doppler from the mid to proximal humeral area appreciated. No movement of the hand, area was minimally anesthetic to light touch. All compartments were soft.
Infection is an important risk factor for mortality and morbidity. As an ex

immune status, the site of infection, the presence or absence of early diagnosis, and early initiation of 
etiologies that cannot be overlooked. The mortality associated with Listeria infection is highly variable, being dete

Introduction: Intra-arterial thrombectomy was performed for revascularization of the left distal axillary / proximal brachial artery, and patient was transferred to the Intensive Care Unit.

Outcome: The patient’s hospital course was further complicated by an ischemic embolic treated by Neurointerventional Radiology. Patient remained in the intensive care unit, for a few weeks, until she was discharged to a rehabilitation facility for continued therapy for her neurological deficits.

Discussion: To our knowledge this is the first reported case in the United States of recurrent acute ischemia of multiple limbs, without a known rheumatological/hematological etiology, associated with the daily use of cannabis. This case shows prolonged use of cannabis could have long term effects in the vascular system and be a risk factor for Arteritis leading to acute ischemic events. Faced with the current medico legal environment where decriminalization and legalization of marijuana is more prevalent, it is worthwhile to keep cannabis use as a risk for vasculopathies leading to acute ischemia, especially in younger users.

Title: A Clogged Heart can be a Broken Heart Too – A Rare Case of Reversible ACS due to Takotsubo’s Cardiomyopathy in the Presence of Mild Ischemia.

Authors: Jilla Azarbal, MD MPH MBA, Gustavo Vargas, MD MBA; Rajesh Tota-Maharaj, MBBS FACP FACC.
Internal Medicine Residency Program, Kendall Regional Medical Center.

Introduction: Stress Cardiomyopathy is universally accepted to be a transient regional systolic dysfunction of the left ventricle, presenting as acute coronary syndrome, in the absence of obstructive coronary artery disease.

Case Presentation: A 71-year-old Latin female with a past medical history significant for hypertension, and lung cancer in 2014, for which she is status post resection and radiation, presented to the emergency room with a chief complaint of shortness of breath. The shortness of breath was of recent onset, and was associated with a productive cough. The patient reported a vague history of having had an episode of chest pain two weeks prior. Admission labs included a maximum troponin level of 1.930, and a brain-natriuretic peptide level of 2192. The patient was admitted to the ICU with cardiogenic shock, secondary to an NSTEMI, and acute decompensated heart failure likely secondary to community acquired pneumonia. A cardiology consult was placed. The patient was taken for cardiac catheterization of the left heart one day after admission. Catheterization revealed a left anterior descending artery with thirty percent stenosis at the mid-LAD, a left circumflex artery with thirty percent proximal circumflex stenosis, and a right coronary artery with fifty percent proximal RCA stenosis and 60-70% mid-RCA. The left ventricular ejection fraction during the catheterization was estimated at 25-30%, with notable mid-distal inferior, apical, and mid-distal anterior hypokinesis, and acute systolic congestive heart failure. Upon further history taking, the patient revealed that she was depressed over multiple deaths in her family. Treatment began with dual-antiplatelet therapy and statin, and progressed to include an ACE inhibitor and beta-blockers at maximum tolerated doses. The patient was transferred from the ICU to a telemetry room after her cardiac catheterization, and had a great improvement in her symptoms. She was discharged home.

Discussion: In this clinical vignette, although the patient did have CAD, the location and severity of her stenosis did not account for the severity of her regional wall motion abnormalities. The patient had concomitant ischemic “stress” cardiomyopathy in the presence of CAD. Stress cardiomyopathy is a syndrome where the heart is stunned, it is characterized by transient regional systolic dysfunction of the left ventricle, mimicking myocardial infarction, but in the absence of angiographic evidence of obstructive CAD or acute plaque rupture. Known triggers include emotional or physical stress. A diagnosis of stress cardiomyopathy generally requires an EKG, cardiac troponin levels, coronary angiography, and serial assessment of LV systolic function. Stress cardiomyopathy is generally a transient disorder that is managed with supportive therapy. The prognosis is overall good, with most patients recovering.

The clinical significance of this is that patients can have reversibility of acute coronary syndrome symptoms in the presence of underlying mild ischemic disease with overlying stress cardiomyopathy.

Title: Seizure and Pregnancy: A Case of Third Trimester Seizure With Hypotension

Authors: Spencer E. Barela, M.D., Amanda Haan, M.D., Isabel Brea, M.D.
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Introduction: New onset seizure in the pregnant population brings with it a broad differential. The global culture of South Florida has a unique set of etiologies that cannot be overlooked. The mortality associated with Listeria infection is highly variable, being determined by the patients underlying immune status, the site of infection, the presence or absence of early diagnosis, and early initiation of appropriate therapy when indicated. CNS infection is an important risk factor for mortality and morbidity. As an example, patients with meningoencephalitis or rhabdomecephalitis in different
**Title:** Cervical spine Cord Infarct: A 56-year-old male with incomplete quadriplegia  

**Authors:** Batista A, Forteza A, Checo R, Gascon J, Gonzalez D, Capote R  
Kendall Regional Medical Center

**Introduction:** Spinal cord infarctions occur rarely and represent 1 percent of all strokes in United States which range from 540,000 to 780,000 per year. Extrapolating the data: 5000 to 8000 cases occur per year. In two thirds of cases, the anterior spinal artery is affected. Numerous conditions can be responsible and need to be ruled out in the immediate event, even so, one third of cases have no identifiable cause.

**Case Description:** In our case, a 56 yo latino M without significant PMH was brought to ER by a friend after he fell to the ground due to sudden weakness in upper and lower extremities. Before his friend founded him, he stayed in the ground unobserved overnight. He had weakness and pins and needles sensation in upper and lower extremities more prominent in the latest. On physical exam he had fasciculations on lower extremities, quadripareisis: flaccid on upper extremities and spastic in lower extremities Patellar bilateral DTR +3, no clonus, no Babinski sign, bilateral bicipital DTR -1, no sensitive deficit on thorax. Toxicology screen was negative for EtOH, aspirin or acetaminophen intoxication. Basic metabolic panel revealed mildly elevated transaminases and low albumin. Creatine kinase were high (459). CBC showed elevated WBC and platelet count.

Serology markers for HIV, Herpes virus, Lyme disease were negative, same as immunological panel, spinal tap, CSF smear and culture, AFB smear and culture, JAK2 & MPL Mutation, urinalysis and C. diff. CTA Chest/Abdomen and Transesophageal echocardiogram were both negative. Finally, MRI cervical spine showed characteristic "owl eye" appearance typically seen with cord infarction. The first differential diagnosis considered by our team was transverse myelitis, but the spinal tap was normal.

**Discussion:** Anterior spinal cord infarction was high in the list of differential diagnosis; however, important pieces were missing: no pain, no urinary incontinence or retention or fecal incontinence, no respiratory distress (relevant in this case because of the cervical location), suggesting that infarction in the territory of anterior spinal artery adjacent to cervical area can miss cardinal symptoms.

High index of suspicion is necessary to arrive a final diagnosis and treat potential reversible causes.

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**Title:** A Case of Mollaret's Meningitis in a woman of early adulthood  

**Authors:** Arian Bethencourt Mirabal, MD; Parth R Parikh, MD; Jose Barros, M.D; Abraham M.D, Robert Hernandez, MD; Gina Domingo M.D. Internal Medicine Department at Kendall Regional Medical Center

**Introduction:** Mollaret's meningitis (MM) is a rare disease of benign nature characterized by recurrent self-limited episodes of aseptic meningitis. Cerebrospinal fluid (CSF) examination remains the sole diagnostic modality, Viral culture of the CSF is sometimes positive, but it may also be negative, especially in cases of recurrent disease (1) The first episode of Herpes simplex virus meningitis usually develops within 2 weeks following symptomatic or asymptomatic primary genital HSV-2 infection. HSV-2 meningitis is more common in women than in men, with a reported incidence of 36% in women and 13% of men among patients with primary genital HSV-2 infection. After a first episode of HSV-2 meningitis, the incidence of recurrent meningitis varies between studies but is around 30%. (2) Viral reactivation occurs frequently and is induced by events such as hormonal changes, stress, or other diseases. (3) We report a case of Mollaret's meningitis that went undiagnosed for several years, we encountered recently and review the pertinent literature.
Case Description: Patient is a 39 year old Hispanic female who was admitted to Kendall Regional Medical Center due to generalized headache that radiated to the spine and back for 5 days. Pain was associated with nausea and chills. Patient stated walking made the pain worse and it was somewhat managed with ibuprofen. On arrival to the Emergency department, CBC and CMP were within normal limits. CT scan brain showed no acute abnormality. CSF analysis showed elevated lymphocytes, protein and low glucose. Patient was initially treated for bacterial and viral meningitis with IV ceftriaxone and IV acyclovir. CSF cultures showed no bacterial growth after which ceftriaxone was discontinued. Blood culture, HIV and hepatitis panel were negative. IV acyclovir was continued and later switched to oral valacyclovir once her condition improved.

On June 2018 patient returned to our emergency department complaining of bilateral headache more pronounced in the frontal and occipital area that had gradually worsening for the last 4 days. Patient described her migraine headaches different from this headache episode. Associated symptoms included chills, photophobia, arthralgia more prominent in the lower extremities and neck pain. Physical exam was unremarkable except neck stiffness with positive Kernig and Brudzinski signs. On labs WBC was within normal limits. Imaging revealed a normal non-contrast computed tomographic scan (CT) of the head. Examination of the CSF showed clear and colorless fluid. RBC 16 cells/μL, total nucleated cells 318 cells/μL, 6% neutrophils. 94% lymphocytes, a glucose of 47 mg/dL and a total protein of 139 mg/dL. The patient’s CSF culture exhibited no growth. HSV type 1 and HSV type 2 polymerase chain reaction (PCR) was positive. Patient was treated with IV acyclovir since admission for 7 days. On the 6th day of hospitalization patient was headache free, neck stiffness resolved, afebrile, vitals signs stable and back to her normal state of health. Patient safely discharged home to complete antiviral therapy for 10 days. Patient was started on prophylactic valacyclovir 500 mg twice a day for 30 days to follow prophylaxis for 1 year was given to patient. She was also advised to take daily Vit C 1000-2000 mg.

Patient reported a history of Genital HSV, but has not had any flare in 5 years. Patient reported 4 previous episodes of viral meningitis, 3rd episode was 18 years ago, 4th as described on the December 2015 visit, and the current admission described above on June, being her 5th episode.

Conclusion: Recurrent headaches in early adulthood should have a high suspicious for HSV meningitis. Mollaret's meningitis is a rare form of idiopathic recurrent aseptic meningitis that has a sudden onset, short duration, and spontaneous remission with unpredictable recurrence. Detailed sexual history should be sought in all patients with aseptic meningitis, and clinicians should also ask about history of recurrent headaches in all patients with recurrent herpetic anogenital lesions. Early diagnosis may prevent prolonged hospital admission, unnecessary investigations and medication which comes at associated considerable cost. Continuous suppressive valacyclovir therapy may reduce the frequency and severity of attacks and can dramatically improve lifestyle.

Title: Kounis Syndrome with Takostubo Cardiomyopathy


Introduction: Kounis Syndrome (KS) was first described in 1991 by Kounis and Zarvas as an allergic reaction causing coronary spasm presenting as angina pectoris and may progress to an ST segment elevation myocardial infarction. Pathophysiologically, during an anaphylactic reaction degranulation of mast cells induced release of inflammatory mediators such as histamine, neutral proteases, arachidonic acid products, platelet activating factors and cytokines which may be responsible for dynamic changes at the vascular level site causing coronary artery spasm and/or atheromatous plaque erosion or rupture. The stressful environment created by inflammatory markers may induce a catecholamine surge causing a Takotsubo cardiomyopathy.

Case Description: A 93-year-old female with a known history of hypertension was treated with lisinopril was transferred to the hospital intubated from a cruise ship. That morning, the daughter noticed her mother having difficulty breathing while she was in the bathroom. She found her mother with stridor, blue face, yet still conscious. Medical services were called who took the patient to infirmary. She became agitated and intubated for airway protection. She was noted to have macroGLOSSIA and laryngeal edema which resulted in a traumatic intubation.

EKG revealed ST segment elevation in the anterior septal leads with reciprocal changes in the inferior leads. Troponin level was 3.15 ng/mL. She was treated with thrombolytics on the cruise ship. Cardiac catheterization at our center revealed the culprit lesion in the proximal left anterior descending artery confirmed by intravascular ultrasound imaging and a drug eluting stent was delivered. Left ventriculogram showed hyperdynamic contractility of the base of the heart, mid ventricular and apical wall hypokinesis with a ballooning appearance. Her marked hypotension responded to fluids, steroids and antihistamines. She was later transferred to her home town for continued care per request of the daughter.

Discussion: Reports have described Kounis syndrome in association with Takotsubo cardiomyopathy and coronary lesions as a result of catecholamine release induced by inflammatory mediators. Takotsubo cardiomyopathy is transient apical ballooning of left ventricle and it is characterized by a hyperkinetic base and hypokinetic apex and mid ventricle. Our patient experienced Kounis syndrome Type II in association with Takotsubo cardiomyopathy. Our goal is to increase awareness of this underdiagnosed syndrome.

Title: “Embolization of Bio-Alcamid Gluteal Injections in a Female Patient with Patent Foramen Ovale Leading to ARDS and Embolic Stroke”

Author: James Bolduc OMS-III, NSU KPCOM, Beshoy Abdalla OMS-III, NSU KPCOM, Mansoor Choudhry OMS-III , NSU KPCOM

Introduction: Bio-Alcamid is a non-FDA approved permanent dermal filler used mainly to treat a multitude of soft tissue defects, most commonly facial lipodystrophy and lipodystrophy, with extensive use in patients with HIV. Well known adverse effects of Bio-Alcamid have been documented in the literature including: granuloma formation at injection site, skin infections, abscess and painful inflammation. Embolization of Bio-Alcamid has not been reported in and likely represents a very rare complication.
**Case Presentation:** This case describes the use of Bio-Alcamid in gluteal injections for cosmetic purposes in an HIV-negative female without lipodystrophy who developed serious life-threatening complications. We present the case of a thirty-one-year-old female who presented with cough, dyspnea, hemoptysis, fever, and pleuritic chest pain several hours after receiving Bio-Alcamid gluteal injections. The patient’s symptoms progressed rapidly and within three days she developed acute respiratory failure requiring intubation with a chest x-ray consistent with acute respiratory distress syndrome (ARDS). At this time, a 2D echocardiogram revealed a patent foramen ovale (PFO) and severe pulmonary hypertension.

**Management and Outcome:** Throughout her stay in the ICU department the patient experienced a series of hypoxic events including bilateral pneumothoraces requiring chest tube placements. Five weeks after initial presentation to the emergency department, the patient demonstrates flaccid quadriparesis, is poorly responsive when sedation is held, and her CT scan of the brain showed multifocal infarcts involving bilateral cerebral hemispheres. CT of the abdomen reveal renal and splenic infarcts.

**Discussion:** This case study presents a rare complication of a nonbiodegradable dermal filler, Bio-Alcamid. Embolization of Bio-Alcamid has not been observed in the literature. However, the use of temporary fillers, namely hyaluronic acid, has been associated with embolization. The embolization of Bio-Alcamid resulting in ARDS is a radical manifestation not commonly observed in other cases of temporary dermal filler embolization. In the setting of a previously unknown PFO, the results were catastrophic for this patient resulting in multiple cortical infarcts and severe encephalopathy. The PFO seen in this patient complicated the clinical ramifications of embolization because it allowed for a paradoxical embolus to enter arterial circulation into the brain supply which further adds to the uniqueness of the case. In this case, it is not known how much Bio-Alcamid filler was used nor the exact location of the injections.

**Title:** Management of complications due to failed intraoperative intubation in a patient with severe scoliosis and hiatal hernia.

**Authors:** Johann P. Braithwaite OMS III, Simone Phang-Lyn OMS III, Neel Kapoor OMS III, Joshua Godur OMS III.
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**Introduction:** Failed endotracheal intubation has been associated with increased morbidity and mortality. Multiple failed intraoperative intubation attempts are rare and can become a medical emergency when combined with poor bag mask ventilation leading to hypoxia. Of 346,861 cases reviewed by Aziz et al., 1,427 cases (0.4%) involved initial attempt(s) at direct laryngoscopy followed by rescue intervention(s). In this report, we present a case of multiple failed attempts at intraoperative intubation due to severe anatomical constraints, and subsequent inpatient management.

**Case Description:** A 39-year-old male with severe scoliosis (cobb angle 60 degrees) and left sided hiatal hernia presented to the hospital for surgical removal of left frontal extra-cranial mass and right occipital mass, right lateral cathoplexy and lipofill of right temporal area. While in the operating room, multiple attempts at intubation with direct laryngoscopy were unsuccessful, followed by an unsuccessful attempt with video laryngoscopy (GlideScope). Code blue (cardiopulmonary arrest) was called when the patient became hypoxic and an emergency tracheostomy with ET tube placement was then performed. The patient was transferred to the ICU where Pulmonology was consulted and the ET tube was replaced with a more permanent tracheostomy tube. The patient was then mechanically ventilated and sedated due to concerns of possible latent brain swelling. Overnight, there were prolonged episodes of hypotension that required use of prn vasopressors. The day following the intraoperative complications, the patient experienced asymptomatic bradycardia that required telemetry and EKG monitoring. Vital signs normalized, and he was awake, alert and able to respond to questions by nodding. The patient was weaned off sedation and mechanical ventilation and was transferred from the ICU to the inpatient ward. Inpatient stay was complicated by dysphagia that required interval placement of a nasogastric tube for two days with removal after a barium swallow study negative for aspiration. After the feeding tube removal, the patient tolerated puree diet well, and progressed to oatmeal. However, overnight stay was complicated by hypertension requiring ACE inhibitor and calcium channel blocker. Subsequently, improvement of respiratory function, supplemental humidified oxygen was stopped and the patient passed an ambulatory walk test without episodes of oxygen desaturation. With the patient AAOx3, breathing room air and no issues with independent feeds, the decision was made for discharge from the hospital. Repeat surgery was scheduled for two weeks following discharge, and the patient was given instructions and resources for at home tracheostomy management.

**Discussion:** This case confirms and highlights the increased morbidity associated with the rare occurrence of failed intraoperative intubation.

**Title:** Subacute Miliary Tuberculosis

**Authors:** Stephanie Bratton, D.O., and Christine Tang, D.O., Pediatric Residency Program, PBCGME. Isaac Azar, M.D., Emergency Medicine Residency Program, Aventura Medical Center. Susan Shamaskin, D.O., Pediatrician

**Introduction:** Miliary Tuberculosis (TB) is a rare condition, resulting from the hematogenous spread of Mycobacterium tuberculosis. According to the World Health Organization, TB is the second leading cause of death worldwide, with 95% of cases occurring in developing countries. Several risk factors influence the incidence of TB, including the prevalence of HIV and limited access to healthcare. In the United States (US), the resurgence of TB in the 1980s correlated with the increasing incidence of HIV and poor community TB control. Since that time, the rate of TB has been declining due to increased screening and treatment of both HIV and TB, along with better community control of TB. The current largest contributing risk factor for TB in the US is being born in or traveling from a country with a high prevalence of TB. Because of this, consideration may be given to providing the tuberculin skin test at scheduled well child visits within these communities.

**Case Description:** We present a 16YO Hispanic female with a PMH of iron-deficiency anemia, complaining of a worsening cough, fatigue, and
weight loss for 3 months. The cough has been wet and productive of green sputum. The patient also had a 20-lb weight loss and amenorrhea for 6 months. She developed shortness of breath about 2 weeks prior to presentation. Patient denied any recent travel. Mom has been unable to take her to a doctor due to insurance issues. When the patient’s condition continued to worsen, Mom finally took her to Lakeside Medical Center.

At Lakeside, patient was febrile (T-102.8F), tachycardic (HR-158 bpm), tachypneic (RR-22 bpm), but sitting 96% on room air and not requiring supplemental oxygen. Chest XR reported "extensive bilateral nodular opacities, possible cavity lesion in right upper lung." Bloodwork showed leukocytosis (WBC 21k) with left shift (N 81%), and microcytic anemia (Hgb 8.2 g/dL). Patient was started on Ceftriaxone and Azithromycin, and transferred to Palms West Hospital for higher level of care. At Palms West, chest CT with IV contrast reported “extensive nodes and consolidations throughout the lungs with large cavity consolidations in the bilateral upper lobes and additional smaller cavity consolidation...most concerning for post primary tuberculosis.” CT of abdomen/pelvis with IV contrast reported “multiple masses along hepatic surface; multiple small calcified granulomas throughout the liver and spleen; calcified and cystic-appearing mass in right adnexa” Patient’s AFB spum smear and MTB complex PCR both resulted positive shortly after admission. Infectious Disease recommended Rifampin, Isoniazid, Pyrazinamide, Ethambutol in addition to Ceftriaxone and Levaquin. Patient continued to have intermittent fevers during hospitalization, but her clinical condition was improving steadily. She was eventually transferred to Jackson Memorial Children’s Hospital for rehabilitation with medical care. Patient received 65 days of RIPE therapy and 57 days of Solumedrol at Palms West Hospital prior to her transfer to Jackson Memorial.

Discussion: This case increases the attention and awareness for detecting and preventing TB in communities with poor access to healthcare.

Title: “A Quest for the Occult Primary Perpetrator”

Author: Jennifer Bustamante, DO, PGY III; Melissa Armas, DO, PGY III; Otto Marquez-Mendoza, MD; Luis Diaz-Rangel, MD; Palmetto General Hospital, Family Medicine Residency, Nova Southeastern University

Introduction: Neuroendocrine Neoplasms (NENs) of unknown origin are rare accounting for 0.84 cases per 100,000 people in 2000-2012.1,2 NEN most commonly arise from the lung, medullary thyroid cells, pancreas, and argentaffin cells of the gut. Identifying a NEN of unknown primary origin is a diagnosis of exclusion after comprehensive search for a primary tumor. They are categorized as either well-differentiated or poorly differentiated carcinoma, their biologic behavior differ significantly and it is important to distinguish the two for purposes of medical management.3 A subclass of NEN that comprise of extra-pulmonary small cell carcinoma are extremely rare resulting with a poor prognosis and median survival of 10 months.4

Case Description: We present a case of a 71-year-old Hispanic male who presented to Palmetto General Hospital with an initial complaint of diffuse abdominal pain and distention for 3 days. Symptoms were described as constant without radiation, crampy in nature, mild to moderate in intensity with associated symptoms of vomiting and diarrhea. He reported an extensive family history of cancer in both parents. He was a former 55 pack year smoker, quitting 7 years prior and denied alcohol or drug use.

Patient was admitted several times in a 2 month period. During the initial physical examination vitals were unremarkable except for a blood pressure of 155/61 mmHg. He was found to have decreased lung sounds bilaterally. Abdomen was protuberant, taut and non-tender to deep palpation later becoming diffusely tender to palpation with notable diffuse erythema.

Laboratory analysis showed mild normocytic anemia, without leukocytosis. Pertinent negative testing included CEA, PSA, AFP and C. Diff toxin. Fig 1 CT scan of the abdomen and pelvis with IV contrast showed a right 2.4 x 2 cm liver lobe nodular density medial to the gallbladder along with diffuse nodularity within adjacent mesentery with ascites suggestive of peritoneal carcinomatosis. Fig 2 CT chest without contrast was unremarkable. Patient underwent a staging laparoscopy with peritoneal biopsy. He also underwent several paracenteses totaling over 9 L of amber fluid. Fig 3 Peritoneal pathology report revealed omental malignant neoplasm indicative of poorly differentiated high grade (G3) neuroendocrine carcinoma suggestive of small cell of unknown primary. Immunohistochemistry staining of the great omentum revealed CD56+, but her clinical condition was improving steadily. She was eventually transferred to Jackson Memorial Children’s Hospital for rehabilitation with medical care. Patient received 65 days of RIPE therapy and 57 days of Solumedrol at Palms West Hospital prior to her transfer to Jackson Memorial.

Discussion: This case increases the attention and awareness for detecting and preventing TB in communities with poor access to healthcare.

Title: Case report of a patient with a past psychiatric history of treatment resistant depression along with relevant literature assessing the usage and efficacy of 5-Methyl Folate for treatment resistant depression

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Introduction: Treatment resistant depression is an extremely common obstacle in the clinical psychiatry setting. It is defined as major depressive episodes to do not respond to at least two trials of antidepressant monotherapy. For those patients unwilling or unable to tolerate other pharmacotherapy options or procedures, L-Methylfolate has been showed to be successful with reduction in baseline symptoms as an adjunctive
Erosive Pustular Dermatosis Arising in Two Sisters

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Introduction: Erosive pustular dermatosis (EPD) is a rare yet increasingly recognized non-neoplastic and noninfectious condition that presents with persistent crusting and erosive lesions with skin atrophy. Diagnosis, and therefore treatment, is often delayed as clinical findings are nonspecific and eventually leads to permanent scarring alopecia. While the etiology is poorly understood, EPD is believed to be an inflammatory response to skin trauma of the affected area. It is most commonly diagnosed in elderly Caucasian women; however, it has also been seen in men and children. We present a case of EPD diagnosed in two sisters, which is unique in that no other cases have been reported among siblings. We hypothesize a possible unidentified epigenetic link predisposing EPD with skin trauma. This information could assist in earlier diagnosis and potentially prevent the complication of scarring alopecia with prompt treatment.

Case Presentation: Two Caucasian sisters aged 92 and 88 presented to a dermatology office with intermittent dry areas and pimples on the top of their heads for over a year. They had a history of androgenic alopecia affecting the vertex and apical portions of their scalp. Upon initial presentation, several yellow crusted papules and pustules were observed in the thinning portion of their apex. A presumptive diagnosis of folliculitis and impetigo was made, and both patients were placed on topical clindamycin and mupirocin twice a day. Wound cultures in both patients returned negative. The lesions did not show improvement, and the patients returned in a couple of months for reevaluation. Upon examination, several rough papules and a few erosions were present. Both patients had dark crusted hyperkeratotic plaques that were subsequently biopsied to rule out neoplastic behavior. The histopathology for both patients revealed a mixed inflammatory infiltrate without any atypia. A diagnosis of EPD was then considered and the patients were placed on Clobetasol 0.05% ointment. They both showed clinical improvement, although flares continued throughout the following year and over time developed fibrosing of their scalps.

Discussion: This is the only reported case of EPD diagnosed in two siblings. A mother and daughter with EPD have been described in the literature only once. While a higher incidence of EPD in elderly females is established, an epigenetic connection has not yet been recognized. EPD is believed to be initiated by local skin trauma. Published cases include patients with a history of sun exposure, CO2 laser therapy, topical ingenol mebutate, topical tretinoin, hair transplantation, cochlear implants, skin grafts, cryotherapy, radiation, contact dermatitis from a prosthetic hair piece, and post-herpes zoster. Immunosenescence, an age-associated decline in the function of the immune system, is another hypothesized...
mechanism that may play a role in an abnormal immune response to wound healing. EPD is also associated with autoimmune disorders, such as Hashimoto’s thyroiditis, autoimmune hepatitis, rheumatoid arthritis, myelodysplastic syndrome, and myasthenia gravis, and is supported with a connection to neutrophil-stimulating cytokines and chemokines. Recently, it was discovered psoriasis can be initiated after an environmental trigger such as epidermal injury if predisposed with a gain-of-function mutation that alters splicing in the CARD14 gene leading to inflammatory cell recruitment. As with psoriasis, there is a possibility that DNA damage from local skin trauma causes epigenetic changes leading to EPD. This case of EPD in siblings illustrates this hypothesis and we recommend further research to investigate this connection.

Title: Delayed Type II endoleak causing critical limb ischemia

Authors: Zeeshan Chauhan, MD, Michele Iguina, MD, Mauricio Danckers, MD

Introduction: Endovascular aneurysm repair (EVAR) has well-defined benefit of reduced peri-operative mortality compared to open repair. However, EVAR is associated with increased frequency of endoleaks necessitating interventions. Endoleak, type-II (flow from patent aortic side branches) is noted to be most common with reported incidence of 10-22%. We present a case of delayed type II endoleak that led to massive dilatation of aneurysm sac causing critical leg ischemia.

Case Description: A 78 years old male with severe peripheral artery disease post bilateral femoral-popliteal bypass and infrarenal aortic aneurysm extending to bilateral common and internal iliac trunks (left iliac aneurysm being the greatest in size at 22 cm) who had undergone EVAR with aorto-bifemoral graft (bifurcated hemashield graft, Maquet®) 9 years prior presented to the emergency department with progressively worsening excruciating left leg pain and heaviness for past 3 weeks that worsened with walking. His physical exam is remarkable for abdominal distension and loss of left popliteal and pedal pulses with cold left lower extremity below knee and reduced motor function. Aortogram showed total occlusion of arterial system throughout the left hemi-pelvis originating at aortic bifurcation. He underwent urgent angiography with left iliac graft balloon angioplasty, stenting and thrombectomy. CT abdomen and pelvis with intravenous contrast showed large cystic lesions within the pelvis encasing the aorta related to aneurysm dilatation of the bilateral common femoral arteries (left greater than right) as well as thrombus within the left common femoral artery and contrast extravasation within dilated left aneurysm sac. These CT findings indicated chronic type -II endoleak with massive distention of original aneurysmal sac causing obstruction and thrombosis of left graft limb. Pelvic angiography revealed Type II endoleak from a left internal iliac source with graft limbs severely compressed by the fluid distention in abdomen. Ultrasound-guided fluid drainage from the abdomen aspirated 2 liters of old blood surrounding echogenic material in the native aortoiliac vessels. CT scan-guided direct puncture of iliac pseudo-aneurysm was unremarkable indicating auto-occlusion of endoleak and didn’t require embolization. Repeat aorto-iliac angiogram showed patent aorto-bifemoral graft as well as patent proximal and distal anastomoses with occluded endoleak and improved blood flow in leg.

Discussion: Type II endoleaks usually originate from aortic side-branches like Inferior mesenteric artery (IMA) and lumen arteries. Majority of type II endoleaks are low risk for rupture and can resolve spontaneously without intervention however delayed endoleaks(after 1year from graft placement) can lead to aneurysm enlargement that can compromise distal circulation increasing the risk of limb ischemia warranting intervention like embolization of feeding vessel and nidus Open surgery can be considered in patients with embolization treatment failure.

Title: Merkel Cell Carcinoma of the Mandible: Spontaneous Acceleration of Growth & Immunohistochemistry

Authors: Mansoor Choudhry, OMS-3, Muhammad Danial, OMS-3, James Bolduc, OMS-3

Introduction: Merkel cell carcinoma (MCC) is a very rare and highly aggressive neuroendocrine carcinoma of the skin. This case study presents an unusual progression of a soft tissue mandibular Merkel cell carcinoma mistaken for poorly differentiated neuroendocrine carcinoma (small cell carcinoma).

Case Description: We present a case of a 78 year old Caucasian woman with past medical history significant for cerebral palsy, CHF, HTN, and DM II who was admitted for evaluation of a mass to the anterior surface of the left mandibular angle and left submandibular area present for the past year with rapid acceleration of growth over 3 weeks prior to admission. The three week period resulted in the tripling of size, onset of violaceous coloring, and onset of severe pain. On examination, there was an immobile, erythematous, edematous, and violaceous mass with telangiectasias to the anterior left mandibular angle without fluctuance, bleeding, or discharge. No lymphadenopathy was appreciated on exam. An incisional biopsy was performed without complication: a three centimeter by two centimeter piece of the inferior border of the tumor was excised as a specimen. The specimen was analyzed. Additional CK7, TTF1, and CK20 immunostains were reviewed. Immunohistochemistry revealed a small cell carcinoma. CD56, chromogranin, synaptophysin, and pankeratin immunostains were positive in tumor cells. Oncological consult resulted in plan for Carboplatin/Endoside therapy and a peripherally inserted central catheter was placed for administration of chemotherapy. Dermatological evaluation revealed lesion was suspicious for Merkel cell carcinoma and the pathology specimen was re-analyzed. Additional CK7, TTF1, and CK20 immunostains were performed. TTF1 and CK7 immunostains were negative. CK20 immunostaining was positive for a perinuclear dot-like pattern resulting in an amendment of the diagnosis to Merkel cell carcinoma.

Discussion: Once thought to be a benign tumor, Merkel cell carcinoma is a rare malignant neuroendocrine tumor of the skin commonly presenting in elderly males of European descent in areas of UV light exposure. MCC commonly presents as a rapidly growing, violaceous, dome-shaped mass. Approximately eighty percent of Merkel cell carcinomas are caused by Merkel Cell Polyomavirus (MCV) which incorporates itself into the genome of cancerous Merkel cells leading to a monoclonal proliferation - a pattern indicating the virus initially integrates into a single cell (Feng, 2008). The remaining twenty percent of cases not attributable to MCV have an unknown etiology (Schrara, 2012), but evidence exists for UV associated
mutations “underlying the etiology of MCV-negative Merkel cell carcinomas” (Wong, 2015). Merkel Cell carcinomas commonly occur on sun exposed areas such as the head, neck, extremities and major risk factors include UV light exposure, advanced age, and immunosuppressed states (Schadendorf, 2013). Our patient was an elderly female who unusually presented with an initially painless stagnant phase of growth followed by a rapid painful enlargement. The patient did not suffer from any primary cancers, nor was she immunosuppressed, both characteristics which have been known to significantly increase the risk of MCC. “MCC is occasionally mistaken for other histologically related cutaneous tumors such as small cell lung carcinoma or extra skeletal primitive neuroendocrine tumors” (He, 2015). Due to its atypical clinical picture and positive neurofilament and neuroendocrine markers like synaptophysin and chromogranin, the diagnosis of small cell carcinoma (SCC) was made as it could not be ruled out and is a more common condition than MCC. Due to the suspicious presentation, further testing was performed to reveal positive cytokeratin immunohistochemistry (CK20) which is characteristic of MCC and excludes SCC (Shah, 1993).

Title: Dry Beriberi, the Forbidden “Fruit” of Alcoholics

Authors: Cleland, D., Rubenstein, M., Ugalde, I., Armas, F.

Introduction: Alcohol abuse affects millions of Americans every year, consequently it has become very important for physicians to recognize the associated medical complications that may arise as a result. That being said, the complications associated with alcoholism are diverse and variable in presentation, making a detailed history and physical a crucial component of the diagnostic process. Dry beriberi is one such complication that can result from poor nutrition (i.e. thiamine deficiency), which is commonly associated with chronic alcoholism.

Case Description: 73 year-old Caucasian female visiting from Canada with a history of fibromyalgia and substance abuse presented to the emergency department complaining of generalized, diffuse weakness for three days. She reported associated confusion, gait disturbance, and diffuse lower abdominal pain which later resolved. Over the next two days her fatigue worsened until she could no longer get out of bed. In the emergency department, she was afebrile with all vital signs within normal limits. Her physical exam was remarkable for orientation to person and place with delayed speech. Her memory was limited during recall. She had minimal suprapubic tenderness and diffuse tenderness to palpation in all four extremities that was more pronounced in the lower extremities. Her labs revealed a neutrophil-predominant leukocytosis, multiple electrolyte deficiencies, elevated blood-urea-nitrogen and creatinine, and elevated liver enzymes. The urinalysis had 14 white blood cells and leukocyte esterase present. A lumbar puncture was unremarkable and CT of the abdomen and pelvis noted hepatomegaly of 17 cm. She was started on piperacillin-tazobactam for suspected urosepsis. The following day her blood cultures grew Escherichia coli. Given her history of altered memory, polyneuropathy and alcohol abuse, her folate, vitamin B12 and B1 levels were also evaluated. Her vitamin B1 level was undetectable. Her electrolytes were subsequently replaced and she was started on high dose thiamine (vitamin B1). On the fourth day of hospitalization, the patient’s altered mental status, diffuse weakness, and peripheral neuropathy began to improve. She was discharged the following day on oral trimethoprim-sulfamethoxazole and thiamine supplementation. Per phone encounter six months post-discharge, the patient reported near resolution of her diffuse tender points and gait instability.

Discussion: Thiamine deficiency or Beriberi in developed nations is most commonly correlated to alcoholism. Beriberi can be further divided into two subtypes deemed wet and dry. Dry beriberi consists of a constellation of symptoms that comprises polyneuropathy, muscle wasting, and confusion. Wet beriberi has the neurological symptoms of dry as well as cardiac symptoms. Beriberi is rare in the United States and therefore is commonly overlooked and/or misdiagnosed. One disorder that may be attributed to this misdiagnosis is Fibromyalgia which shares many of the same symptoms such as generalized musculoskeletal pain, fatigue, memory and mood issues. Therefore it is important to keep thiamine deficiency in ones differential when treating patients with neurological symptoms who also exhibit traits of alcoholism.

Title: Heavy Hearted: An Extensive Presentation of Aggregatibacter Actinomycetemycosis Endocarditis

Authors: Nicole Cohen, PGY3; Andres Sobrado, PGY1; Spencer Streit, MS4; Robert Hernandez, MD

Introduction: Aggregatibacter Actinomycetemycosis is a gram-negative cocco-bacillus bacterium that is part of the normal oral flora. Aggregatibacter Actinomycetemycosis falls in the HACEK organisms (Haemophilus species, Aggregatibacter species, Cardibacterium hominis, Eikenella corrodens, and Kingella species), which are rare causes of infective endocarditis. Less than 20% of the population’s oral flora is colonized with Aggregatibacter Actinomycetemycosis, therefore there are very few published cases in the literature. We present a case an atypical presentation of aortic dissection with endocarditis secondary to Aggregatibacter Actinomycetemycosis.

Case Description: The patient is a 51-year-old Hispanic male with a past medical history significant for Hypertension, Type 2 Diabetes Mellitus, and ascending aortic aneurysm repair in 2014 who presented to our facilities complaining of fatigue, night sweats, chills, and weight loss for three months. The patient had been followed in the outpatient setting, but he was referred to the emergency room due to a new-onset acute kidney injury with a creatinine of 2.18 mg/dL. Laboratory studies performed on admission also illustrated a white blood cell count of 18,000/μL, microcytic anemia with a hemoglobin of 9.5 g/dL, mean corpuscular volume of 74 femtoliters, e-reactive protein of 9.8 mg/dL, and erythrocyte sedimentation rate of 123 millimeters. Sepsis bundle protocol was implemented and empiric antibiotics were initiated. Initial transthoracic echocardiogram showed an ejection fraction of 55 percent. Blood cultures from admission elicited a gram-negative bacteremia that was determined to be Aggregatibacter Actinomycetemycosis, two out of two sets. Given the patient’s pertinent history and presenting symptoms, there was possible concern for endocarditis. Transesophageal echocardiogram demonstrated a large mass extending from the pulmonary valve to the tricuspid valve suggestive of a thrombus and a large aortic dissection with a false lumen larger than the true lumen. Upon further exploration into the patient’s history, the patient timidly admitted to being overdue for a deep molar root canal and examination of the oral cavity showed a decayed molar associated with periodontal inflammation. Cardiothoracic surgery was consulted, and in conjunction with Infectious Disease it was determined that the patient was not a candidate for surgical
intervention. The patient was started on lifelong anti-coagulation with apixaban and six weeks of IV antibiotic treatment with ceftriaxone.

**Conclusion:** This case emphasizes the importance of a complete history and physical exam can have on pinpointing a source when working up an infectious process. Often times minute details get lost in the process, and subsequently a complete diagnosis goes unfounded. Moreover, this case also emphasizes the relationship between dental care and overall general health. The notion that tooth decay can lead to systemic disease is often ignored general population. With open communication and educating the patient population, we can prevent systemic diseases caused by periodontal disease.

**Title:** Hairy Cell Leukemia in a Patient Presenting with PE: A Case Presentation

**Authors:** Alexander A. Collazo OMS-III, Mohammed Ahmed, PGY-III, Mohammad A. Rizvi, PGY-III  
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**Introduction:** Hairy cell leukemia (HCL) is an exceedingly rare illness comprising only 2% of all leukemias that predominantly affects white males. Its pathogenesis is not fully elucidated but it is known to cause a mutation in the BRAF V600E gene per Tiacci, et al. The tumor cell is distinctly apparent on blood smears as the cytoplasm dissipates into thin or thick distributions giving the mature B lymphoid cells a “hairy” presentation. Patients can present asymptptomatically or with splenomegaly along with pancytopenia. Symptoms are fatigue, hemoptysis and night sweats.

**Case Description:** We present a forty six year old Hispanic male with a past medical history significant for hypertension that presented with a one week history of progressive left lower extremity swelling and pain. He also spent the past year with night sweats and one episode of hemoptysis. The patient on CBC at presentation was found to have a WBC count above 50. After diagnostic workup with blood smears, bone marrow biopsies and flow cytometry we discovered the patient had hairy cell leukemia. Flow cytometry revealed 84% monotypic B-cells consistent with hairy cell leukemia. The cytoplasmic outline is indistinct due to the abundance of projections giving the cell a “hairy” appearance when the projections are thin and “ruffled” look when they are wider (Fig. 1 & 2). First line treatment is with purine-analog-based therapy such as cladribine. Without treatment the median survival is four years. With treatment survival rates are only slightly lower than the general population. The patient was transferred to a separate facility with specialized oncologists that could better manage his condition.

**Discussion:** This case presents a rare diagnosis with an unusual presentation. Hairy cell leukemia usually presents with weakness and fatigue however this patient presented with lower leg swelling and subsequently diagnosed with DVT and PE. Although not an outward complaint the patient did admit to night sweats for a year prior to presentation. Our patient presented with the usual symptoms found in other HCL patients such as anemia and neutropenia but he did not admit to noticeable weight loss. Pancytopenia is the most common finding in this patient population and clinical diagnosis should always be sensitive to hairy cell leukemia upon discovery. Clinicians should note that a fourth of patients are asymptomatic and should workup any malignant symptomatic finding with a potential blood smear, flow cytometry and bone marrow biopsy- especially given a patients remarkable leukocytosis. This case was managed appropriately and efficiently with an immediate hematology/oncology consult which facilitated an immediate bone marrow biopsy and flow cytometry. An improvement from a cost to benefit perspective would be to forgo a bone marrow biopsy as flow cytometry would be sufficient to make the diagnosis. However due to the academic nature of the environment and broad differential given in this presentation we decided to proceed regardless.

**Title:** Case Report: A Rare Case Of Oral Mucosal Amelanotic Melanoma In A 77-Year-Old Immunocompromised Male

**Authors:** Hassie Cooper, DO1, Jason Solway, DO1, Melanie Wolf, OMS-42, Richard Miller, DO1  
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**Introduction:** Primary mucosal melanomas are malignant neoplasms that occur in the mouth, esophagus, nasopharynx, larynx and anogenital mucosa. Mucosal melanomas are rare, accounting for approximately 1% of all melanomas. (1) Of the mucosal melanomas that occur in the head and neck region, oral mucosal melanomas (OMM) comprise approximately 25%. (2) About 40% of OMMs are amelanotic. (3) The most common sites involved are the hard palate and maxillary gingiva, constituting approximately 80% of all OMM cases. (4) Less common sites include the buccal mucosa, mandibular gingiva, lips, tongue, and floor of the mouth. (4) Here, we present a rare case of amelanotic oral mucosal melanoma in a 77-year-old male.

**Case Description:** A 77-year-old male with past medical history of Non-Hodgkin Lymphoma (NHL), status-post treatment with chemotherapy, multiple basal and squamous cell carcinomas presented to clinic with a pink, non-pigmented 1.2 cm x 1.0 cm mass on the left superior mucosal lip. The mass had been present for several months. Shave biopsy with histopathologic examination and immunohistochemical stain for S100 revealed a diagnosis of malignant melanoma, superficial spreading type with a nodular component, stage pT4b. The patient was referred to head and neck surgeons at a tertiary care center for further workup and treatment.

**Discussion:** Multiple risk factors exist for developing melanoma, including, but not limited to sun exposure and immunosuppression. Lymphoproliferative disorders such as NHL lead to inherent immunosuppression, which can be exacerbated by chemotherapy treatments. (5) Our patient was previously treated with rituximab and bendamustine, likely exacerbating his immunosuppressed state. Oral mucosal melanomas are not related to sun exposure and have a poor prognosis, likely due to delayed diagnosis, location, and aggressive behavior. (4) Amelanotic mucosal melanomas are also associated with a delay in diagnosis and poor prognosis. (3) Common mutations leading to melanoma are BRAF, NRAS or KIT mutations. The KIT mutation occurs more often in mucosal melanoma than cutaneous melanoma, with up to 40% of cells containing overexpression of the cKit protein. (2) BRAF and NRAS mutations have a low incidence in mucosal melanoma compared with cutaneous melanoma, (2,6) and KIT
mutations have a low incidence in head and neck melanomas. (6) Multiple stains can be used for OMMs, including S100, Mart1/Melan-A, MITF, Tyrosinase, and HMB45. (7) HMB45 shows a higher intensity of staining in OMMs. (3) Factors imparting a worse prognosis include tumor thickness greater than 6mm, involvement of regional lymph nodes, presence of distant metastases, high mitotic rate, and exophytic ulcerated lesions. (2) Our patient carried a poorer prognosis having ulceration, a depth of 5.3mm, and 8 mitotic figures per mm². The 5-year survival rate of oral mucosal melanoma is 10-25%. (8) Surgical resection is first line therapy, and regional lymph node dissection of the neck is recommended in most cases. (2) Radiotherapy and targeted molecular therapy such as c-KIT inhibitors can also be used, however OMM remains difficult to treat. (2) Because of the variability of genetic mutations in mucosal versus cutaneous melanomas, targeted therapies for mucosal melanoma should be thoroughly investigated.

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**Title:** Overdose due to Phantom Limb Pain: A Case Study on the Negative Impact of Opioid Use in Chronic Pain Patients with Phantom Limb Pain

**Authors:** Lauren Michelle Jean Cuenant, OMS-3; Gabrielle McDermott; Arthur Strzepka

**Introduction:** Phantom Limb Pain (PLP) is a condition that may present with numbness, tingling, or throbbing pain at the site of amputation (1). Patients with PLP often develop chronic pain, for which a variety of drugs and therapies exist. However, due to limited research and understanding of this phenomenon, there is no mainstay treatment for the condition. In most cases, first line therapy includes calcium channel blockers, tricyclic antidepressants and serotonin norepinephrine reuptake inhibitors (SNRIs). Opiates have also been prescribed, however they are deemed second line for PLP due to limited data supporting their efficacy in treating neuropathic pain (3). Patients with chronic pain are at an increased risk for both depression and opiate abuse (8,10). This appears to reflect the circumstances surrounding the patient of this case study.

**Case Description:** A 60-year-old Caucasian male was admitted to the hospital following an opiate overdose and was subsequently placed under the Baker Act for suicidal ideations. He was then transferred to inpatient psychiatric care. The overdose was secondary to uncontrolled PLP and opioid abuse. The patient had been prescribed opiates prior to and after his left above the knee amputation in December of 2017. While under treatment, the patient refused SNRIs but maintained compliance with Gabapentin. As the patient’s condition required chronic pain management, he would have been an ideal candidate for alternatives for long term pain management. Options such as nerve blocks, transcutaneous electrical nerve stimulation, osteopathic manipulative treatment, and acupuncture could have been supplemented, since first line agents were insufficient. This may have improved pain outcomes and reduced the patient’s likelihood for opioid abuse.

**Discussion:** This case highlights the association between PLP, depression, and opioid use. Current research supports that PLP is a complex phenomenon. The patient in this case study had undergone an above the knee left leg amputation due to peripheral arterial occlusive disease approximately 8 months prior to opioid overdose. His explanation for the overdose was that his pain levels had not been well managed. At the end of his Baker Act stay, he informed providers that unless he was given opioids, he would probably return to the street for drugs. Amputation and concurrent depression placed the patient at an increased risk for phantom limb pain. Moreover, his unmanaged pain increased his risk for substance abuse (9). This further cements the notion that opioids are a poor choice for PLP patients.

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**Title:** Surgical Approach to Substernal Goiter

**Authors:** Juan M. Dangond OMS-III, Joshua Godur OMS-III

**Introduction:** Substernal goiters are common, with a reported incidence of 1–20% of all patients undergoing thyroidecтомy [1,2]. They are typically diagnosed in the 5th and 6th decades of life with a 4:1 female to male ratio. A differential diagnosis of the most common lesions occurring in the anterior mediastinum are often referred to as the "terrible Ts": thymoma, teratoma/germ cell tumor, (terrible) lymphoma, and thyroid tissue. Regardless of pathophysiology or etiology ultimately the management of a mediastinal mass falls to surgical resection.

**Case Description:** We present the interesting case of a 71-year-old Hispanic female who came to MSMC for evaluation of an anterior mediastinal mass. She complained of SOB and intermittent cough. Her past medical history includes DM-II, Asthma, and airway obstruction. No family history of malignancy. She was a former cigarette smoker with a 40 pack–year history who quit 10 years ago. Vital signs were WNL and the physical exam was unremarkable for pertinent findings. Thyroid panel labs were also WNL. CT showed an 8cm heterogenous mass with calcifications as well as focal increased FDG uptake by the mass concerning for malignancy.

It was determined to proceed with a Left Robotic VATS with resection and possible sternotomy. The mass was noted to start at the base of the aorta and pulmonary arteries. The dissection was carried up anterior to the innominate vein with all structures preserved until reaching the base of the neck. Two large feeding vessels were noted coming off of the lower pole of the right thyroid that had not been visualized on CT. At this point there was concern that this being a large vessel it would be difficult to ligate it from within the chest and if control was lost the vessel could retract into the neck. The decision was made that a sternotomy was not necessary and that the mass and its blood supply would be removed through a lower cervical collar incision. Both recurrent laryngeal nerves were identified and preserved, and the mass was delivered to pathology. They later confirmed that the mediastinal mass contained thyroid tissue with nodular hyperplasia with extensive sclerosis, hyalinization, and calcifications as well as focal degenerative changes. The patient was discharged on POD#5 with Oscoal and Synthroid with no reported complication during her stay.

**Discussion:** We believe that there is a lesson to be learned from both the unusual presentation of the patient and the prototypical management of it. The pertinent positives and negatives, the imaging and labs, and the physical exam findings all seemed to suggest that this was something other than a goiter. The decision to go straight to resection without prior biopsy of the mass was due to the fact that the patient did not have systemic symptoms.

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worsens for a lymphoma and on presentation no palpable cervical mass was appreciated (Most patients with substernal goiter (77 to 90%) also have visible goiter [3,4]). This approach reduces the likelihood of worsening the prognosis of thymoma due to seeding 2/2 to biopsy, at the potential increased risk of unnecessarily resecting a lymphoma[5-7]. For these reasons a thoracic approach was chosen over the cervical approach which is the usual indicated procedure even for substernal goitors.

Title: Complications from an Atypical Presentation of a Cholecystoduodenal Fistula and a Review of Preoperative Diagnostic Strategies

Authors: Muhammad Danial, OMS-3, Mansoor Choudhry, OMS-3, Matthew K. Creech, OMS-3, Ariel Rodriguez, MD

Introduction: Cholecystoenteric fistulas (CEF) are a rare communicating channel between the biliary system and the gastrointestinal tract and often a complication of cholelithiasis and long-standing gallbladder inflammation.

Case Description: We present the case of a 78-year-old Caucasian female who presented with a one-day history of biliary colic, emesis and diarrhea. Her past medical history was significant for type 2 diabetes mellitus with neuropathy, dyslipidemia and hypertension. Laboratory results were significant for elevated AST, ALT, total bilirubin and alkaline phosphatase. There were no signs of bowel obstruction on physical exam. Abdominal ultrasound indicated cholelithiasis and a thickened gallbladder wall which was consistent with acute calculous cholecystitis. A resultant MRCP confirmed the US results. ERCP confirmed it to be a gallstone and inflammatory findings consistent with being an acute calculous cholecystitis. No imaging modality gave any indication of a CEF. A laparoscopic cholecystectomy was performed but because the duodenum was abnormally adherent to the gallbladder wall, the procedure was converted to open cholecystectomy by which the cholecystoduodenal fistula was observed incidentally and repaired successfully. The significant increase in the duration of surgery, in addition to this patient’s comorbidities, may have contributed to post-operative ventilator dependent respiratory failure. Furthermore, the patient developed sepsis—a complication for which CEFs are known to carry an increased risk—which led to the development of acute renal failure due to acute tubular necrosis necessitating hemodialysis.

Discussion: CEF accounts for 0.5%–1.9% of all biliary disease [1]. However, they can also occur spontaneously or with conditions such as inflammatory bowel diseases and bowel or pancreatic malignancy [2]. CEF is challenging to diagnose preoperatively as symptoms often mirror gallbladder disorders: abdominal pain, nausea, steatorrhea, diarrhea etc. [3]. Modalities such as abdominal x-ray, ultrasound, barium studies, ERCP, MRCP, CT, PTC and Cholescintigraphy can aid in preoperative diagnosis of CEF but have varying sensitivities and advantages that should be addressed to efficiently utilize these resources to avoid incidental intraoperative discovery and resultant complications. However, as we illustrated with our case, the radiological modalities currently used to assess biliary pathology can fail to show any signs of a CEF which ends up complicating the surgical course of the patient. CEFs are managed laparoscopically but carry increased risks of contamination of the peritoneal cavity or prolonged biliary drainage [3]. This case highlights the importance of having a Cholecystoenteric fistula high up on the differential even in the absence of Gallstone Ileus and other typical characteristics of a fistula, especially in a patient with multiple comorbidities as an incidental intraoperative discovery could potentially worsen the complications from a prolonged surgery.

Title: Type A Right Heart Thrombus in the Setting of Acute Pulmonary Embolism

Authors: Daylis Delgado, D.O., Wai Tam, D.O., Vianka Perez, D.O., Raul Alonso, M.D., FACC
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Introduction: Intracardiac thrombi are a rare and severe finding which are oftentimes undiagnosed or underreported in medical literature. If undiagnosed, they can result in worse outcomes for patients, and even death. Right heart thrombus (RHT) arise from completely different etiologies than left heart thrombus, and is mainly associated with an acute pulmonary embolism (PE). In patients with an acute PE, approximately 4% have a concomitant RHT. The etiology of RHT is thought to originate from the venous system, and its visualization is consistent with a thrombus-in-transit to the pulmonary vasculature. Type A cardiac thrombi are the most common types of cardiac thrombi (compared to type B and C). Type A thrombi are seen with a freely mobile, serpiginous morphology and are also at higher risk for embolization. Patients diagnosed with acute PE and concomitant RHT have a higher rate of mortality than patients with acute PE alone. The finding of RHT in acute PE can be used to stratify prognosis in PE patients, as this indicates poor prognosis, leading to expedientious emergent care and improvement in patient care and clinical outcomes.

RHT in the setting of an acute PE is a very rare occurrence globally, and, therefore, management is understudied. There are no current guidelines regarding optimal management of these patients. Here, we present a case of a patient with RHT in the setting of acute PE to demonstrate the importance of early diagnosis, by means of appropriate initial imaging, and clinician’s index of suspicion. We hope to contribute to the current literature with the goal of improving patient outcomes in acute PE, especially those with concomitant RHT.

Case Presentation: We present the case of a 58-year-old White Hispanic male, with past medical history significant for hypertension, dyslipidemia, and non-insulin dependent diabetes mellitus. The patient presented to our ED complaining of progressively worsening dyspnea for the last two weeks. The patient also reported orthopnea, a non-productive cough, and bilateral lower extremity swelling. Vitalis in the ED were remarkable for a heart rate of 128 bpm and a respiratory rate of 22 breaths/min; patient was normotensive with BP of 125/85 mmHg. The patient was hemodynamically stable, but still complaining of shortness of breath even while on 2 liters nasal cannula and SpO2 of 98%. Initial lab work revealed troponin of 0.239, an ABG with mild respiratory alkalosis (normal PaO2, PaCO2 of 24.2), a BNP of 2,523, and a D-dimer of 2,205. Due to the elevated D-dimer, bilateral venous doppler ultrasounds an a CT angiogram (CTA) of the chest were obtained. Bilateral venous doppler showed
an acute deep venous thrombosis (DVT) of the right popliteal vein. CTA chest showed numerous segmental and subsegmental filling defects compatible with pulmonary emboli. CTA also visualized an “elongated” filling defect in the right ventricle, possible another thrombus. The finding of the right ventricular thrombus was deemed an emergency, and patient was admitted to the intensive care unit on a heparin drip. Stat transthoracic echo revealed an ejection fraction of 10-15% with global hypokinesis and dilated cardiomyopathy. There was a mobile mass within the right ventricle that was at least 3 cm in length and might be attached to the cords of the tricuspid valve. The case was discussed with interventional radiology who advised trans-catheter tPA to decrease clot burden. The patient remained on IV anticoagulation with bridging to Coumadin and was kept in hospital for optimization of heart failure management, and to ensure improvement of PEs as well as RHT. The patient was safely discharged home in a stable state to follow up outpatient with consultants.  

Discussion: This case highlights the importance of early and accurate diagnosis of RHT which led to adequate and emergent management, thereby improving patient outcome.

Title: Testicular mixed germ cell carcinoma presenting with unusual inguinal lymphadenopathy  

Authors: Tej Desai, B.A., OMS-III, Roya Garakani, O.D., M.S., OMS-III  
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Introduction: Testicular cancer is the most common solid malignancy affecting males between the ages of 15-35.1 Germ cell testicular cancers include seminomatous, non-seminomatous (yolk sac, choriocarcinoma, embryonal carcinoma, and teratoma) and mixed subtypes, which all usually present as a painless, firm nodule of one testicle. Serum tumor markers such as the beta subunit of human chorionic gonadotropin (beta-hCG), alphafetoprotein (AFP), and lactate dehydrogenase (LDH) may be elevated in testicular cancer and are used to follow clinical management.2 Metastatic testicular cancers typically spread to retroperitoneal lymph nodes due to the testicle’s embryological roots. However, inguinal node metastasis may rarely result if the scrotum is invaded or if the patient has had prior groin surgery as lymphatic drainage is altered.

Case Description: We present a case of a 24-year-old Hispanic male who presented to the emergency room with a reported 2-month history of a rightsided testicular mass along with new onset pain and swelling of the right groin and glutal areas. Urogenital examination shows a non-painful right testicular mass with tender, palpable right inguinal lymph nodes. There were boils with purulent drainage on the right glutal region, with no draining fluid collections. No costovertebral angle tenderness was appreciated bilaterally. The patient had a white blood cell count of 16.6 cells/mL. The patient had an elevated LDH of 246 units/L and AFP of 9.2 ng/mL. CT scan of the abdomen and pelvis demonstrated enlarged right inguinal lymph node clusters as large as 4x2 cm with no evidence of retroperitoneal lymphadenopathy. Duplex ultrasound of the scrotum demonstrated a heterogeneous right testicle containing 2 masses, with Doppler flow that was suspicious for malignancy. The possibility of testicular cancer necessitated a radical orchectomy with intraoperative fine needle aspiration (FNA) biopsy of the affected right inguinal nodes. Intraoperative pathology report showed reactive lymphangitis without metastasis in the right inguinal nodes, hence the surgeon decided not to pursue a right inguinal lymphadenectomy. Post-operatively, pathologic analysis of the excised testicle revealed a mixed germ cell tumor comprised of 10% seminoma, 40% embryonal carcinoma, and 50% yolk sac tumor cells. Postoperatively, the patient was placed on IV clindamycin to treat the right glutal cutaneous infection (diagnosed as probable insect bites), which resolved his cutaneous symptoms as well as the inguinal lymphadenopathy. The patient was also placed on a non-seminomatous radiation therapy treatment pathway post-operatively. He is currently doing well without major complications 3 months after surgery. We are awaiting follow up tumor markers from the oncologist to assess resolution.

Discussion: This case demonstrates an unusual manifestation of a mixed germ cell testicular tumor without retroperitoneal lymphadenopathy, instead presenting with inguinal lymphadenopathy. Resolution of the inguinal lymphadenopathy with IV clindamycin makes it likely that this patient had two different, concurrent problems – acute lymphangitis due to cutaneous infection along with a mixed germ cell testicular tumor cancer. This case illustrates the importance of checking for causes other than metastasis in mixed germ cell testicular cancer patients presenting with inguinal lymphadenopathy.

Title: Spontaneous Intra-orbital Arteriovenous Fistula- A Rare Cause of Proptosis  

Authors: Raiko Diaz, DO1, Patricia Almeida, DO1, Zaimat Beiro, MD2  
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A 63 year old male with history of hyperlipidemia and hypertension presented to an ophthalmologist with left eye swelling, redness, and bulging. Symptoms were preceded by sneezing and runny nose three weeks prior. He noted the swelling a week after, and symptoms worsened until presentation. No eye pain or changes in vision were noted by the patient. At the ophthalmology appointment his intraocular pressure was noted to be elevated at 24 mmHg and he was given eye drops for presumed glaucoma. He was referred to the nearest emergency department. On presentation in our ED, physical examination was remarkable for left sided proptosis, as well as conjunctival injection. There was no restricted eye movement or elicited ocular pain. The rest of the physical examination was unremarkable. All admission labs values were within the normal ranges. The patient was given Decadron 10 mg IV and a one time dose of Augmentin. CT of the brain was remarkable for complete opacification of the left maxillary sinus, which could indicate sinusitis, as well as left proptosis. MRI brain was done which showed enhancement along the supra-ophthalmalic vein reflecting possible thrombosis or pseudotumor. Neurology and ophthalmology teams were consulted and patient was
started on a heparin drip. Magnetic Resonance Venography was done with findings suspicious for indirect left cavernous carotid fistula. No dural venous sinus or left ophthalmic vein thrombosis was noted, thus, the heparin drip was discontinued.

Neurosurgery was consulted for possible intervention and recommended a cerebral angiogram. Angiogram showed a left orbital arteriovenous fistula with a connection between branches of the left ophthalmic artery and left ophthalmic veins; no other AVMs or fistulization was noted. Endovascular approach for embolization or excision was initially deemed not possible due to anatomy, as the vessels in the area were too small in diameter. At that time the patient was referred to a local eye institute for the possibility of intervention via orbital approach. Evaluation at the eye institute resulted in recommendations for embolization; however, embolization resulted in central retinal artery occlusion and vision loss. Unfortunately, this is one of the most common complications of this procedure.

Our case represents a case of a left orbital AVF in a patient with no prior known history of congenital orbital disease or trauma. Cases of intraorbital AVF are very rare based on literature review, only about 10 cases have been documented. Such data represents the importance of recognizing intra-orbital AVFs as a possible cause of proptosis.

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**Title:** Prone to Failure, Prone-Positioned to Success; The Use of Advanced Prone Positioning Techniques in a Case of Severe ARDS Respiratory Failure

**Author:** Mohammad Dlewati, OMS III

**Introduction:** Prone position, lower tidal volume, and early use of neuromuscular blocking agents are to date the three only interventions that have proved benefit in Acute Respiratory Distress Syndrome (ARDS) patients who require mechanical ventilatory support. Prone positioning ARDS patients is performed by placing the patient face down and continuing mechanical ventilation in this position for a large portion of the day, usually 16 consecutive hours, and can be achieved with a specialty kinetic bed such as the Rotaprone bed. Several physiologic mechanisms have been identified by which proning improves oxygenation and can prevent Ventilator Induced Lung Injury (VILI). The 2013 Proseva trial showed that early application of prone positioning sessions significantly decreased 28-day and 90-day mortality.

Despite recent proof of the advantages of proning, many clinicians remain reluctant to use this technique due to its complexity, risk of complications, and uncertainty regarding its real effects.

**Case Description:** We present a case of a 34-year-old previously healthy Caucasian male ICU patient in severe ARDS secondary to exertional heat stroke, who had subsequently developed a viral and bacterial aspiration pneumonia. This patient’s oxygenation was continuously deteriorating despite maximized Pressure Regulated Volume Control (PRVC) Ventilator settings as well as an attempt with Airway Pressure Release Ventilation (APRV) and was requiring FiO2 of 100. After 13 days on PRVC ventilator an attempt was made with APRV, however the patient remained at an FiO2 of 100 and PaO2 of 72. On ventilation day 15 the patient was initiated on a 6:1 hours prone: supine ratio regimen using the Rotaprone bed. PaO2 subsequently rose to target levels and we were able to decrease FiO2 to 50 after 3 proning days. FiO2 could be decreased to 40 after 5 proning days, while still achieving target levels of PaO2, and by the next day we were able to discontinue the Rotaprone. 12 days after we began proning, our patient was completely and successfully weaned off ventilation.

**Discussion:** The case demonstrates the importance of considering proning and alveolar recruitment techniques early in severe ARDs to improve survival, and reduce morbidity such as the need for tracheostomy and post ICU-stay PTSD.

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**Title:** ADEM-More Than Just A Pediatric Headache

**Authors:** Michael Drechsler D.O., PGY-1 Emergency Medicine, St. Lucie Medical Center, FL

**Introduction:** Headache is a very common complaint we see in the Emergency Department, most of the time treated with medications and discharged. But how can you tell the difference between the “run of the mill” headache from the more significant, possibly dangerous kind? In this case study, I evaluate a pediatric patient presenting to the Emergency Department for a new onset atraumatic headache. This case is unique in that this patient’s headache presented with neurologic findings, failed treatment in the ED, required advanced imaging, and required transfer for higher level of care. Difficult decisions had to be made regarding this patient’s care, as many of the diagnostics required a risk-benefit consideration. Besides reiterating a belabored point of not all headaches are treated equally, I want first line healthcare providers to become more aware of a pediatric condition called Acute Disseminated Encephalomyelitis (ADEM).

**Case Description:** Patient is a 14 year old female with family history of sickle cell disease presenting to the Emergency Department for acute onset atraumatic 10/10 headache of one day and fatigue. Associated left arm and leg paresthesias, and pain. Intermittent chest pain, photophobia and nausea. No history of sickle cell crisis. Received unknown vaccine one week ago. Afebrile, vital signs hemodynamically acceptable. During the examination, patient is curled up in a ball, falling asleep, barely keeping her eyes open. No neurologic deficits or gait abnormalities. No meningeal signs. No other significant physical exam findings. No acute lab derangements. No findings on EKG, chest x-ray, or CT of the head without contrast. Patient reports no improvement of her symptoms after receiving 4mg morphine and Zofran. MRI of the brain revealed multiple bilateral lesions in the white matter consistent with ADEM vs Multiple Sclerosis vs Encephalitis vs. Vasculitis. Patient transferred to Lawnwood Regional Medical Center where she underwent a lumbar puncture. CSF analysis revealed 1,100 protein and 5,000 rbc’s. Admitted to PICU. Developed gait instability and ataxia. Started on high dose steroids with significant improvement of her symptoms. Discharged a few days later with a steroid taper and close follow up with Pediatric Neurologist. Per
neurologist, it is believed the patient has ADEM or multiple sclerosis.

**Discussion:** The first difficult decision to make was to perform advanced imaging and expose the child to radiation. CT was ordered to evaluate for acute bleed. MRI was ordered to evaluate for venous sinus thrombosis given the patient’s family history of sickle cell disease. The white matter lesions found on MRI, although incidential, were the key to the case. No lumbar puncture was performed at my facility as encephalitis was still on our differential and no neurologist was on call. Although the lumbar puncture was performed at the receiving facility, it required the consult and advice of a pediatric neurologist. This case was reported to make providers more cognoscente that not all headaches can be brushed off. You have to take into account the entire patient presentation and risk factors. Any patient with headache and neurologic findings requires more work up. Most cases of ADEM present after a febrile illness. This case presented after receiving a vaccine one week prior, which is only seen in 5% of cases.

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**Title:** A Rare Presentation of Autoimmune Liver Disease Overlap Syndrome: Autoimmune Hepatitis & Primary Biliary Cholangitis (Cirrhosis)

**Authors:** Brinsley E. Ekinde, MD,1 Zachary W. Smith, OMS-III2, Haleem Abdul, MD1, Nadiuska Sanchez, MD1, Silvia Bentacor, MD1, Andres Sobrado, MD1, Carlos Nasr, MD1

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**Introduction:** Autoimmune liver disease occurs when the body produces antibodies against its own liver cells. The exact cause is unclear, but genetic and environmental factors appear to interact over time in triggering the disease. They are usually differentiated based on clinical, biochemical, serological and histological parameters.

Rarely, overlap syndromes occur where there is a presence of 2 or more autoimmune liver disease in a single individual. Early recognition of such overlap syndromes is clinically significant from a therapeutic point of view. Here, we report a case of autoimmune hepatitis and primary biliary cholangitis (AIH-PBC) overlap syndrome with a brief review of literature on overlap syndromes.

**Case Description:** We present a 50-year-old morbidly obese, Hispanic female with no significant past medical history who presented to our hospital for evaluation of icterus and jaundice. The patient reported associated output of dark-colored urine, constipation, and fatigue for 2 months duration that worsened over the one week prior to arrival. During the course of the interview, the patient revealed that her mother died from an unknown liver disease.

Initial laboratory evaluation demonstrated an elevated total bilirubin of 6.8 mg/dL, aspartate aminotransferase of 1969 IU/L, alanine aminotransferase of 1323 IU/L, gamma-glutamyl transferase 119, alkaline phosphatase of 223 mg/dL, C-reactive protein of 2.590, lactate dehydrogenase of 411 U/L, alpha fetoprotein of 22.3 ng/mL, a decreased albumin of 2.6 g/dL, and ammonia of 7 g/dL. Immunologic panel demonstrated an elevated IgG of 2.230 mg/dL, IgM of 126 mg/dL, a markedly elevated anti-smooth antibody, as well as positive anti-mitochondrial and F-actin antibodies. Alpha-1 antitrypsin, ceruloplasmin, CA19-9, procalcitonin, and thyroid stimulating hormone were all within normal limits. Viral serology panel was negative. Magnetic resonance imaging of abdomen with and without contrast and magnetic resonance cholangiopancreatography without contrast both revealed signs of active hepatic inflammation. Liver biopsy demonstrated intense infiltrate of neutrophils admixed with plasma cells within the hepatic parenchyma. These findings led to the diagnosis of AIH-PBC overlap syndrome.

Upon improvement of symptoms, patient was discharged to home on a low-sodium, low-fat, low-cholesterol diet with the understanding of her need to follow up with a referred gastroenterologist for outpatient management and treatment.

**Discussion:** This case demonstrates the presentation and diagnostic evaluation of autoimmune liver disease overlap syndrome consisting of autoimmune hepatitis and primary biliary cholangitis (cirrhosis).

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**Title:** Campylobacter-associated Abscess

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**Introduction:** *Campylobacter jejuni* and *Campylobacter coli* are carried by a variety of wild and domestic animals; *Campylobacter coli* is particularly associated with pigs. The bacteria are shed widely and can be found in almost any natural water, fresh or saline, in which they can survive for many weeks at temperatures below 15°C. Water can be a direct source of human infection, though food contamination would be the cutting of bread or salad on an unwashed board that had just been used to handle raw chicken. Rectal abscesses by *Campylobacter* species are very rare. It is more common to see *Campylobacter* species causing diarrhea.

**Case Description:** This is the case of a 57 year old male who presented with complaints of fever and rectal pain for three days. Patient was found to be febrile to 39.4 °C with leukocytosis of 15.1. Mucous membranes were noted to be dry. Abdomen was soft, non-tender, with bowel sounds present. Perineal area revealed erythema, mild edema but no evidence of drainage or fissures. Acetaminophen and Motrin were used for analgesics, as opioids were avoided due to risk of constipation. Patient reported last colonoscopy was performed one year prior, and negative for abnormal findings.
Medical history was positive for seizure disorder in the setting of Meningioma home medications included Phenytoin & Phenobarbital for seizure prevention in the setting of diagnosed Meningioma over 25 years ago. Computed Tomography (CT) of Abdomen and Pelvis with contrast revealed a peri-rectal abscess measuring 4.0 x 5.4cm just anterior to the coccyx & extending bilaterally in a horseshoe configuration.

**Discussion:** Rectal abscesses by Campylobacter species are highly uncommon. Campylobacter species more commonly cause inflammatory, sometimes bloody, diarrhea or dysenteric syndrome which includes abdominal pain, fever and pain but it is unusual to have it be the cause of a rectal abscess especially without an active bout of diarrhea. Campylobacter species are rarely isolated from extra-oro abscesses. In humans, Campylobacter species have been associated with a range of gastrointestinal conditions, including inflammatory bowel diseases, Barrett’s esophagus, and colorectal cancer. They have also been reported to be involved in extragastrointestinal manifestations, including bacteremia, lung infections, brain abscesses, meningitis, and reactive arthritis, in individual cases and small cohorts of patients. Described here is a case of an extra-oro abscess due to Campylobacter species.

**Title:** Two hours Early Stent Thrombosis with Drug Eluting Stent after successful Percutaneous Coronary Intervention in Acute Coronary Syndrome

**Authors:** Ferrer Linda, MD., Stipp Lauren, MD., Curry Bryan, MD., Smithson Shaun, MD., Correa Luis, MD.
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**Introduction:** The occurrence of early Stent Thrombosis (ST) following percutaneous coronary intervention (PCI) for acute coronary syndrome (ACS) remains a clinical problem despite advances in stent technology even with drug-eluting stent.

**Case Description:** A 66 year-old athletic male, no significant history presented with typical chest pain. Initial electrocardiogram (ECG) showed ST segment elevation in inferior-lateral leads. He was taken emergently to cardiac catheterization. A complete occlusion of the proximal right coronary artery secondary to thrombus was identified. Successful PCI with a DES was performed with bivalrudin as the procedural anticoagulant and confirmed activated clotting time in therapeutic range. Approximately two hours following the procedure, the patient developed severe chest discomfort, ECG demonstrated ST segment elevation in inferior-anterolateral leads. The patient was taken back for a repeat coronary angiography which demonstrated complete occlusion of his recently placed DES. Repeat revascularization was performed with transluminal angioplasty only. Eptifibatide given. Review of angiography revealed a small, unrecognized stent edge dissection with residual thrombus at the distal end of the stent after the initial PCI. Hospital course was uneventful. Left ventricular function was preserved.

**Discussion:** Early ST is defined as confirmed or suspected stent thrombosis occurring within 30 days following PCI. Data from autopsy registry has shown that early ST was dependent on the underlying plaque morphology, thrombus burden, thickness and presence of necrotic core prolapse, possibly as seen in our patient. CathPCI registry results identified subjects with early ST had a higher prevalence in patient of black race and type II diabetes. Our patient was Caucasian Hispanic and had only dyslipidemia. We highlight an interesting case of very early ST, not common in the current era of DES. Possible mechanisms of ST in this case include complex thrombus burden, incomplete stent apposition and stent edge dissection, which during the stent implantation in unstable lesions could be triggers for early ST. Proper stent implantation technique may improve clinical outcomes of ACS patients.

**Title:** Prompt Diagnosis of Atypical Case of Diffuse Alveolar Hemorrhage

**Authors:** J. Flanagan DO, V. Lassalle DO, R. Brink DO, M. Plum DO, R. Kanaan MD, S. Al-Andary MD.

**Introduction:** Diffuse alveolar hemorrhage (DAH) is caused by inflammation of pulmonary small vasculature. Prompt diagnosis with serial Bronchoalveolar lavage (BAL) is crucial to prevent mortality and morbidity. Although hemoptysis is a common presenting sign, this can be absent in 33% of cases. Imaging classically shows nonspecific findings of bilateral infiltrates, frequently confused with pulmonary edema. Respiratory failure caused by DAH is generally acute and severe. We present a case of DAH who presented with mild and subacute respiratory compromise, anemia accounted for by alternative etiology, and no evidence of hemoptysis. We believe that the early consideration for DAH despite challenging presentation led to early institution of therapy which was crucial to improve mortality and prevent morbidity.

**Case presentation:** This 74 year old male with has a history significant for hydralazine-induced lupus, ESRD, and anemia. He was evaluated for worsening dyspnea for 10 days after prior hospital discharge. During previous hospitalization, he was started on hemodialysis for acute on chronic kidney disease due to hydralazine-induced lupus nephritis per kidney biopsy. This admission, he presented in mild-moderate respiratory distress with apparent pulmonary edema. Workup showed acute on chronic anemia, leukocytosis, and elevated BNP. Chest X-Ray showed bilateral perihilar consolidations. Serology showed positive ANA, p-ANCA, MPO, and histone antibodies. He denied any cough or hemoptysis. He was originally diagnosed with fluid overload and was emergently dialyzed, but did not improve. Subsequent chest CT showed bilateral bat wing-like pulmonary opacities raising concern for DAH in a clinical context of recent renal failure related to autoimmune disease. Bronchoscopy confirmed DAH. After multi-disciplinary discussion, patient was diagnosed with drug induced lupus nephritis and p-ANCA-associated vasculitis overlap syndrome. He was treated with high-intensity pulse-dose steroids, plasmapheresis, and cyclophosphamide induction. Patient tolerated the therapy well, improved, and was discharged. No known recurrences or complications from prior therapy were noted.

**Discussion:** Diffuse alveolar hemorrhage classically presents acutely with significant respiratory failure, cough and bilateral pulmonary infiltrates.
Prompt diagnosis and treatment is critical to alter the early mortality rates approaching 50% and prevent recurrence leading to lung fibrosis. The absence of hemoptysis and lack of significant respiratory failure made the diagnosis even more challenging in our patient. Prompt definitive diagnosis and elimination of more common etiologies allowed expedited treatment and favorable outcomes. Furthermore, given his prior history of hydralazine-induced lupus, awareness of the association with ANCA-associated vasculitis aided rapid treatment of his underlying disease state.

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**Title:** Cocaine Induced Very Late In-Stent Restenosis

**Authors:** Christopher Foth, DO, PGY-2; Jose Contreras, MD
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**Introduction:** Formal research into the pathophysiology of cocaine use and in-stent restenosis is limited. However, cocaine use has been associated with greatly increased rates of in-stent restenosis in multiple small studies (1,2). Studies into the mechanism have shown that cocaine induces platelet aggregation and vasoconstriction which can lead to thrombus formation (3,4). Other studies have shown that cocaine activates the endothelium itself causing increased platelet von Willebrand factor interaction (5). This interaction results in platelet rich thrombi that can cause both acute and chronic stenosis (5). Further research has suggested that chronic cocaine abusers have an increased atherosclerotic burden when compared to non-using cohorts (6).

**Case Presentation:** We present a case of an occasional cocaine user who presented with a STEMI and was found to have very late in-stent restenosis two years after receiving coronary intervention. He also developed an occluding thrombus in a vessel that was previously without disease.

A 38 year old Hispanic male with a past medical history of dyslipidemia and coronary artery disease who suffered a myocardial infarction (MI) 22 months ago presented to our emergency department with acute onset of sharp, constant, substernal chest pain that was 10/10 in intensity. The patient was compliant with 9 months of clopidogrel therapy and has taken aspirin continuously from the time a drug eluting stent was placed after his MI. He conceded that 3 days prior to this admission he did “4-5 bumps of cocaine” with co-workers and insisted that his last cocaine use prior to that was before his previous MI. An EKG this admission showed ST elevation in the inferior leads and he was immediately taken to the cath lab where he underwent a left heart cath that showed complete occlusion of the proximal right coronary artery. The previously placed stent in the obtuse marginal branch of the left circumflex had greater than 70% in-stent restenosis. The thrombus occluding the right coronary artery was aspirated and 200 mcg of nitroglycerin was administered with reestablishment of flow. Two balloon angioplasties were performed and a 4.0x16 mm stent was placed. Patient was then loaded with 300 mg of clopidogrel and 325 mg of aspirin post procedure. He was continued on a tirofiban drip for 18 hours post op and taken back 2 days later for thrombectomy and angioplasty with deployment of a 2.5x32 mm stent to the area of in-stent stenosis in the obtuse marginal. The patient remained chest pain free and was discharged home.

**Discussion:** Cocaine use is not only a risk factor for myocardial infarction but it also confers increased risk for poor outcomes after stent placement. This risk is present even in patients compliant with their anti-platelet medications and over a year post stent placement.

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**Title:** Spontaneous Biliary Peritonitis in Adults: A Rare Etiology of Acute Abdomen

**Authors:** Sadys Fuentes MD, Marice Conejo-Ruiz MD, Glenda Abreu

**Introduction:** Spontaneous biliary is a very rare cause of acute abdomen in adults. The pathology has been most commonly associated with infants and children. Few cases have been reported in the literature. In spontaneous biliary peritonitis there is a perforation of the gallbladder or the intra-extra hepatic ducts without iatrogenic injury or gallstones induced. Symptoms can be nonspecific and mild in nature leading to a delay diagnosis and management, which increases mortality. We present a case of a 90-year-old Hispanic male who presented with 10-day history of mild diffuse abdominal pain and nausea who was diagnosed with spontaneous biliary peritonitis on the second day of admission.

**Case Description:** 90-year-old male with past medical history of HTN, HLD and dementia who presented with a 10-day history of diffuse abdominal pain more prominent on right upper and lower quadrant associated with nausea without vomiting. On initial presentation patient patient met SIRS criteria. Vital signs were stable. Laboratory data revealed: WBC: 18.0, Neutrophils 82.6, Hgb 11.9, Potassium 2.9, BUN 30, Creatinine 1.1, Albumin 2.6 Alkaline Phosphatase 145.0, ALT: 67, AST: 103, Total Bilirubin 107, elevated lactic acid and procalcitonin level. Patient was started on IV fluids, broad-spectrum antibiotics and NPO. On the first 24 hours post admission patient underwent multiple imaging studies. Non contrast CT revealed a distended gallbladder with mild pericholecystic fat stranding. Concerning for possible cholecystitis. Sonographic correlation demonstrated no evidence of cholecystitis. A subsequent HIDA scan was performed showing no evidence of hepato biliary disease. Patient abdominal distention continued to worsen on the second day of admission and a contrast abdominal CT was ordered showing loculated fluid within the left abdomen. Patient underwent percutaneous drainage of 385 ml of greenish fluid suggestive of bile and a gallbladder drain was placed. Patient underwent subsequent ERCP with stent placement on common bile duct. Patient was transfer to CCU where he was closely monitored and required intubation for 2 days. Patient condition currently improving on conservative management with aggressive IV fluids, IV antibiotics, NPO and gallbladder drainage monitoring.

**Discussion:** Recognition and awareness of the presence of Spontaneous biliary peritonitis is critical to the timely diagnosis and management. Spontaneous biliary peritonitis is a rare condition with very few cases reported in adults. Late recognition of the condition due to nonspecific symptoms leads to an increase in mortality rate. The pathogenesis of spontaneous biliary peritonitis is poorly understood and little research has been
done about it, however it is thought to be a multifactorial condition. It is essential to maintain a high index of suspicion in patients with symptoms of spontaneous biliary peritonitis as the average onset of diagnosis in hospitalized patients is of 4 days and the mortality rate 30-50%.

Title: 20/20 vision post-CRAO in a patient treated with intra-arterial rtPA

Authors: Roya Garakani, O.D., M.S., OMS-III, Tej Desai, B.A., OMS-III
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Introduction: A central retinal artery occlusion (CRAO) presents with sudden, painless vision loss and is considered an ocular emergency. This occurs when an embolic plaque lodges into the central retinal artery, via the internal carotid and then the ophthalmic artery. Animal models have suggested that retinal damage can be spared if effective treatment is initiated within 90 minutes after onset of hypoxic injury. However, no randomized controlled trials have been conducted to evaluate the efficacy of standard therapies compared to observation. Currently, standard of care includes ocular massage over a closed eyelid, topical ocular hypotensive agents, as well as paracentesis. Retrospective studies have concluded there may be no difference between standard of care and observation, with improvement in visual acuity rarely achieved. However, no randomized controlled trials have been conducted to evaluate the efficacy of standard therapies compared to observation. Currently, standard of care includes ocular massage over a closed eyelid, topical ocular hypotensive agents, as well as paracentesis. Retrospective studies have concluded there may be no difference between standard of care and observation, with improvement in visual acuity rarely achieved. Recently, mixed results have been shown with intra-arterial fibrinolytic therapies (i.e. alteplase, recombinant tissue plasminogen activator [rtPA]). To the authors’ knowledge, this is the first reported case of return to 20/20 in a CRAO patient following intra-arterial rtPA injection.

Case Description: A 77 year-old Caucasian male with a history of mitral valve replacement, pacemaker insertion, hypertension, and high cholesterol arrived in the emergency room after experiencing sudden, painless loss of vision in the right eye (OD) one hour prior. The patient admits a past history of cataract surgery in the right and left eye (OS). Best-corrected vision OD in the emergency department was hand motion. The attending ophthalmologist visualized a plaque in the central retinal artery OD during ophthalmoscopy. The decision was made to inject rtPA into the right ophthalmic artery. Carotid Doppler ultrasound evaluation showed no occlusion bilaterally. Upon discharge, the patient was placed on 4 mg Coumadin once per day.

We were first introduced to the patient 1-day post-hospital discharge (7 days post-CRAO) at the Eye Care Institute at NSU. The patient was refracted to 20/20-3 OD and 20/20 OS. Humphrey central 30-2 visual field examination of the right eye showed a superior hemi-defect involving central fixation below the midline, with slight superior nasal sparing, along with an inferior nasal peripheral defect. Eccentric viewing in the right eye was also noted. Left eye visual field was within normal limits. Slit lamp examination was non-contributory bilaterally except for mild Meibomian gland dysfunction symmetrically in both eyes (OU). Fundus exam with a 90D lens showed pink and healthy optic nerves with 0.30 round C/D ratios and temporal peripapillary atrophy bilaterally. The right macula showed foveal pigmentary changes, a cilioretinal artery, and no cherry red spot. The left macula exhibited no hemorrhages, exudates, or pigmentary changes. Peripheral retinal examination shows a flat retina with no holes or tears bilaterally.

The patient is currently recovering well 2 weeks post-procedure. He is being followed by neuro-ophthalmology for rehabilitation.

Discussion: This case demonstrates excellent visual improvement in a patient following a central retinal artery occlusion treated with intra-arterial rtPA therapy. While a superior visual field scotoma remains, the recovery of foveal and inferior field vision was most likely due to the rapid treatment time with fibrinolytic therapy. This lends more evidence to utilize this approach in other patients presenting shortly after onset of CRAO.

Title: Bedside Ultrasonography as an Adjunct Diagnostic Tool in the Setting of Cardiac Pacemaker Lead Perforation

Authors: Nikkita Georges, M.D., Colin Hagen, M.D., Andrew Napier, M.D., Tony Zitek, M.D., Valerie Slane, M.D.
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Introduction: Right ventricular (RV) perforation is a rare complication of cardiac pacemaker placement, occurring in less than 1% of cases. Bedside ultrasound can be a useful diagnostic tool for rapid detection of pericardial effusions, a potentially fatal consequence of RV perforation. We describe the case of an 81-year-old female with undifferentiated shock who was ultimately diagnosed with an RV perforation 9 days after pacemaker placement.

Case Description: An 81-year-old female presented by emergency medical services (EMS) to the emergency department (ED) at our level one trauma center with chest pain. The patient’s family, who was with the patient at the time, reported that the patient was experiencing mild chest discomfort and malaise for the last week. Shortly prior to arrival, while seated in the car, the patient developed sudden severe chest pain and shortness of breath. The family reported a history of hypertension, hyperlipidemia, diabetes, atrial fibrillation (on rivaroxaban) and permanent pacemaker placement 9 days prior to arrival for sick sinus syndrome. Initial set of vital signs: blood pressure 81/54, oxygen saturation 97% on room air, heart rate 69, respiratory rate 17, and temperature of 36.6 F. The patient was persistently hypotensive after crystalloid resuscitation. Electrocardiogram revealed normal sinus rhythm without evidence of ischemic changes or infarct. Bedside transthoracic echocardiogram was performed and revealed a small pericardial effusion with no evidence of tamponade physiology; there was no evidence of wall motion abnormality or heart strain. Bedside lung ultrasound showed no B-lines and normal lung sliding. Chest x-ray revealed questionable pacemaker lead placement. The initial differential diagnosis included acute coronary syndrome, aortic dissection, pulmonary embolism, pneumonia, pneumothorax, hemothorax, sepsis, and anaphylactic shock. Given the lack of other findings to explain the patient’s hypotension and the images obtained on our bedside echocardiogram and radiograph, cardiology and cardiothoracic surgery were emergently consulted for evaluation of possible cardiac tamponade. The patient then underwent cardiac computed tomography imaging which revealed right ventricular lead perforation at the cardiac apex, extending through the pericardium and 5 cm
into the pleural surface. The patient subsequently underwent surgery that day. A sternotomy was performed for RV perforation repair, pacemaker lead removal, and insertion of a new epicardial pacemaker. The patient achieved appropriate function with the dual chamber pacemaker.

**Discussion:** Computed tomography (CT) is the gold standard modality for the diagnosis of pacemaker lead perforation. However, a CT scan is not always a practical method of evaluating a crashing patient. Bedside transthoracic echocardiogram can be utilized as a tool to facilitate diagnosis and intervention when there is a suspicion for cardiac lead perforation. This case emphasizes the importance of maintaining a broad differential in patients with chest pain and utilizing bedside adjuncts to enforce clinical decision making in the emergency department.

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**Title:** Peri-arrest secondary to Massive Pulmonary Embolism from Post Traumatic Inferior Vena Cava Thrombosis

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**Introduction:** Traumatic inferior vena cava (IVC) thrombi, although previously described in literature, are an uncommon finding in patients who have undergone blunt abdominal trauma. Save for hemorrhage secondary to a ruptured IVC wall, pulmonary embolism is the most unfavorable outcome of an IVC thrombus. To the best of our knowledge, cardiac arrest from a massive pulmonary embolism in the setting of a traumatic IVC thrombus has not been previously described in the literature. Here we discuss the case of a 25-year-old female presenting to the Emergency Department short of breath, status post MVC day 4, with a seat belt sign, with an IVC thrombosis, on Lovenox, who quickly became unstable, arrested, had ROSC and was taken emergently to the operating room, where after a successful thrombectomy, she made a full recovery and was discharged from the intensive care unit.

**Case Description:** We present the case of a 25-year-old female, with a past medical history of pituitary adenoma (status post resection via transphenoidal approach 4 months prior to presentation), Cushing Disease, PCOS, and hypertension, who presented to our Emergency Department, from home via ambulance, for evaluation of shortness of breath. Patient had been involved in a motor vehicle crash 4 days prior to current ED visit. The patient was a restrained driver in the crash, where the airbag deployed and her car was deemed “totaled”. For evaluation of her MVC injuries 4 days prior to presentation, the patient was taken to another hospital where she was found to have and extensive IVC thrombus - diagnosed with CT Abd/Pelvis -, and a 4th and 5th right metatarsal fracture - treated conservatively with an ortho CAM boot. Patient was admitted for 2 days and then discharged home on Lovenox injections. Patient reported compliance with Lovenox (40 mg BID prophylactic dose) until the day of presentation in our hospital.

Up on presentation, patient was in persistent respiratory distress: tachypnea, hypoxia, and tachycardia. Patient’s heart rate was 165, pulse oximeter indicated an 85% saturation with Nasal Cannula at 2L, and a blood pressure of 115/70. The patient was placed on a non-rebreather mask and oxygenated to a 94%. Respiratory distress was still present, with mild perilordial cyanosis, with marked worked of breathing. Mentation at this point was AOX4. Given the relative stability of vital signs, patient was taken for a thoracoabdominal CTA. However, patient was unable to lay flat for the study. This event increased the suspicion of Pulmonary Embolism from the Thrombosed IVC. Bedside FAST revealed no free fluid in the intra-abdominal cavity, bedside echocardiogram demonstrated signs RV strain. Appropriate calls to interventional radiology and thoracic surgery were placed for intervention, however CTA imaging was requested prior to making a decision on therapy. Immediately was determined to intubate patient for worsening respiratory distress, respiratory failure, hypoxia as well as to facilitate workup with the anticipation of a possibly life-saving intervention to the patient’s presentation and critical pathology.

Preparation for peri intubation decompensation were made and ready at bedside, including IVF, vasopressors, push-dose epinephrine and TPA. Patient underwent induction with IV Ketamine, 2-3 mg/kg, and Rocuronium as a paralytic agent, for intubation. There was momentary hypoxia with desaturation to 70%, secondary to significant VQ mismatching. MAC 3 blade via direct laryngoscopy was used, with first pass success. ET tube confirmed by direct visualization, wave capnography, bilateral breath sounds and condensation in the ET tube. Slow decompensation of patient’s heart rate to the lows 40’s was addressed with 40 µg of IV push epinephrine without marked improvement, likely secondary to increased clot burden in the peri intubation setting. Patient was ventilated with PEEP valve at 18-20 to improve hypoxia.

Patient arrested due to obstructive shock, CPR initiated and 1 mg of IV epinephrine. TPA was immediately pushed - 50 mg over 30 seconds, with an infusion of 50 mg over 15 minutes. ROSC was obtained after 1-2 minutes of CPR. Repeat bedside echocardiogram demonstrated signs of hemodynamically significant pulmonary embolism. IVC thrombosis was also visualized and appreciated with bedside ultrasound.

CTA performed after stabilization, showed PE and IVC thrombosis. Patient was emergently taken to the OR by CT surgery for embolectomy. Patient was discharged from hospital after a week in ICU, with and superior IVC filter placed.

**Discussion:** This case emphasizes the potential complications of traumatic abdominal injuries after a motor vehicle crash. It also highlights the benefits of Point of Care Ultrasound (POCUS) for rapid recognition of potentially life-threatening conditions allowing for rapid intervention, in this case lifesaving.

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**Title:** Dieulafoy’s, Dismissal, and Death: A rare and complicated case of potentially fatal gastrointestinal bleeding

**Authors:** Stephany Giraldo MPH, OMS-III, Ilda Izaa, D.O.

**Introduction:** Gastrointestinal (GI) bleeding is a common problem with a multitude of causes that could be life-threatening if not carefully evaluated and treated. Although Dieulafoy’s lesion (DL) accounts for 1-2% of all (GI) bleeds, one study concluded that over 80% of hemodynamically...
Case Description: 53-year-old African-American female with a complicated history of hypertension, systemic lupus erythematosus, and cerebral aneurysm presented to the emergency department (ED) complaining of an episode of hematemesis. She was discharged from the ED due to no repeated episodes while in care. Upon arriving home, the patient had a black tarry bowel movement and returned to ED where she had another episode of melena. The patient was admitted to the intensive care unit with a diagnosis of acute blood loss anemia due to acute GI bleed. Patient denied alcohol or tobacco use but of note was taking aspirin 81 mg twice a day.

On admission the patient underwent an emergent esophagogastroduodenoscopy that noted an active fundic DL. The lesion was repaired with endoclipping however the patient continued to bleed, and an embolization was later performed. Patient’s labs at 24 hours post-op revealed a hematocrit (Hct) of 20.5 L, a drop from Hgb/Hct of 11.3/34.9 on admission. At 48 hours post-op patient had maroon bleeding per rectum and a platelet count of 61 L. Platelet apheresis and blood transfusion were performed followed by an upper endoscopy to rule out rebleeding. No active bleeding was noted and so a CT contrast angiogram was performed to rule out lesions in the bowels. The small bowel was unremarkable but a diverticulum with branches arising from the SMA showed an arterial extravasation. Coiling x 2 of distal left gastric arterial branch was completed and a colonoscopy verified that there were no active lesions in the right colon.

The patient spent 10 days in the ICU and was transfused with 8 units of blood. Although stable upon discharge, Hgb/Hct was 9.1/26.

Discussion: This case illustrates the importance of conducting a thorough work-up on patients who present to the ER with possible GI bleeding. Although DL is considered rare, it can be life threatening and should therefore be a differential diagnosis in occult bleeding, hematemesis, melena or any combination there of. More research must be conducted in order to better understand Dieulafoy’s lesion and how to treat it in order to decrease rebleeding and rescoping. In addition, the entire GI tract should be examined in patients whose values fail to improve after correction of acute bleeding site.

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Title: Appendiceal Mucoceles: Implications and Therapeutic Approach

Authors: Michael Girard, MD, PGY I, Internal Medicine Residency Program, Palmetto General Hospital; Xavier Ramos, MD, PGY II, Internal Medicine Residency Program, Palmetto General Hospital; Harena Syal, Rohith Nair, MS IV, American University of Integrative Sciences

Introduction: Appendiceal mucoceles are uncommon but well-recognized pathological entities that can mimic a variety of clinical syndromes. They are typically identified on abdominal computed tomography as a distended and mucus-filled appendix, or incidentally during surgery. The course and prognosis depends on the histological subtype. They may be caused by either benign or malignant lesions, categorized into four histologic types: mucosal hyperplasia, simple or mucosal retention cysts, mucinous cystadenomas, and mucinous cystadenocarcinomas. Patients are often asymptomatic or have nonspecific symptoms. The most frequent symptom is acute or chronic right lower quadrant abdominal pain. In this case we present a 65-year-old Caucasian woman presenting with a two-month history of abdominal pain and bloating. Her presenting symptoms were concerning for gynecological pathology; however, intraoperatively, the diagnosis of appendiceal mucocele was made.

Case Description: We present a case of a 65-year-old Caucasian woman that presented with a 2-month history of progressive mild to moderate abdominal pain and bloating localized to the bilateral lower quadrants. She had also experienced abdominal bloating and a white vaginal discharge.

On primary survey, she denied nausea, vomiting, diarrhea, constipation, weight loss and abnormal bowel or bladder function. She was hemodynamically stable. Abdominal exam was unremarkable revealing a soft, non-tender abdomen with active bowel sounds and no organomegaly. Genital examination was also unremarkable showing normal female external genitalia. No vulvar lesions or discoloration were noted. Pelvic examination was benign. Abdominal CT scan revealed an 8.5x 5.6x 5.5 cm cystic adnexal mass displacing the uterus anteriorly; a normal left ovary; a fluid-filled dilated appendix approximately 1.2 cm with mild adjacent stranding. Serum serology revealed elevated CA-125. Patient underwent exploratory laparoscopy wherein successful surgical resection of appendiceal mucocele was performed.

Discussion: Surgical resection should be pursued, even for a benign-appearing appendiceal mucocele, since lesions that appear to be benign may harbor mucinous cystadenocarcinoma. As rupture of a neoplastic mucocele may result in peritoneal dissemination of neoplastic cells, careful handling and resection of the lesion is important to avoid peritoneal contamination.

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Title: Immobilization Induced Hypercalcemia In the setting of Septicemia

Authors: Joshua D. Godur, OMS-III, Neel Kapoor, OMS-III, Johan P. Braithwaite, OMS-III, Juan M. Dangoud, OMS-III

Introduction: The etiologies of hypercalcemia in adults are both exogenous and endogenous with the differential diagnoses including, but not limited to, hyperthyroidism, hyperparathyroidism, humoral hypercalcemia, milk-alkali syndrome, medication effects, vitamin D overdose, granulomatosis disease, metastatic diseases, CKD, and hypercalcemia secondary to immobilization. In 1941 Albright et al (1) first described

unstable bleeds are DLs. Despite first being described 130 years ago, its varied presentation and our limited understanding of the lesion, makes identifying the bleed quite difficult.\textsuperscript{2,3,4,5} According to a review by Khan et al, DL can occur anywhere along the GI tract presenting with: melena (44%), hematemesis (30%), both (18%), hematochezia (6%), or iron-deficiency anemia (1%).\textsuperscript{5} Some believe the lesion has predisposing factors (e.g. history of aneurysms, comorbidities, being in the 5th decade of life) while others think it is a congenital abnormality.\textsuperscript{1,4,5}
immobilization induced hypercalcemia in young adults who suffered spinal cord injuries. In current medical practice, immobilization remains an underappreciated cause of hypercalcemia in adults with multiple comorbidities and nutritional abnormalities (2). The pathophysiology is due to a decrease in stress-signaling to osteoblastic cells and unopposed osteoclastic resorption. In immobilized patients with septicemia, focal release of proinflammatory cytokines, such as IL-1, IL-6, and TNF-a, increase osteoclastic activation contributing to a hypercalcemic state (3).

**Case Description:** We present a case of a 26-year-old female IV drug user admitted to Lower keys Medical Center for 1 week of progressively worsening pain and swelling of the left hip and thigh. At the ED, she became hypotensive and unresponsive and was air-lifted to Mount Sinai Medical Center on 7/24/18.

On first encounter at MSMC, the patient was sedated and intubated. She was non-cyanotic with bilateral upper and lower extremities grossly edematous and CT scan of the hip showing substantial gas in the tissue indicative of necrotizing fasciitis. She was hypotensive and hypothermic and in renal failure with lactic acid level of (2.3), WCC (9.1), Hb (11.2), PLT (136), Na (121), K (6.8), CI (94), anion gap acidosis (14), BUN (91), and Cr (3.4). On presentation the patient’s calcium level was (6.6). During the initial 50-day hospital course, calcium levels trended upward following necrotizing fasciitis secondary to polymicrobial septicemia. Treatment consisted of wide spectrum antibiotics with multiple debridement of fibro-adipose tissue with skeletal muscle involvement of the left hip and elbow. Sources for high calcium levels were further investigated to rule out underlying pathology. On 8/28 Nephrology was consulted and extensive calcium work-up was ordered. Lab values for PTH, PTHrp, 1-25 OH vitamin D, TSH, and SPEP and UPEP were all within normal limits. On 9/10 a diagnosis of immobilization induced hypercalcemia was made. On 9/21 elevated calcium levels were exacerbated to a peak of 10.8 following an acute episode of septicemia. Empiric antibiotic treatment was initiated with IV fluids. Calcium levels returned to normal limits with resolving bacterial infection and dilution.

**Discussion:** This case illustrates the unique development of hypercalcemia in a young patient in the setting of immobilization and systemic infection.

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**Title:** Toxic Megacolon-Just a Seemingly Innocent Antibiotic Use Away?

**Authors:** Christine R. Gonzalez, DO, Emergency Medicine Resident PGY2, PBCGME, Dennis Cardriche, MD, Emergency Medicine Attending St. Lucie Medical Center

**Introduction:** Antibiotic use is the leading cause of pseudomembranous colitis, also known as Clostridium difficile colitis (CDI). A rare but potentially deadly complication of pseudomembranous colitis is toxic megacolon. This occurs when there is non-obstructive colonic dilatation of >7 cm in diameter plus evidence of systemic toxicity. CDI is most commonly precipitated by Clindamycin, fluoroquinolones, cephalosporin and penicillin use and symptoms typically appear during their use or up to one month after cessation. The severity of CDI ranges from nonsevere to severe and fulminant which can include shock and megacolon. Fulminant colitis can be medically managed with NG tube placement, PO Vancomycin, IV Flagyl and supportive care. If there is worsening with shock or peritoneal signs or no improvement in 48-72 hours then require surgical intervention for colectomy.

**Case Description:** 81-year-old F, who denies PMH reported to the emergency department for evaluation of abdominal pain and fever x3 days. 11 days ago she was seen at an urgent care for evaluation of a LLE skin tear. She was given a 10 day course of Keflex for infection prophylaxis which she completed yesterday. Three days ago she developed fever, intermittent episodes of non-bloody diarrhea and diffuse abdominal pain. She has been unable to eat or hydrate secondary to generalized weakness and her friends at the bedside report intermittent confusion and ataxia. On PE she is A0x3 and does not appear toxic, her abdomen is diffusely tender to palpation without evidence of peritonitis. She was febrile at 101.4, tachycardic at 136 but normotensive. She met sirs criteria and was started on empiric Zosyn. Her initial labs revealed leukocytosis of 23 and lactate of 2.2. The contrasted CT scan of the abdomen/pelvis revealed nonspecific enterocolitis. Stool studies were ordered and she was given PO Vanco. After admission to the hospital her abdominal pain and AMS continued to worsen and a repeat CT scan showed worsening bowel dilatation concerning for developing toxic megacolon in setting of positive C. diff stool studies. Her clinical course continued to decline with hypotension and peritoneal signs and she was taken to the OR for total colectomy with end ileostomy. She remained intubated and in critical condition with development of ARDS, pneumonia and pseudomonal wound infection. She was extubated after 11 days in the ICU and discharged with an abdominal wound vac to a SNF after a 33 days in the hospital with eventual plans for rehab.

**Discussion:** I felt this case was important to discuss due to the increasing use of antibiotics and the importance of recognizing the possible cascade of events their use may cause. Toxic megacolon comes with a high rate of morbidity and mortality and antibiotic usage is not benign. It is our job as clinicians to practice the judicial and conservative use of antibiotics to assist in lowering complication rates as well as provide comprehensive patient education about which signs and symptoms warrant a visit to their PCP or the emergency department for evaluation.

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**Title:** Gastrointestinal stromal tumor of the rectum with metastasis to the liver in a patient with high grade endometrial carcinoma: report of an unusual case

**Authors:** Priya Gupta OMS-III, Megha V. Patel OMS-III, Ronald E. Moore, MD Nova Southeastern University, Broward Health Medical Center

**Introduction:** Gastrointestinal Stromal Tumors (GIST) are the most common type of nonepithelial neoplasms of the gastrointestinal (GI) tract, yet only account for 1% of all primary GI cancers. Most occur in the stomach (60%) or small intestine (35%), but rectal GIST account for only 4% of all cases. The aggressiveness and malignant potential of GISTs are highly variable based on size, location and mitotic activity, but advances in molecular profiling (including identifying KIT and PDGFRa mutations) have helped develop targeted chemotherapy to improve prognosis in patients
with this rare mesenchymal neoplasm.

**Case Description:** We present the case of an 82-year-old Caucasian female who initially presented with severe posterior abdominal pain, as well as a 6-month history of postmenopausal vaginal bleeding. Further workup revealed a large pelvic mass that was associated with the rectosigmoid junction and uterus. Subsequent biopsies of this pelvic mass and a liver mass (that was discovered with PET-CT), were consistent with GIST of the rectum with metastasis to the liver. Immunohistochemistry revealed a spindle cell neoplasm that was positive for CD 34, CD 117 and caldesmon. The proliferation rate with Ki-67 was 3% and mitoses were inconspicuous, with no tumor necrosis recorded. Flow cytometry did not reveal any immunophenotypic abnormalities. At this point, the patient opted to undergo elective surgery, involving total abdominal hysterectomy and bilateral salpingo-oophorectomy, and resection of the pelvic mass. Deep pelvic exploration during resection of the rectal GIST indicated the need for a Hartmann procedure and creation of an end colostomy. Re-anastomosis was not possible due to the fact that only 1 to 2 cm of the rectal stump remained and could not be re-approximated with a diverting ileostomy. Other indicated procedures included bilateral internal iliac lymph node dissection, incidental appendectomy and liver biopsy. Surgical pathology revealed high grade carcinoma of the endometrium with serous and clear cell features involving the right and left ovary, high grade GIST of the 12.3 cm pelvic tumor arising from the rectal wall with benign pelvic lymph nodes, benign right and left iliac lymph nodes, benign liver biopsy, and benign appendix with acute serositis. At this point, the consulting oncologist recommended that the patient approach a tertiary care cancer center to search for clinical trials before starting chemotherapy for the GIST (for which she would receive imatinib) and endometrial carcinoma. The patient’s postoperative course was uncomplicated; she was discharged with instructions to follow up with general surgery, gynecology and oncology. Of note, the patient returned to the emergency room 5.5 weeks postoperatively with complaints of fevers, chills, and yellow vaginal discharge, and was admitted for suspected sepsis. Subsequent CT of the abdomen and pelvis revealed a small pelvic fluid collection which had improved from 1 month prior, most likely representing a draining pelvic abscess or hematoma, which explained her vaginal discharge. The patient opted to allow the abscess to drain through the vagina, and was discharged on oral antibiotics.

**Discussion:** This case illustrates the importance of tailoring treatment options of a rare presentation of GIST, based on the tumor’s molecular profile and indications for surgical resection. It also demonstrates recent advances in the state of the art management, including genetic and molecular testing, that have improved the prognosis of patients with GIST.

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**Title:** More than a Concussion with Extraordinary Return to Play Implications

**Authors:** Clay Guynn DO, Alessandra Posey DO, Lailah Issac DO, Lisa Lashley PsyD, and Roddy Joseph DPT

**Nova Southeastern University Sports Medicine Department**

**Introduction:** Traumatic brain injury (TBI) is estimated to affect over 2 million athletes annually and are usually mild in nature; however, in rare cases moderate TBI with brain bledding or worse can occur. In this case study, we describe a TBI case scenario who ended up with extraordinary return to play implications after thorough review of this case and current literature. Current literature does not provide specific guidelines regarding safe contact sport play after moderate TBI. This case is unique because it describes the difficult decisions made and our rationale based off the minute amount of research in this area of sports medicine.

**Case Description:** We present a case of a 14 year old male wide receiver with PMH of recent non-helmeted head to head collision with loss of consciousness who presented to our clinic for management. Of note, his recent hospitalization was significant for imaging with notable subarachnoid hemorrhage. Patient endorsed no symptomology; however, exam was significant for subtle upper motor neuron signs, balance impairment, and vestibulo-ocular dysfunction as well as decreased visual memory on computer testing. Over time, patient did improve but concerning clinical exam findings remained and he continues to work with our sports medicine team to rehab and outline the safest plan for involvement in sport in the future.

**Discussion:** The majority of TBI in sports are Concussions (mild TBI) and there are clear guidelines on how to return a player safely back to contact sports. However, in more rare cases, a sports related head injury could result in a more severe injury causing brain bleeding such as a subarachnoid hemorrhage. This case study is unique because it highlights the lack of evidence-based guidelines available when considering return to play safety in athletes with moderate TBI. This leads to a very difficult decision for the team involved in the care of the contact sport athlete with moderate TBI. Therefore, the team is forced to use guidelines based off related injuries from entities such as American College of Sports Medicine, peer-reviewed specialty journals, and expert opinion to help formulate a safe return to play protocol in these situations. This data will be presented in our case study along with our rationale for return to play decision making in this athlete.

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**Title:** The Epic Mimic: Epiploic Appendagitis

**Authors:** Justin Hahn, OMS-III(1), Jonathan Wu, OMS-III(1), Laura Ziton, D.O.(1,2)

**Nova Southeastern University Kiran C. Patel College of Osteopathic Medicine (NSU-KPCOM) (1), Broward Health (2)**

**Introduction:** Epiploic appendages are 1-2 cm wide to 0.5-5.0 cm long, fingerlike projections, composed of fat. The average adult has 50-100 such appendages which are located throughout the colon, running parallel on both sides to the taenia coli. Each appendage is vascularized with 1-2 arterioles and one venule with its function currently unknown at this time. Epiploic appendagitis (EA) is an ischemic infarction resulting from torsion or venous thrombosis of an appendage that presents with non-specific symptoms. EA presents more commonly in men with an average age in the 40s. Patients most commonly present with abrupt onset of lower abdominal pain with potential symptoms of fever, nausea, vomiting, and early satiety. Though no specific laboratory findings, leukocytosis may be present. Diagnosis is primarily made via CT scan with US and MRI also being utilized. With non-specific symptoms and the nature to mimic acute appendicitis or diverticulitis, a correct diagnosis is made approximately 2.5% of
Case Description: A 47 yo female with PMHx of paroxysmal atrial fibrillation with alternating sinus bradycardia presents to the ED with a 5-hour history of progressive, diffuse abdominal pain. The patient reported nausea, pain relief with meals, and normal bowel movements. Patient risk factors include obesity and noncompliance with daily aspirin. Abdominal exam was soft with significant tenderness of lower left, suprapubic and left lateral periumbilical region, obesity and no rebound or guarding. The patient was admitted due to minimal pain relief with IV morphine. Labs were within normal limits with exception of hemoglobin 11.4 and AST 64. Abdominal CT showed inflammatory stranding in the lower left quadrant, a nodular density of 18mm cephalad to the stranding, and a normal sigmoid colon. Comparison to a previous CT study revealed the same finding was present, but larger and not inflamed. Subsequent MRI showed enhancement and edema in lower left quadrant mesentery corresponding to the CT study and suggesting the diagnosis of EA. On hospital day 2, the patient’s pain was controlled with toradol. However, it became worse 1 hour after eating solid food. The patient was initiated on steroids to reduce inflammation, IV morphine for pain, and NPO diet with resultant pain tolerability. The next day, the patient tolerated liquids well and rated pain as 4/10 with mild nausea. The patient was discharged after tolerating bland diet. At a follow up visit 6 days post-discharge, patient reported resolution of abdominal pain.

Discussion: EA is a rare condition that is commonly missed. Prompt imaging studies and the ability to rule out acute appendicitis and diverticulitis should raise suspicion for EA. This patient’s unusual presentation and progression shows the elusiveness of EA. In the literature, Sand et al has also reported patients diagnosed with EA presenting with abdominal pain without nausea, vomiting, fever, or abnormal lab values. Because of its benign and self-limiting nature, proper diagnosis is essential in order to avoid unnecessary surgery. Conservative management with anti-inflammatory medications and non-surgical options are generally accepted treatments and resulted in the proper treatment regimen for this patient. With a self-limiting course and a low risk for further complications, patients are able to return to full function within 14 days.

Title: How Anovulation and Infertility Led to the Work Up of Polycystic Ovarian Syndrome in 17 Year Old Female.

Authors: Jodan Hemnings M.S. OMS-III, Madhurya Mulla OMS-III, Monique Michel OMS-III, Renee Alexis MD. Winston Alexis MD. Dr. Kiran C. Patel College of Osteopathic Medicine Obstetrics and Gynecology Department

Introduction: Polycystic Ovarian Syndrome (PCOS) is the most common cause of infertility in women with the prevalence ranging from 6-10% worldwide. This complex syndrome primarily entails hyperandrogenism, polycystic ovaries, and oligomenorrhea according to the Rotterdam Criteria. The criteria identifies 4 different phenotypes of PCOS, all of which have different treatment modalities. Phenotype 1- classic (hyperandrogenism, polycystic ovaries and oligomenorrhea), phenotype 2- hyperandrogenic ovulation (hyperandrogenism and oligomenorrhea), phenotype 3- ovolatory PCOS (hyperandrogenism, polycystic ovaries) and phenotype 4- non-hyperandrogenic ovulation PCOS (polycystic ovaries and oligomenorrhea). Based on the phenotype that an individual is identified as increases additional lifelong risk if not diagnosed and treated early. These include, but are not limited to, diabetes mellitus, cardiovascular disease, endometrial cancer, depression, sleep disorders and liver dysfunction. Recent studies have shown that both environmental factors and genetics plays a role in the development of this syndrome. However, the main hypothesis is the constant upregulation of estrogen, with a 3:1 ratio of luteinizing hormone (LH) to follicle stimulating hormone (FSH).

Case Description: A 17-year-old female presents to the OB/GYN office with irregular menstrual periods and male pattern facial hair distribution. On initial interview, the patient denies using birth control and a pregnancy test was negative. Physical examination shows male pattern facial hair distribution, obesity, and normal pelvic examination. To appropriately confirm the diagnosis, bloodwork, including, but not limited to, total testosterone/ free testosterone, LH, FSH, prolactin, CBC, ferritin, progesterone, estrogen, HbA1c and TSH, was done. A transvaginal ultrasound was performed to look for ovarian cysts while a hysterosalpingogram was done to test for the patency of the fallopian tubes. Radiology imaging confirmed patency of both fallopian tubes and a 1 cm cyst found on the right ovary with a normal appearing uterus. Lab workup showed an elevation in HbA1c and total testosterone, leading to the confirmation of PCOS phenotype 2 with type 2 diabetes mellitus. Based on the co-diagnoses and PCOS phenotype, the best course of treatment for the patient entailed trial and error. Gastric bypass surgery was performed to address issue of obesity while lifestyle modification and phentermine were initiated to help with weight maintenance after bypass. Oral contraceptive pills were added in a stepwise fashion to counteract the increased estrogen level and allow for the body to increase progesterone level, with the intent of regulating menses. Lastly, Metformin is inititated to help with the Type 2 diabetes and the ovulation in this patient.

Discussion: This case demonstrates that good clinical history and a high level of suspicion can rule in or rule out a diagnosis while using imaging and bloodwork to confirm or deny the suspicion. In the case of this patient, it is important to recognize and appropriately order work up to manage and treat the patient while avoiding further harm or misdiagnosis. This case study, overall, adds to our knowledge about the prevalence of this syndrome and to never jump to conclusions when the patient presents outside of textbook medicine.

Title: Schwanna Know More? Laparoscopic Removal of A Sigmoid Schwannoma: A Case Report

Authors: Tahia Hossain, OMS-III, Bassam Sayegh, M.D.
Palm Beach Gardens Medical Center

Introduction: Schwannomas are defined as benign tumors derived from Schwann cells within the peripheral nerve sheaths. They are typically found within cranial nerves, peripheral nerves, or spinal roots. Histopathologic characteristics include presence of alternating areas of compact spindle cells arranged in fascicles divided into Antoni A or Antoni B. A systemic review by Bohlok et al reported that schwannomas of the gastrointestinal tract account for 2-6% of all mesenchymal tumors. Schwannomas within the gastrointestinal tract are more commonly found 80% of the time within the stomach, and 10-15% within the small intestine. They are very infrequently found within the colon or rectum. We present the case of an 88 year old
female with a known sigmoid mass who underwent a laparoscopic surgical resection and was diagnosed histologically with a schwannoma of the sigmoid colon.

Case Description: We present the case of an 88-year-old woman who presented to the office a year and a half ago and was found to have a sigmoid mass while undergoing work up for complaints of chronic abdominal pain. Patient was reluctant to undergo surgery at that time but eventually underwent laparoscopic rectosigmoid resection. Past medical history was significant for diverticulitis, breast cancer, atrial fibrillation, hypertension, and obesity. Surgical history included coronary stents, atrial fibrillation ablation, hysterectomy, and left breast mastectomy. Physical examination during the visit was benign and demonstrated no tenderness. Most recent CT scan with contrast revealed a 6 cm lobular mass extending from the sigmoid colon along with sigmoid diverticulosis. Patient underwent a laparoscopic rectosigmoid resection with low pelvic anastomosis. Histologic evaluation of the mass described a spindle cell neoplasm consistent with schwannoma. Immunostaining was positive for S100, SOX10, CD56, and beta catenin. Negative for SMA, myosin, CD117, Dog1, pancytokeratin, CD34, and Calretinin. Staining pattern practically excludes the possibility of a gastrointestinal stromal tumor. Gross examination of the mass reveals a nodular, bilobed mass measuring 6 x 2.5 x 2.5 cm.

Discussion: As previously discussed, schwannomas are rarely found within the gastrointestinal system, and least likely to be found within the sigmoid colon. Schwannomas within the gastrointestinal tract often present as spindle cell tumors and originate from Auerbach’s myenteric plexus more often than Meissner’s submucosal plexus. Grossly, the origin may be determined based on the character of the mass. Schwannomas derived from Auerbach’s plexus present as non-pendunculated, oval-shaped, submucosal masses. Whereas they present as pedunculated polypoid lesions masses if originating from Meissner’s plexus.

Through this case report we hope to shed light on the rapid progression of the disease by the increasing size of the mass demonstrated on serial CT scans. Despite the rapid enlargement of the size of the mass, the patient complained of non-specific symptoms. Progression of the disease is poorly understood due to limited long term data and case reports. Though typically benign, there is a 2% incidence of progression to malignant transformation and therefore surgical resection is typically indicated as the primary treatment.

Title: Subglottic Web Causing Severe Airway Stenosis

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Introduction: Difficult airways are often the result of common causes such as obstructive diseases, decreased neck mobility, obesity, facial hair, etc. These things all make getting the endotracheal tube to the vocal cords difficult, but rarely do we think of having difficulty passing the ETT once we’ve passed the vocal cords. Subglottic stenosis is a rare condition that does just that. It can make what otherwise appears to be a normal airway, an incredibly difficult patient to intubate. This process is known complication that patient’s faced with traumatic or prolonged intubation all face. Diagnosis often requires laryngoscopy. Presentation mimics other causes of upper airway obstruction, such as croup in pediatric population. When subglottic stenosis is an acquired condition, it is often times life threatening in pediatric populations and often times requires emergent intervention. Most concerning, this is often misdiagnosed as other common causes of upper airway obstruction.

Case Description: We present 13 y/o female with a history of cerebral palsy and congenital hydrocephalus who presented for a scheduled PEG tube placement. Patient was unable to be intubated in the OR and was transferred to the Pediatric Intensive Care Unit for close airway observation. Patient did have a history of intubations in the past for various procedures but never had difficulty with passing the Endotracheal tube based on prior notes and mother’s knowledge of prior procedures. There was no history of prolonged intubation either. Patient arrived from the operating room on high-flow nasal cannula with saturations in the range of 93-100%. She had coarse breath sounds in the bilateral lower lung fields, likely secondary to known history of aspirations. Over the course of her stay, patient required high-flow nasal cannula, EZPAP and BiPAP. There were no stridorous breath sounds appreciated on exam but we administered racemic epinephrine and scheduled decadron to prevent airway edema that may occur due to the recent failed attempt at intubation. She was started on empiric antibiotics for aspiration pneumonia. 2 days after arrival to the PICU, patient had a flexible laryngoscopy performed by ENT, which revealed significant subglottic stenosis secondary to web formation causing nearly 50% stenosis of the subglottic airway. We were able to avoid emergent cricothyrotomy but there was no room for anything else should patient have decompensated without ENT available for tracheostomy. Patient was monitored in the PICU for 7 days prior to being stable enough to be considered by ENT for scheduled tracheostomy placement.

Discussion: This case illustrates the necessity for the utilization of a comprehensive airway plan and to investigate the possibility of subglottic stenosis for difficult to pass endotracheal tubes.

Title: Group A Necrotizing Fasciitis Induced by Haitian Herbal Remedy Cerasee

Authors: Tariq Jaber MD MPH, PGY-2; Amy Surti DO MS, PGY3

Introduction: Necrotizing fasciitis (NF) is an emergent condition characterized by widespread fascial destruction, lack of tissue inflammatory response, greyish exudate, warranting emergent surgical intervention. NF is either monomicrobial (type 1) or polymicrobial (type 2). Etiologies vary by respective patient populations, risk factors, and infectious agents. Symptoms include soft-tissue edema, erythema, severe pain, fever, and skin bullae. Often, skin manifestations are absent initially, delaying diagnosis of necrosis and more importantly, necessary surgical intervention. Later stages of disease reveal global muscle tissue death, sepsis, and multorgan failure, with mortality exceedingly 70%. Our facility serves the Haitian community which uses various cultural remedies for healing including plants used as topical pastes or teas. It is also documented that counterirritants
have a strong index of suspicion to be a cause of NF.

**Case Description** We present the case of an aged 45 Haitian male with a past medical history of hypertension who presented with left lower extremity swelling and erythema of one week’s duration, affecting his ability to ambulate. He experienced subjective fevers, chills, with minimal associated pain, and descending swelling from groin to ankle. The left lower extremity was mildly firm to palpation without tenderness; swelling was present, but no obvious external wounds. Vitalis revealed gradually worsening tachycardia and hypoxia out of proportion to his physical exam findings and unremarkable chest imaging. Imaging demonstrated soft-tissue swelling without any gas density, fracture, radiopaque foreign body, or other acute findings. Laboratory data demonstrated mildly elevated white count, thrombocytopenia, acute kidney injury, elevated lactate, with a normal creatine kinase. Supportive care was initiated, with ceftriaxone for presumed cellulitis. A few hours after presentation, the patient developed painful blistering lesions; vital signs started to worsen from baseline, and repeat labs demonstrated development of sepsis with further worsening in kidney function with oliguria. Upon close discussion, patient admitted to believing in “Voodoo therapy” and he used both an oral and topical Haitian herbal tree remedy “Cerasee” that was laced with ammonia on his left leg to relieve swelling. The patient was diagnosed with left lower extremity NF which required multiple incisions and drainages, including a series of decompression fasciotomies once the patient developed compartment syndrome. Wound cultures grew Group A Streptococcus pyogenes. The patient underwent skin-grafting of his entire left lower extremity, which was spared from amputation. At the end of the hospital course, the patient was carefully instructed on care of his leg and compliance with follow-up, and was discharged in stable condition.

**Discussion** Multiple points should be considered upon initial presentation of NF that are often overlooked upon inpatient admission. While our patient presented with signs and symptoms of sepsis, there was an absence of cutaneous manifestations of NF. Imaging results were non-specific, and he had symptoms that are common of other diseases, giving a broad range of differential diagnoses. The case was complicated by contemporary cultural practices with the employment of a counterirritant herbal remedy which seemed to be the inciting agent. The multiple confounding factors, combined with the nonspecific signs (nausea, vomiting, etc., pinpointing to systemic effects of a toxin) delayed the diagnosis of NF, which could have potentially led to limb amputation. Our case highlights the need for a high-index of suspicion of NF when sepsis presents with nonspecific findings and the appropriately deranged lab values. In addition, there should be awareness of various cultural practices, and a need for further studies for counterirritants and their roles in pathogenesis of potentially life-threatening diseases.
**Introduction:** Takotsubo cardiomyopathy (TCM) is an acute reversible cardiomyopathy that presents with features of acute coronary syndrome (ACS) in the setting of patent coronary arteries, and is characterized by left ventricular apical ballooning morphology. TCM represents 1-2% of ACS presentations. Bronchogenic TCM is described as stress cardiomyopathy secondary to COPD or asthma exacerbations. In a recent literature review, less than 40 cases of this subset have been reported. Here we present the case of an elderly woman with dyspnea originally thought to be due to a COPD exacerbation, but ultimately diagnosed with TCM.

**Case Description:** A 72 year old Hispanic female smoker with severe COPD and hypertension presented to an OSH for two weeks of progressively worsening shortness of breath and cough, consistent with prior COPD exacerbations. She denied chest pain. Her troponin was reportedly elevated, and without EKG changes, she was diagnosed with an NSTEMI and transferred. Upon arrival to our ED the patient was in frank respiratory distress with diffuse expiratory wheezing and accessory muscle. Vital: RR 30, O2 100% on BIPAP, P 120 sinus rhythm, BP 165/88 mmHg. CXR: no infiltrate or pulmonary edema. POC troponin was 3.250 ng/mL, and EKG showed elevations in V3-V5 consistent with acute STEMI. Focused ultrasound by the EDP demonstrated an EF of < 25%, with isolated apical wall motion abnormalities. She was electively intubated prior to cardiac catheterization. Catheterization demonstrated no coronary artery disease and elevated pulmonary artery pressures (LVEDP 24) consistent with COPD/pulmonary hypertension. The ventriculogram was remarkable for an ejection fraction of 15%, with anterior-inferior apical hypokinesis and aneurysmal dilation consistent with TCM. The patient was extubated the following day, with mild residual expiratory wheezes. Repeat echocardiography re-demonstrated the previous POCUS findings of apical hypokinesis and ballooning, with an improved EF of 30%. Her respiratory status improved, and she was discharged after five total days of hospitalization.

**Discussion:** High-sensitivity troponin assays can be elevated in 74% of patients admitted to the hospital with an exacerbation of COPD. How to differentiate uncomplicated demand ischemia from potential new stress cardiomyopathy in these patients is thus a diagnostic challenge. Cardiac catheterization is the diagnostic gold standard, but invasive. Serial EKGs are the current mainstay in augmenting diagnosis. However, by recognizing the characteristic apical ballooning, this case demonstrates the potential utility of focused ultrasound in screening for TCM.

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**Title:** CABG Averted, By An Interesting Case of “Nitroplasty”

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**Introduction:** Vasospastic angina is a clinical entity characterized by episodes of rest angina that promptly respond to short-acting-nitrates and are attributable to coronary artery vasospasm. There are three core elements for diagnosis: nitrate-responsive angina, transient ischemic ECG changes and angiographic evidence of coronary artery spasm. It is caused by focal or diffuse spasm of the smooth muscle layer of the arterial wall of an epicardial coronary artery. Cigarette smoking is a major risk factor for vasospastic angina. Triggers can include cocaine, marijuana, alcohol, sumatriptan and amphetamines. The prevalence is not well studied but the diagnosis is more often made in individuals less than 50 years of age. Clinically patients present with a chronic pattern of recurrent chest pain that have various descriptions. This condition can be under diagnosed due to vague symptoms and many clinicians not being sufficiently familiar with the condition.

**Case Description:** Here we present a 48-year-old female who experienced chest pain and on coronary angiography was found to have multi-vessel coronary lesions that were initially thought to need surgical bypass. However, after giving intra-coronary nitroglycerin the degree of stenosis improved. After giving additional nitroglycerin the coronary lesions completely resolved. Hence, CABG was averted by “nitroplasty.”

**Discussion:** Vasospastic angina is a unique entity that is under recognized. As mentioned above there are three criteria that need to be established to characterize someone having coronary vasospasm: nitrate-responsive angina, transient EKG changes, angiographic evidence of coronary artery spasm. The differential diagnosis in this setting includes STEMI, Pericarditis, Takotsubo syndrome, and non-cardiac chest pain with early repolarization changes on EKG. The importance of recognizing vasospastic angina is imperative in order to avoid unnecessarily send patients for bypass surgery or unneeded PCI.

The pathogenesis of vasospastic angina is related to vascular smooth muscle hyper-reactivity. Multiple vasoconstrictors have been used to provoke coronary spasm including acetylcholine, serotonin, histamine, noradrenaline, and dopamine. Suggesting a single receptor pathway cannot explain the phenomenon. The precipitation of spasm by acetylcholine suggests a role for imbalance of vagal and sympathetic tone in triggering coronary spasm. Episodes of vasospastic angina occur more often from midnight to early morning when vagal tone is higher.

Treatment of vasospastic angina includes smoking cessation, nitrates, and calcium channel blockers. Use of a calcium channel blocker (i.e. Diltiazem 240-360mg per day) is effective in alleviating symptoms in over 90% of patients in an observational study of nearly 300 patients. The long-acting nitrates are also effective in alleviating symptoms, but the occurrence of nitrate tolerance makes them less desirable first line approach. Non-selective beta-blockers such as Propranolol can exacerbate vasospasm and should be avoided. In addition, Aspirin should be used with caution and at low doses, as it is an inhibitor of prostacyclin production at high doses. In general, the long-term prognosis is good, particularly in patient receiving medical therapy. Survival at five years may be as high as 94 percent. Patients with obstructive CAD have a worse prognosis in addition to those who experience an arrhythmic complication during an episode of spasm.
Testing for the Known Unknown

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Introduction: Traditionally thought to be restricted to endemic areas which comprises countries in Africa, Asia, the Americas, the Caribbean, and the Pacific, it is now estimated that about 40% of the World’s population live in area at risk of exposure to Dengue fever. Due to this relative ease of exposure to this potentially devastating disease, there should be a low index of suspicion with patients presenting with fever and potential risk of exposure. It is estimated that there are about 22,000 deaths related to DF annually, mostly children. This means the pediatrician has an obligation to be highly suspicious of traveling history to protect their vulnerable patients. It is important to have proper timing for testing to yield accurate results. Clinical presentation is often nonspecific, leading to common but wrong screening tests.

Case Presentation: An 11 year old male presented to our ER with a fever of 2 days duration and decreased energy and appetite, headaches, abdominal pain, nausea, constipation and redness around the mouth. A visit to the PCP the day prior showed negative UA and rapid strep and flu. Travel history revealed a recent 3-weeks stay in India. He was febrile at 39.1°C. CBC, CMP, flu A/B rapid swab didn’t suggest an acute infection. However, CRP was elevated at 2.8. Urine and blood cultures, malaria smear and DF antibodies titer were obtained. Patient was discharged home with diagnosis of an unknown febrile viral illness. He returned to the ER 4 days later with continued fever (now a week duration), cough, constipation and vomiting. CBC showed low WBC: 1.8, ANC: 860 and Platelets: 85. LFTs were elevated (AST: 818; ALT 514) with normal CRP. Mono Screen was negative. Patient reported the presence of mosquito bites during the trip. There was calf pain, dysuria, and gross blood in stool. On the night of admission, there was itching in his extremities but no rash, erythema or edema were noted. Pruritus improved with Benadryl. A diffuse rash subsequently developed and Gabapentin was added for burning sensation. Fever, leukopenia, and thrombocytopenia resolved on the 3rd day with LFTs trending down. Patient was hemodynamically stable and was discharged. Upon discharge, Dengue IgM was reported at 1.08 and IgG at 1.03 (ref range: normal < 1.65). These results are best interpreted in the setting of timing of sample collection. In a primary infection IgM is detectable as early as 4-7 days after onset of the disease. These labs were drawn on day 3. Confirming the diagnosis requires a second sample on day 10-14 with a 4-fold increase in titer. This step was not repeated due to the patient’s discharge. However, the management was not affected by the lack of confirmed diagnosis as the guidelines suggest symptomatic management with attention to the leukopenia, thrombocytopenia with elevation in hemoglobin that could be an indicator of the critical phase of the disease.

Discussion: This case illustrates the importance of obtaining a thorough history including travel history. It also conveys the importance of a broad differential diagnosis even for the most common presentations. Accurate diagnosis of DF relies on detecting antibodies at specific times of the disease process. A delay in these tests can lead to a misdiagnosis, prolonged course, unnecessary and costly tests, as well as exposure to broad spectrum antibiotics, thus increasing antibiotic resistance.

Glass Cleaner and Drug Paraphernalia Causing Undifferentiated Toxicities

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Introduction: Illegal drug use in the modern ED can provide many diagnostic challenges for the Emergency Provider, not least of which is the difficulty inherent in accurate history-taking when patients arrive altered or are fearful of the consequences of their drug use. On a commercial level, many companies marketing to drug users often also obscure their product’s purpose and active ingredients. This is most well-known from synthetic cathinones such as so-called ‘bath salts,’ however this reticence also extends to specialized cleaning products and other drug paraphernalia. In many cases, poor labeling is allowed by law due to lack of coverage of many categories of household chemical OSHA or FDA requirements. These aspects can combine to add dangerous diagnostic uncertainty to the rapid evaluation and management of intoxication, toxic ingestions, and allergic responses.

Case Description: We present the case of two adult males presenting with concern for oropharyngeal swelling and difficulty breathing after ingestion of an unknown glass cleaning solution, which was brought to the ED. The patients reported use of the cleaner on dinner plates prior to eating, which occurred immediately prior to arrival. Patient A presented with tachycardia to 148/min, with bilateral conjunctival injection and urine drug screen positive for THC. Patient B presented with normocoria at 86/min, bilateral conjunctival injection, and urine drug screen positive for THC and amphetamine. Presenting tachycardia and dyspnea were improved after supportive care with benzodiazepine, antihistamine, and intravenous hydration. Neither patient had evidence of stridor or wheezing to suggest anaphylactic reaction or indication for epinephrine therapy. A high level of concern for caustic ingestion was maintained as initial internet search was unable to determine active ingredients of cleaning solution. Poison Control was also unable to determine type of toxicity. After symptomatic improvement, both patients left Against Medical Advice. Later investigation revealed the chemical to be a marijuana pipe cleaner with the chief ingredient acetone. In consultation with Poison Control we determined that the patients experienced vaporized acetone exposure causing localized throat swelling, eye and throat irritation, without acute generalized toxicity. Household cleaning products are not nationally regulated nor does OSHA or the FDA require active ingredient listings or Safety Data Sheet information.

This case of acetone toxicity was complicated by patient refusal to admit illegal drug use despite positive drug screens on both patients. While both patients improved without likely sequelae, effective symptomatic therapy such as rinsing of the eyes was not performed. This case demonstrates an additional danger inherent in caring for patients with drug use and the need for careful attention to developing a nonjudgmental therapeutic relationship with them.

Discussion: This case demonstrates the need for a wide differential and prevention of early anchoring bias when dealing with intoxicants and coingestants in the setting of drug use, as product information may be unavailable even for commercial products that are not in and of themselves
Title: Are Your Symptoms MILDLY Better?: A Case Study of the “Ideal” Candidate for the MILD© Procedure

Authors: Reena John, DO; Jacob Topfer, MS3; Christian Gonzalez, MD

Introduction: Lumbar spinal stenosis is a narrowing of the spine that can result from a bony formation, bugling vertebral discs, or hypertrophied spinal ligaments. Patients present with textbook neurogenic claudication: numbness, weakness, and pain with standing or walking, worse with extension, and relieved with sitting and leaning forward. The treatment for lumbar spinal stenosis has been evolving towards minimally invasive procedures in an attempt to reduce postoperative morbidity and spinal instability. The mild© procedure is performed under fluoroscopic guidance in a contra-oblique angle. The normal ligamentum flavum is less than 2mm, and when hypertrophying to >4mm can cause spinal canal stenosis and symptoms consistent with neurogenic claudication. Unlike conventional surgical decompression, the mild© procedure is only indicated for central stenosis only. It has not been shown to help patients with symptoms consistent with nerve root compression or disc herniation.

Methods/Materials: Patient informed consent was obtained for submission of a case report. This is a case study of a patient that presented to the pain management service for management of her neurogenic claudication as a result of her lumbar spinal stenosis.

Case Report: 54-year-old F with no significant past medical history presented with textbook neurogenic claudication: numbness, weakness, and pain with standing or walking, worse with extension, and relieved with sitting and leaning forward. Upon reviewing her MRI, it was noted that only the L4-L5 level had significant ligamentum flavum hypertrophy. She continued to have pain following physical therapy and oral medications. She also underwent multiple lumbar steroid epidural injections, with minimal relief. In light of her presenting symptoms, we offered her the mild© procedure for the relief of her neurogenic claudication symptoms. In the OR, after performing an epidurogram, it was even more evident that the ligamentum flavum was only hypertrophied at the level of L4-L5. After resecting lamina and thickened ligamentum flavum bilaterally, the epidurogram began to expand immediately. In the subsequent 1-week, 2-weeks, and 1-month follow-up appointments she reported almost an 80% reduction in pain and a 60% increase in mobility.

Discussion: When compared with more invasive surgical lumbar decompression surgeries, the mild© procedure has shown to have less intraoperative blood loss, post-operative blood transfusions, less dural tears, shorter anesthesia times (many cases are performed under MAC), and shorter hospital length of stays. Studies have shown that patients treated with the mild procedure experienced a reduction in pain of better than 74% and a mobility improvement of more than 70%. Patients need to be selected based on certain criteria. The mild(c) procedure is indicated in lumbar spinal stenosis secondary to ligamentum flavum hypertrophy on imaging and symptomatic neurogenic claudication in patients with lumbar spinal stenosis. The patient must have an absence of spinal instability, grade II or greater spondylolisthesis, and severe foraminal or lateral stenosis.

Title: Violaceous Nodule of the Upper Limb: A Rare Case of Glomangiosarcoma

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Introduction: Glomus tumors are benign soft tissue neoplasms consisting of proliferation of glomus cells associated with small vessels in the reticular dermis, and a predilection for extremities, particularly subungual locations. A glomangiosarcoma, also known as a malignant glomus tumor, is an uncommon malignant variant of a glomus tumor with unusual clinical features. It has been reported in multiple anatomical locations. Histopathologic evaluation including immunohistochemistry is essential to make the diagnosis, showing characteristic increase in mitotic activity, cytologic atypia, and positive staining of lesional cells for smooth muscle actin and vimentin. Although rare, there have been reports of metastasis, making early diagnosis and removal of the malignant tumor essential.

Case Description: We describe a case of a 55-year old male who presented with a violaceous nodule on his left medial antecubital fossa. He reported pain isolated to the lesion, which was exacerbated with activity. On physical exam, the patient had a 2.6 x 1.7 cm soft, tender, violaceous nodule on the left antecubital fossa. Excisional biopsy was performed and histologic evaluation showed proliferation of cells within rounded to oval nuclei, which formed sheets in their arrangement around small blood vessels. Focally, there was increased mitotic activity and cytologic atypia in association with the perivascular spindle cells. Lesional cells were positive for smooth muscle actin immunohistochemical stain. These findings were consistent with malignant glomus tumor arising from a conventional glomus tumor. The patient was then successfully treated with Mohs surgery. Upon referral to a tertiary center for oncologic evaluation he did not require additional imaging or adjuvant therapy.

Discussion: This case serves as reminder to consider glomangiosarcoma in the differential diagnosis of a violaceous nodule, and to recommend Mohs surgery as a treatment to consider in the management of this condition. Mohs surgery was performed on our patient due to the following high-risk features such as large tumor size, poorly defined tumor borders, and aggressive histologic features. Additionally, we emphasize the importance of frequent skin checks for patients with the diagnosis of primary cutaneous glomangiosarcoma given the propensity for recurrence and possibility of disease progression.
Title: A 17 month old female with a feather in her neck

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Introduction: Foreign body ingestion is a frequent occurrence, especially among the children. The most commonly ingested foreign bodies in children are, in order, coins, magnets, batteries, small toys, jewelry, buttons, and bones. Foreign bodies often become impacted in the upper esophageal sphincter, mid-esophagus at the aortic arch impression, or lower esophageal sphincter. In 1-4% of all cases, the foreign body may migrate through the the esophageal wall. There can be major complications, including retropharyngeal abscess, deep neck abscess, mediastinitis, and vascular complications.

Case Description: This is a 17 month old white female with no significant past medical history who initially presented to the emergency department with an erythematous swelling behind the right ear that was noticed on the same day. She did not have any other symptoms and vital signs were stable. Rapid strep test was negative, and U/S of the neck showed complex collection of fluid. Parents refused the blood work and opted to try oral antibiotics. Antibiotic choice was complicated by her allergy to amoxicillin. She was discharged with oral clindamycin. 7 days later, she returned to ED, with mild improvement of the neck swelling per parents. CBC showed wbc 14.5. CMP, ESR and CRP were normal. Repeat U/S showed slightly larger hypoechoic collection. She was admitted to the pediatric unit and warm compresses were applied. ENT was consulted, who placed her on meropenem and steroids. The swelling improved slightly. Repeat U/S showed interval resolution of the abscess, and the steroids were discontinued. On 4th day of IV meropenem, parents thought that the swelling decreased in width but ‘ballooned up’ in height. It was initially thought to be due to the resolution of the swelling around the node. On 6th day of IV meropenem, incision and drainage at the level 2 of neck was performed, along with the lymph node biopsy. A foreign body was found, which was sent to the pathology for gross analysis. It read a 1cm pointy sharp spine with feathery projections, consistent with a feather. Several deep nodal biopsies showed findings consistent with acute and chronic inflammation. The cavity was cleansed and gauze packing was applied. Postoperative follow up was uneventful. Wound culture grew staph coagulase negative. Parents denied any objects including the feathers in their house.

Discussion: The first case of a neck abscess with a feather was described in 1931. Since then, there has been seven other reported cases, all occurring in a pediatric population less than 12-months old. To author’s knowledge, this is the first case of a neck abscess caused by a feather in a child older than 12-month old. The skin of an infant is soft and thin, and it is certainly possible that the feather penetrated cervical area externally by trauma, as suggested by previous case studies. The American Academy of Pediatrics specifically recommends against putting soft objects such as pillows, quilts, or comforters in infants’ sleeping area to reduce the risk of suffocation and SIDS. Although the there were no soft objects in the house in our case, a review of the case studies revealed that at least three cases were attributable to the patients sleeping near soft objects that had feathers. Pediatricians should educate the parents about the potential risk of having soft objects in cribs of an infant.

Title: Something’s Got to Stiff: A Rare Case of Stiff Person Syndrome

Authors: Minjoo Kim, D.O., M.S., PGY-III, Benjamin Morrison, D.O., PGY-III; Peter Cohen, D.O., Shane Williams, D.O.; NSU-KPCOM Family Medicine Residency Program, Palmetto General Hospital

Introduction: Stiff Person Syndrome (SPS) is a rare and complex disorder that is characterized by progressive stiffness and rigidity of axial muscles, resulting in gait disturbance and coordination. This syndrome has been described as a progressive disease caused by hyper-excitability of muscle tone and activity due to diminished central nervous system (CNS) inhibition from autoantibodies directed against glutamic acid decarboxylase (GAD), which is the rate-limiting enzyme for the production of neurotransmitter gamma-aminobutyric acid (GABA). Estimated prevalence is 1-2 cases per million, with an incidence of 1 case per million per year. Women are affected 2-3 times more often than men. Initial laboratory findings may reveal no significant abnormalities, however, further work-up often reveals the presence of anti-GAD antibodies. SPS patients often exhibit a positive therapeutic trial with benzodiazepines. Diagnosis relies heavily on the clinician’s high index of suspicion in patients with characteristic findings, presence of anti-GAD antibodies, and a positive response to diazepam.

Case Description: This is a case of a 30-year-old Haitian female who presented with worsening walking difficulties associated with episodic lower extremity muscle spasms. She also admitted to new-onset sleep disturbance, depressive symptoms, and anxiety. Her muscular symptoms had not responded to any conventional methods. On exam, she was a thin-framed, cachectic female; exhibiting shallow respirations with accessory muscle use; spastic diplegia and positive, bilateral Babinski reflexes. Initial laboratory and radiographic work-up did not reveal any abnormalities. A trial of benzodiazepine (lorazepam) was prescribed to abate the patient’s anxiety symptoms, and was scheduled for close monitoring and follow-up. Subsequently, additional serology revealed an elevated titer of anti-GAD-65. By the time of her diagnosis, the patient’s symptoms were extensive and severe; requiring multiple hospital admissions for exacerbations of her spasms involving her respiratory and pharyngeal muscles. Her exacerbations did respond to intravenous benzodiazepine treatments and eventually was transitioned to oral maintenance benzodiazepine therapy. She had a full recovery from her complicated hospital course and has been continued on maintenance oral benzodiazepine therapy with symptomatic relief.

Discussion: This fascinating case illustrates the importance of maintaining a wide differential diagnoses, while expanding upon subtle clues into a patient’s underlying pathophysiology. Treatment of SPS is directed towards alleviating symptoms, largely achieved by benzodiazepine use. Overall prognosis varies significantly, and the most prevailing factor in favorable outcome is early recognition and diagnosis.
**Title:** Atypical Hand Foot And Mouth Disease

**Authors:** Young Min Kim, OMS-III, Divya A. Pandya, OMS-III, Michael F. Blackard, OMS-III, Noel Alonso, M.D., Andrea Horbey, D.O.

**Introduction:** Hand, foot, and mouth disease (HFMD) is a clinical syndrome that presents with a macular, maculopapular, or vesicular, or vesiculopustular rash as well as an oral enanthem. Various enterovirus serotypes cause HFMD, the majority of which are Enterovirus A species. The serotypes Coxsackievirus A16 and Enterovirus A71 are most frequently associated with HFMD. Human enterovirus infections are transmitted via fecal/oral route through contact with respiratory and oral secretions, as well as vesicle fluid. HFMD occurs worldwide, typically in children and infants younger than 7 years of age during the summer and early autumn. The most common presentation of HFMD begins with nonspecific complaints of mouth or throat pain, decreased appetite, and a fever of less than 101°F later causing a macular, maculopapular, vesicular or vesiculopustular exanthem that occurs on the dorsum of the fingers and toes, palms of the hands, soles of the feet, buttocks, legs, and arms. Patients may also present with an oral enanthem on the tonsils, buccal mucosa, tongue, or on the soft or hard palates usually presenting as shallow vesicles and ulcerative lesions. Diagnosis is made clinically, and treatment is supportive.

**Case Description:** A 9-month-old male with a past medical history of GERD presents to the clinic with a fever that began the day prior to presentation while returning from a trip to New York. The temperature was 103°F and reduced to 101°F with ibuprofen and acetaminophen as reported by the patient’s mother. After returning to Florida, the patient later woke up in the early morning on the day of presentation with a fever of 103°F, which prompted her to go to the ER. The mother refused chest x-ray and blood work, but allowed a urine analysis which was non-significant. Acetaminophen was given in the ER, resulting in effervescence, and the patient was later discharged. Fever developed again later that morning, with the onset of rash leading to the patient presenting to the pediatric clinic in the early afternoon. Vitals were all within normal limits, including the temperature of 98.3°F. The mother admitted to giving ibuprofen 2 hours prior to their arrival at the clinic and confirmed that the patient had a markedly decreased appetite. She denied any sick contacts, vomiting, diarrhea, decreased urine output, or lethargy. During the examination, patient displayed irritability with excessive drooling and the skin exam revealed pinpoint erythematous maculopapular rashes on the abdomen, bilateral arms, left posterior auricular area, right ankle, and bilateral palms and soles. Additionaly, erythematous macules and vesicles were found in the posterior pharynx.

**Discussion:** HFMD is most commonly associated with mild disease in children presenting as fevers, small lesions on palms, feet, and buccal mucosa or tongue. This mild presentation is most often the result of Coxsackievirus A16. Other causes include Enterovirus 71 or Coxsackievirus A6 and other serotypes, which can present with atypical and often more serious symptoms. Coxsackievirus A6 typically presents as extensive cutaneous involvement including the dorsum of hands and feet, calves, forearms, trunk, neck, face, oral mucosa, and extensor surfaces of the upper and lower extremities, in addition to the palms and soles. Due to our patient presenting with such similar extensive cutaneous involvement including the dorsum of the hands, feet, trunk, calves, and upper and lower extremities involvement, this case presents more like a mild Coxsackievirus A6 infection. However, considering the lack of serological studies, it is difficult to discern whether this was a mild, atypical presentation of Coxsackie A6 or a severe, atypical presentation of Coxsackievirus A16. This provides an important reminder to keep vigilant when working up atypical cases as missed diagnoses may lead to complications of HFMD such as encephalitis, aseptic meningitis, acute flaccid paralysis, and myocarditis.

**Title:** Thrombotic Thrombocytopenic Purpura - Act Fast

**Authors:** Loan Le, D.O.1, Aliya Rehman, OMS-IV2, Mohammed Ahmed, D.O.3, Mohammad Rizvi, D.O.4, Umair Javaid, D.O.4, Jose U. Sanchez, M.D.5

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**Introduction:** Thrombotic thrombocytopenic purpura (TTP) is a rare but serious blood disorder that causes thrombotic microangiopathy. TTP can be inherited or acquired, and results from dysfunctional or diminished activity of the von Willebrand factor-cleaving protease ADAMTS13. The incidence is very rare, as low as 3 cases in one million adults per year. Females and black race individuals have increased risk of TTP. The classic patient presentation includes a pentad of fever, thrombocytopenia, microangiopathic hemolytic anemia, renal failure, and neurological symptoms. The hematologic abnormalities are the most commonly seen aspects of the pentad, while fever and renal failure are the least common. Severe deficiency of ADAMTS13 activity is more specific for the diagnosis of TTP than the pentad. TTP is a medical emergency and can be fatal if not treated promptly. This case study presents a non-classic presentation of TTP and the importance of treating patients early with suspicion for TTP.

**Case Description:** We present a unique case of a 56 year old Cuban female with a past medical history of hypothyroidism, non-alcoholic hepatosteatosis, and migraines who presented to the Palmetto General Hospital emergency department with symptoms of a transient ischemic attack manifesting as two 10-minute episodes of slurred speech that resolved within 24 hours. The patient was back to baseline per family when she was examined in the ED. Clinically, the patient appeared calm and vital signs were stable. Physical exam was grossly unremarkable without any focal neurological deficits. Imaging studies showed no evidence of stroke. An incidental finding of thrombocytopenia and anemia was found with a platelet count of 24, hemoglobin of 8.5 g/dL, and hematocrit of 23.4%. The patient was afebrile and had no renal involvement with a creatinine of 0.9 mg/dL. The patient was empirically treated for idiopathic thrombocytopenic purpura with high dose intravenous steroids and intravenous immunoglobulins with minimal response. This led to suspicion of TTP. Plasmapheresis was then started and patient showed signs of improvement in thrombocytopenia and anemia. The diagnosis of TTP was later confirmed with schistocytes seen on peripheral blood smear and an ADAMTS13 level of < 2.0% that resulted on Day 7 of her stay.

**Discussion:** This case illustrates the benefit of early empiric treatment for TTP with optimal patient outcome. A high index of suspicion is required for prompt diagnosis and management of TTP. Patients with acute TTP can deteriorate rapidly and without warning, requiring admission to intensive care units and resuscitation. As such, any patient presenting with thrombocytopenia and hemolytic anemia should be considered for a diagnosis of...
performing thorough investigation on pathological causes for a patient's symptomatology.

Discussion:
resulted in the large mass of the colon, originally with suspected perforation. Carcinoembryonic Ag resulted in elevated levels, prompting for further evaluation. A colonoscopy was ordered and the patient was found to have extensive occlusive deep vein thrombosis, bilaterally. The decision to hospitalize the patient was made. The hospital course continued with a lung perfusion test, where the patient was found to have a pulmonary embolism. The pathology for the extensive thrombi found throughout the patient's body was unknown.

Case Description: We present a case of a 20 year old female with a psychiatric history of bipolar disorder, who presented to the inpatient psychiatric unit for worsening depression and suicidal thoughts after smoking synthetic cannabinoids. Patient reported that after the effect of synthetic cannabinoids weaned off, she started having unmanageable surge of temptations to throw herself into water, cut herself, and drink bleach. Patient has been stable on her outpatient medication regimen including risperidone 3 mg PO bedtime and lamotrigine 100 mg PO daily for her bipolar disorder; however, the medication did not help, so she came in for additional treatment. Upon interview, patient reported depressed mood, problems with sleep, feeling guilty about her action to her friends and mother, and low energy. Pt also endorsed difficulty with organizing her thoughts. Patient stayed socially isolated and did not attend the group therapy in our inpatient unit. We restarted the patient on her risperidone 3 mg PO bedtime and lamotrigine 100 mg PO daily. After a few days, the patient reported no improvement of suicidal thoughts. We increased her risperidone to 4 mg PO bedtime and her lamotrigine to 200 mg PO daily for mood. Even with the augmentation for several days, patient reported minimal improvement, so we added bupropion 100 mg PO daily to her treatment. Then, the patient started making improvements and approaching her baseline. Over the rest of her hospital stay, she started interacting with other people, and attending both individual and group therapy. The effect of synthetic cannabinoids on chronic bipolar disorder is not well understood. In this poster, we discuss the efficacy of antidepressants and the requirement to increase medication dosages to treat worsening depression in patients with bipolar disorder who smoke synthetic cannabinoids.

Discussion: This case illustrates the potential effect of cannabinoids in increasing suicidality of patients with bipolar disorder and increasing requirement of antidepressant therapy for stabilization.

Title: Shortness of Breath: An Unusual Presentation for Colon Cancer

Introduction: Colorectal Cancer (CRC) is a common disease. It is estimated that in the United States there are 140,520 new cases of large bowel cancer diagnosed annually. While new screening guidelines have allowed CRC mortality to decline, the incidence of CRC in men and women under the age of 50 has steadily increased at a rate of 2.1 percent per year from 1992 through 2012. CRC mortality remains the third most common cause of cancer death in the United States for women and second leading cause of death in men. Patients who are diagnosed with CRC commonly present with hematochezia or melena, abdominal pain, loss of appetite or iron deficiency. Patients who are asymptomatic are often diagnosed through screening guidelines that include either the fecal occult blood test or screening colonoscopy. However, while screening guidelines and usage has improved, their compliance is not steadfast and individuals affected by CRC are often missed.

Case Description: We present a case of a 77 year old African American male who was sent to Jackson South Community Hospital (JSCH) Emergency Room (ER) for hypotension (91/71 mmHg) and shortness of breath from his Primary Care Physician’s Office.

On presentation to JSCH-ER the patient’s blood pressure was 137/71 mmHg. Additional vitals were respiratory rate 18 breaths per minute at room air and a heart rate of 74 beats per minute. The patient stated on arrival that an exacerbating factor was standing and associated symptoms included fatigue, weakness and pain in his legs due to swelling. His past medical history included diabetes mellitus, hypertension and coronary artery disease. Physical exam was significant for bilateral lower extremity edema with tenderness on bilateral calves. In the ER, an Ultrasound Doppler for the Lower Extremities was ordered and the patient was found to have extensive occlusive deep vein thrombosis, bilaterally. The decision to hospitalize the patient was made. The hospital course continued with a lung perfusion test, where the patient was found to have a pulmonary embolism. The pathology for the extensive thrombi found throughout the patient’s body was unknown. While the patient denied history of cancer or symptoms of malignancy, physicians had a high suspicion for malignancy and further workup with Alpha-Fetoprotein, CA 19-9 and Carcinoembryonic Ag were ordered. Carcinoembryonic Ag resulted in elevated levels, prompting for further evaluation. A colonoscopy was ordered and done, which resulted in the a large mass of the colon, originally with suspected perforation of the colon. A CT scan showed a large apple core lesion at the cecum with regional lymph node metastasis. The decision was made for the patient to receive chemotherapy.

Discussion: This case illustrates the importance of compliance and implementation of colon cancer screening guidelines and tests as well as performing thorough investigation on pathological causes for a patient’s symptomatology.
**Title:** Pituitary Microadenomas – Cabergoline Treatment and Long-Term Management.

**Authors:** Alexandra Lenox, OMS-III, Binita KC, MPH, Cyril Blavo, DO, MPH
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**Introduction:** Pituitary adenomas are the most common type of pituitary tumor. They account for 10-15% of all intracranial masses, and the majority of these tumors are found incidentally without any clinical significance. Pituitary adenomas are classified based on size and type of hormone secreted. Tumors larger than 10mm are considered macroadenomas, and those smaller than 10mm are considered microadenomas. Prolactinomas comprise 40-57% of all adenomas. The classic presentation of a prolactinoma – which originates from lactotroph cells of the anterior pituitary – includes galactorrhea, decrease in libido, infertility, hypogonadism (testicular atrophy, breast shrinkage, hair loss), gynecomastia and impotence (in men) and oligomenorrhea or amenorrhea (in premenopausal women). The hypothalamic-pituitary-adrenal axis is profoundly affected by excess prolactin secretion, which inhibits the pulsatile secretion of GnRH, which leads to a majority of the presenting symptoms. The most common neurologic symptoms include headaches and visual changes due to tumor compression of the optic chiasm and stretching of the dural sheath. Prolactinoma is diagnosed through laboratory tests and MRI imaging. A majority of prolactinomas are managed medically with long-term use of dopamine agonists (cabergoline, bromocriptine) – which decrease prolactin secretion, resolve symptoms associated with hypersecretion and decrease tumor size. Surgical removal of the prolactinoma may be considered in patients who desire to become pregnant or those that would like to avoid long term medication management.

**Case Description:** We present a case of a 24-year-old Asian female who presented with hair loss and severe acne breakout on her chin, jawline and cheeks. No headaches, visual changes or menstrual changes were reported. Her medical history includes: history of minor acne since she was 14 years old and was diagnosed with Polycystic Ovarian Syndrome (PCOS) at 20 years old after physicians found that her LH:FSH ratio was abnormal. Her PCOS and acne were successfully managed with oral contraceptives (norgestrel/ethinyl estradiol 0.3mg/30mcg) and lifestyle modifications including exercise and dietary changes. Her menstrual periods are without menorrhagia or dysmenorrhea and occur regularly with 35 days in between cycles.

For the evaluation of her severe acne, laboratory tests performed included human chorionic gonadotropin, hemoglobin A1c, thyroid stimulating hormone, and prolactin, all were normal, except prolactin which was elevated at 62ng/dL (normal 3-30ng/dL). A retest of the prolactin level one week later was measured at 63.2ng/dL. Pituitary microadenoma was suspected at this point, and an MRI with/without contrast of her brain was ordered. A 3mm microadenoma of the left lateral wing of the anterior pituitary was noted on MRI. After an Endocrinology consultation, she was prescribed Cabergoline 0.25mg tablet by mouth once a week for a 2 month duration. After 1 week of Cabergoline treatment, she reported acne improvement with a noticeable decrease in acneiform papules. After 2 months of Cabergoline treatment, prolactin laboratory tests will be repeated and the dosage of Cabergoline may be modified based on the prolactin level. As the patient does not have neurologic symptoms or visual impairment, surgical intervention is deferred.

**Discussion:** This case demonstrates appropriate diagnostic steps and management of pituitary microadenomas. It provides insight for medical professionals to effectively identify patients affected by intracranial masses so that patient outcomes can be optimized.

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**Title:** Tethered Cord Syndrome: A Case of Chronic Constipation and Recurrent UTIs

**Authors:** Stephanie Lombardi, D.O. PGY-2, Liza Gonzalez-Benitez, M.D.

**Introduction:** The term ‘tethered spinal cord’ was coined in 1976 in patients with a low-lying conus medullaris and a thickened filum terminale. The filum functions to stabilize the distal cord from abnormal traction and is a viscoelastic band that has motion at the conus medullaris with the spine. During the embryonic phase of regression, the filum pulls away from its sacral components. In TCS this is low-lying and tight with fatty infiltration, causing increased tension on the spinal cord and decreased motion of the conus medullaris. The conus normally lies at mid T12 level to the L3 level, however is lower in Tethered Cord Syndrome (TCS.) The true incidence of TCS is unknown, since unlike open neural tube defects, the findings are mostly found when working up the onset of symptoms or on incidental imaging. The various manifestations of TCS include; Cutaneous (hypertrichosis, dermal sinus tracts, lumbosacral appendage,) urological involvement (neurogenic bladder, frequent UTIs, incontinence,) and bowel involvement. Innervation to the bowel is affected with issues of decreased bowel motility and poor sphincter control. This in turn can often present as chronic constipation. If suspicious for TCS, MRI is the modality of choice for identification and visualization of the conus medullaris level presence of a fatty/thick filum. A neurosurgical consult for an ‘untethering’ of the cord is warranted if the child is symptomatic, which can prevent, stabilize, and in some cases, reverse progressive neurological symptoms. Following repair, 10-20% patients require repeat surgery since periods of growth can cause symptomatic re-tethering.

**Case Presentation:** We present a case of a 3yo female with a PMHx of delayed toilet training, recurrent ESBL UTIs and chronic constipation who presents with vomiting for 3 days. Reported 3-4 non-bloody, non-bilious episodes of emesis daily without fevers or diarrhea. Seen at PCP, however a urine sample could not be obtained, and patient sent to ED. Upon arrival to the ED, the patient was afibrile with VSS. CBC showed a leukocytosis of 17.7, stable H/H. CMP grossly normal, CRP 0.4. Urinalysis via cath completed showing cloudy urine with 3+ blood, 3+ leukoocyte esterase, WBC 50-75 with clumps and 2+ bacteria. Patient started on Merem due to history of ESBL E.coli. A renal U/S was read as normal kidneys b/l, however bladder debris was seen. Pediatric Urology was consulted, recommending a renal DMSA scan and a spinal MRI due to history. Urine culture resulted as E.coli with pan-sensitivity. A post-void bladder scan showed a zero post-void volume. Results of the MRI showed decreased motion of the conus medullaris, with findings suspicious for tethered cord. Urology updated and recommended follow up with neurosurgery outpatient upon discharge and for daily Bactrim prophylaxis. Patient completed 7-day course of Merem and was medically stable for discharge and follow up.
Discussion: This case presents the importance to keep an index of suspicion for TCS in children who repeatedly present with UTIs, a history of chronic constipation and abnormal bladder imaging. A detailed history and physical is key to identifying signs and symptoms that may lead you to the work-up of TCS.

Title: Treatment Refractory Brachioradial Pruritus Treated with Topical Amitriptyline and Ketamine

Authors: Maja Magazin OMS-III, Robert Daze D.O. PGY1, Nicholas Okeson D.O.

Introduction: Brachioradial pruritus is an uncommon chronic neurocutaneous condition that often presents as extreme itching, burning or tingling on the dorsolateral aspect of the arm. The lack of primary skin lesions in brachioradial pruritus in addition to its poorly established pathophysiology can often lead to both diagnostic and therapeutic challenges for many physicians. Here we present a case of brachioradial pruritus which was initially refractory to multiple therapies and discuss the use of a unique combination of topical Amitriptyline and Ketamine in resolution of symptoms.

Case Description: A 70 year old Caucasian female with past medical history of basal cell carcinoma, degenerative disc disease at C5-C7 and autoinflammatory syndrome presented to her dermatologist in September of 2017 in New England for a burning and itchy rash of 2 months duration to her right upper arm. She had scattered excoriations on a faint erythematous background to the right upper dorsolateral arm at that time. She was diagnosed with brachioradial pruritus and attempted treatment with multiple topical steroids, chiropractic manipulation, capsaicin, menthol based spray, NSAIDs and Gabapentin over a period of several months with no relief. Her symptoms eventually spontaneously subsided in January of 2018 but then returned once again in July of 2018 at which point she came to our office and asked for alternative solutions. The patient otherwise felt well and denied any fevers, chills, fatigue, night sweats, unexplained weight loss or shortness of breath. Social history was significant for extensive solar UV radiation exposure in younger years and moderate alcohol use.

The patient’s presentation led to a clinical diagnosis of brachioradial pruritus. The lack of a primary dermatitis in conjunction with her history of symptomatic cervical spine disease and extensive sunlight exposure all favored this diagnosis. Radiographic imaging revealed moderate to severe degenerative changes at the level of C4-C7 with bilateral intervertebral foramen narrowing, worse on the left. There was tenderness to palpation along C2, C3, C5, C6 with bilateral C-spine paraspinal tightness. Skin exam showed scattered excoriations present to the C5 and C6 dermatome on the right upper dorsolateral arm consistent with secondary cutaneous changes with no evidence of primary lesions. No other abnormalities were identified.

Because the patient had previously failed several therapeutic strategies, we started the patient on a unique topical combination of Amitriptyline 1% and Ketamine 0.5%. The patient was advised to apply this treatment to her arms 2-3 times daily for symptomatic relief.

Discussion: This case presents a rare chronic sensory neuropathy which is poorly understood. Although medications like topical steroids, Gabapentin and Pregablin are frequently used, many patients fail to respond to conventional treatment regimens. Research has proposed a theory that heavy UV radiation leads to solar damaged nociceptors capable of firing spontaneously which could lead to the pathogenesis of this disease. In their topical formulations, Amitriptyline and Ketamine each portray unique mechanism of actions capable of targeting this specific neuropathic sensory disturbance through their effect on axons and presynaptic neurons, respectively. This case demonstrates the use of a non-traditional form of Amitriptyline and Ketamine in the successful management of this refractory disease.

Title: A Unique Case of Scleromyxedema

Authors: Jennifer Maldonado, OMS- II, Dr. Kiran C. Patel College of Osteopathic Medicine
Kate Oberlin, MD, Pediatric Dermatology Fellow, Department of Dermatology, Indiana University School of Medicine
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Introduction: Scleromyxedema (SM) is an extremely rare disease affecting middle-aged adults. It typically presents as a sclerotic variation of papular mucinosis or lichen mainly on the head and neck, characteristically on the glabella and ears and is associated with papular and mucin deposition, scleroderma-like eruptions, increased fibroblast proliferation, fibrosis, and paraproteinemia, mainly immunoglobulin G-lambda type. In addition to affecting skin, SM has variable multisystem effects on the gastrointestinal tract, musculoskeletal, pulmonary, cardiovascular, renal and central nervous system. The most common are proximal muscle weakness, dysphagia, and dyspnea on exertion. The treatment of choice is high dose immunoglobulins, followed by lenalidomide and systemic glucocorticosteroids.

Case Presentation: A 72- year old male with a two-year history of psoriatic arthritis and psoriasis presented to the Dermatology Clinic at Jackson-University of Miami with a one-year history of multiple itchy eruptions on the face and trunk. His primary complaints were joint pain, swelling, and pruritis; he denied weight change or dysphagia. Both his psoriasis and psoriatic arthritis are well managed and controlled by his Rheumatologist. Physical exam showed numerous coalescing skin-colored to pink firm papules on the forehead and glabella, retroauricular area, neck, chest and back. Multiple punch biopsies of the lesions were obtained. Histopathologic and serum studies confirmed a diagnosis of SM.

Deviation from the Expected: Because of the patient’s age and absence of dysphagia, a distinguishing SM diagnostic feature, he was originally misdiagnosed. Although his age is atypical and he lacks dysphagia, SM was confirmed by our clinic.

Conclusion: Due to the rarity of the disease, diagnosis of SM is unusual. While our patient presented with an absence of dysphagia and in an older
Eccrine gland carcinoma is an extremely rare tumor of sweat gland origin. These tumors generally occur in the fifth to sixth decade of life and are aggressive with a propensity for lymphatic invasion. They typically manifest as non-tender, firm to rubbery masses with red/purple overlying skin. This case illustrates the difficulty and often delayed diagnosis of sweat gland carcinomas. These tumors share many features with other, more commonly diagnosed cancers and possess no distinctive clinical features; making diagnosis by gross appearance virtually impossible. A high index of suspicion is necessary, since diagnosis requires excision with histologic and tumor marker analysis. Pancytokeratins, specifically CK7, are commonly identified in eccrine carcinoma and were present in our patient. When these tumors present on the chest, it is also important to differentiate their origin from breast cancer. Unlike breast carcinomas, eccrine tumors are typically PAS positive and estrogen or progesterone receptor negative. Further complicating the matter, eccrine gland carcinomas often contain both malignant and benign components, which likely explains this patient’s
history of multiple benign biopsies. This even further emphasizes the importance of early excision when eccrine carcinoma is part of the differential—regardless of biopsy status. Unfortunately, little research is available on treatment options for sweat gland carcinomas. Ten-year survival is only 56% and decreases to a mere 9% with metastases. The only mainstay of treatment is wide-margin excision with little guidance on chemotherapy options. Going forward, more in-depth studies on diagnosis using tumor markers may aid in early detection and better prognosis. This patient demonstrates the need for more aggressive diagnosis.

Title: Neonatal Hypoglycemia

Authors: Jeremy McCreary, D.O. PGY-III, David Hotwagner, D.O. Emergency Medicine Residency Program, St. Lucie Medical Center, PBCGME

Introduction: Hypoglycemia is defined as serum glucose level less than 40 mg/dL. This is the definition in term neonates. Identified in 3 births per 1000. The most common causes of hypoglycemia in the patient population includes hyperinsulinemia, feeding difficulties, and disorders of metabolism. Clinical signs include decreased activity, apnea or cyanosis, tachycardia and possibly seizure activity. On presentation, the diagnosis must be suspected and confirmed with bedside glucose testing. Hormones including glucagon, growth hormone, corticosteroids and catecholamines can all affect the circulating serum glucose. Disorder of metabolism can sometimes be identified through family history or prenatal testing; however, most disorders of metabolism are tested for at birth and depending on the location and area, can take up to weeks for results to return. Therefore, newborns within this timeframe that present with hypoglycemia should raise suspicion for these disorders. The most common of these disorders include disorders of glycogen storage, gluconeogenesis and fatty acid oxidation.

Case Description: 2-day-old female presents to ED for chief complaint of breathing abnormalities. Parents and Grandparent reports patient having pauses in breathing and some grunting but denies any cough, apnea or cyanosis. Patient was discharged from facility earlier the same day from OB floor after uneventful full-term birth via spontaneous vaginal delivery with primary diet at this point of breast feeding. No abnormalities noted upon post-natal discharge.

Patient presented lethargic with weak cry. No respiratory abnormalities noted, lungs clear to auscultation bilaterally and evidence of grunting or cyanosis. Bedside POC BGL obtained to be <10mg/dL. Patient fed with formula, peripheral IV obtained, dextrose administered as D10W, bolus of 5 mL/kg. Test results returned revealing glucose of 2mg/dL.(serum prior to dextrose), ammonia elevated at 89, elevated CRP of 0.31; otherwise, imaging and laboratory investigation unremarkable including CBC, CMP, UA, LP, CXR and ABG. Patient was then transitioned to dextrose maintenance fluids, now more alert and active with POC BGL of 86. IV antibiotics initiated to cover possible sepsis as source of hypoglycemia. Patient was transferred to another facility with NICU/PICU capabilities. Patient was monitored at facility for 4 days. Remained euglycemic and weaned from dextrose infusion. Ammonia levels normalized and no growth from cultures. Patient was discharged to follow up with pediatrician and await results from metabolic disorder panel sent from nursery after birth. Pediatrician reports no abnormalities on metabolic disorder panel. Patient improved and continues to meet appropriate growth. Likely etiology of difficulties with feeding as source of hypoglycemia.

Discussion: Neonatal hypoglycemia should be taken seriously, and investigation is warranted for identification of possible underlying disorders of metabolism. Commonly seen on the OB floor as difficulties with feeding, especially new mothers with breast feeding. However, if underlying metabolism disorders continues undiagnosed, patients will continue to be hypoglycemia leading to significant irreversible brain damage.

Title: Squamous Cell Carcinoma of the Lung with Cutaneous Metastasis to the Scalp in a Young Adult Patient

Authors: Megan Arielle McGill OMS-3, Joshua D Patton OMS-4, Faith A Finoli D.O., Yuping Wu D.O., Naomi M Yero D.O.

Introduction: Squamous cell carcinoma (SCC) of the lung is shown to be the most common histological type of lung cancer in men [1]. Lung cancer in general is quite aggressive, as it can metastasize to many parts of the body, including hilar nodes, liver, adrenal glands, bones and brain [2]. However, only 1-12% of lung cancer patients develop cutaneous metastases [3, 4]. Skin metastasis is a grim sign for a patient with lung cancer, as it represents an aggressive and malignant tumor [5]. The most common locations of cutaneous metastases are the chest, abdomen, and neck [2]. If metastasis occurs to both skin and other organs, the prognosis usually does not exceed three months [6]. Furthermore, the average age of lung cancer diagnosis is approximately 70 years old, and it is rarely diagnosed in patients who are less than 40 years old [10, 11]. Although it is unusual to see squamous cell carcinoma in a patient less than 40 years old, or cutaneous metastasis as a first sign of lung cancer, it is important for the physician to be cognizant of these possibilities and have the ability to recognize these rare occurrences for prompt and optimal patient treatment.

Case Description: A 39-year-old Caucasian male with a past medical history of right hilar mass and metastatic basal cell carcinoma presented to the emergency department with the chief complaint of shortness of breath. The episode the night prior was longer and more severe than usual. He associated stabbing pain in his chest, shoulder, hip, and knee; along with unintentional weight loss, hemoptysis, and night sweats. The patient’s prior CT showed right hilar mass, with a follow up PET scan revealing metastatic malignancies in the scalp, skeletal system, lung, mediastinum, chest wall, and adrenals. A biopsy of a scalp lesion showed nodular and infiltrative basal cell carcinoma. The patient smoked one pack of cigarettes per day for four years from 2011-2015 but denied any current use. His previous occupation included working in outdoor construction. On exam, ten superficial erythematous nodules were present on his scalp. Additionally, he had bilateral inspiratory and expiratory wheezing, and indurated subcutaneous nodules in the right 5th intercostal space, left axilla, left bicep, inframammary on the right, and supraauricularly on the right. Lab work revealed low hemoglobin and high corrected calcium. Imaging done at this visiting confirmed the presence of the right hilar mass, a destructive lesion involving the right chest wall, and enlargement of the adrenals. A CT guided biopsy of the lung lesion showed invasive squamous
cell carcinoma. A subsequent brain CT was negative and the patient was discharged to follow up with oncology on the outpatient basis.

**Discussion:** As many are well aware, it is very easy to confuse the nodules of cancer metastasis with those of vasculitis or another inflammatory condition. For this reason, it is imperative to biopsy any suspicious lesion to rule out a malignant process, even if the patient does not fit typical criteria of lung cancer.

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**Title:** Rare Retroperitoneal Liposarcoma Concomitant with Polycythemia Vera

**Authors:** Edwin Cole McMillan OMS-3, Matthew K. Creech OMS-3, David Speizman DO, Matthew D'Alessio MD

**Introduction:** Retroperitoneal liposarcoma (RL) is a rare, heterogeneous soft tissue tumor with an incidence of 1 in 2.5 million individuals.¹

**Case Description:** We present the case of a 68-year-old Caucasian male with erythrocytosis detected on routine laboratory testing and which was diagnosed later as JAK2 (+) polycythemia vera (PV). The patient’s history was significant only for a 10-pack-year history of smoking. Family history, however, was significant for metastatic breast cancer (mother), leukemia of unknown type (father), and colorectal carcinoma (both maternal grandparents).

MRI workup for PV incidentally demonstrated multiple liver hemangiomas and a high T1, low T2 intensity perirenal mass with signal dropout of phase images compatible with fatty components with heterogeneous enhancement. CT-guided biopsy revealed atypical adipose proliferation with areas of myxoid changes and spindle cells without well-formed lipoblasts consistent with well-differentiated liposarcoma. The diagnosis of well-differentiated, myxoid liposarcoma was confirmed by Johns Hopkins reference laboratory. Complete surgical resection of RL was performed with confirmed negative margins without complication, as the tumor had not yet invaded adjacent vascular structures or renal parenchyma. Complete resection is the treatment of choice for well-differentiated RL so the patient did not receive adjuvant chemotherapy or radiation but will be followed with imaging studies to monitor for recurrence.

**Discussion:** RL lacks a specific clinical presentation and is often asymptomatic, thus RL is commonly diagnosed late in course. The five subtypes of liposarcoma in order of incidence include: well-differentiated, dedifferentiated, myxoid, round cell and pleomorphic liposarcoma. Each subclass of liposarcoma varies in genetics, therapeutic response, clinical outcome, and mortality, which ranges from 5%–83% depending on subtype and location.²

Currently, definitive treatment for RL is surgical resection with wide margins and adjacent organs when necessary. When inoperable, due to vital organ or major blood vessel involvement, some subclasses of RL respond well to combinations of chemotherapeutics or radiation. There are no known occupational risk factors for liposarcoma, however, family cancer syndromes are known to carry increased risk e.g. Li-Fraumeni, Neurofibromatosis, Gardner syndrome.³ To date there have been no reported cases of RL concomitant with JAK2 (+) polycythemia vera (PV), however, myeloproliferative disorders have been reported with extramedullary hematopoietic tumors such as granulocytic sarcoma.⁴ What makes this case unique is that it demonstrates a rare case of well-differentiated RL with concomitant JAK2 (+) PV.

**Conclusion:** This case demonstrates the diagnosis, pathology and surgical management of a retroperitoneal liposarcoma and provides a review of the histological subtypes and related management strategies of rare retroperitoneal liposarcomas.

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**Title:** Symptomatic Bochdalek Hernia and Intrathoracic Left Kidney in an Adult Patient

**Authors:** Jacob McPhee, PGY-2; Thomas Cowan, MS4; Jacob Miller, MD²; Lieberman, Jeffrey, MD²; Kristina Siddall, MD²

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**Introduction:** Congenital diaphragmatic hernia (CDH) is a developmental disruption of the diaphragm that allows abdominal contents to herniate into the thoracic cavity. A Bochdalek hernia (BH) results from the failure of the posterolateral diaphragmatic foramina and pleuroperitoneal membrane to fuse properly in utero. Bochdalek first described this anomaly in 1848. The incidence of BH is reportedly 1 in 2200 to 12500 live births [1] and the majority are left-sided (78%) with bilateral Bochdalek hernias occurring in approximately 2–10% of patients [2,3]. Bochdalek hernias are found incidentally in 0.17% adult patients undergoing abdominal CT. Symptomatic Bochdalek hernias presenting in adulthood are very rare; a review performed in 2011 found 178 cases reported in the literature [2]. Due to the wide variation in presenting symptoms, the hernia is often misdiagnosed for other entities and misdiagnosis can lead to inappropriate interventions such as chest tube placement. Failure to promptly diagnose and treat a symptomatic BH may lead to bowel strangulation and death [4]. Surgical repair of the defect is the recommended therapy regardless of the presence of symptoms [5].

**Case Presentation:** We present a case of a 73-year-old woman with a history of multiple abdominal surgeries and bowel obstruction secondary to intra-abdominal adhesions who presented to the emergency department with constipation and abdominal pain for 3 days. Vital signs were significant for a respiratory rate of 18 breaths per minute, a heart rate of 96 beats per minute and a blood pressure of 176/85 mm Hg. Physical exam revealed dry mucous membranes and diffuse abdominal tenderness to palpation. Laboratory analysis revealed leukocytosis (17,400 WBC/uL) and a mild lactic acidosis (lactate 1.2 mmol/L). An abdominal CT revealed a large, left-sided Bochdalek hernia containing an incarcerated splenic flexure of the colon and the left kidney. A smaller fat-containing right diaphragmatic Bochdalek hernia was also present. The patient underwent urgent laparotomy for repair of the diaphragmatic defect. No ischemic changes were noted at surgery. Successful repair of the diaphragmatic hernia with mesh was achieved without incident.


**Discussion:** Our case is unique in that we report an adult patient with bilateral Bochdalek hernias, a symptomatic left-sided Bochdalek hernia, and an intrathoracic left kidney. Our case highlights the importance of acquiring early imaging to identify the condition as a delayed diagnosis can lead to bowel necrosis or perforation and increase morbidity and mortality. This case illustrates the prompt and accurate diagnosis of a symptomatic congenital hernia leading to a good patient outcome.

**Introduction:** Ear Pain and Proximal Muscle Weakness

**Case Description:** This is the case of a 59 year old Honduran female who presented to the emergency department with complaints of ear pain, sore throat and bilateral upper extremity weakness. Patient was diagnosed with upper respiratory infection and was discharged home on antibiotics and analgesics. The next day, the patient presented with worsening muscle weakness. Patient reported one week of progressively worsening symptoms that initiated with ear pain, difficulty to stand up and right hand weakness that progressed to include all four extremities along with difficulty swallowing solids and saliva pooling in the mouth. Prior to this episode, patient had normal muscle strength and mobility. Also, noticed new onset of voice change described as muffled. Patient had recently returned from a ten day trip to Honduras where she is originally from. During the trip the patient recalled episodes of subjective fever for two days and one episode of bilateral conjunctivitis, fatigue, SOB, generalized weakness and diarrhea. Sick contact significant for brother diagnosed with Zika six months prior. Patient denies having bathed in rivers and insect bites. Patient stated symptoms started four days after returning from Honduras. On admission the patient presented with a neurologic exam that was only remarkable for mild periorbital edema of the upper eyelids with significant difficulty swallowing. Muscle strength was significantly decreased although it was more evident proximally especially at the shoulders and hips. Neck muscle strength 4/5. Bilateral hands had very poor tensile ability. Lower extremities were also reduced at 4- proximally, leg extension was weaker on the right. Two days after admission the patient was too weak to stand. Coordination was abnormal but equivalent to the degree of weakness. Neurological exam rapidly progressed in a few days to a left sided facial paralysis, complete dysphagia requiring PEG placement, and bilateral lower extremity strength decreasing to 1/5 requiring intensive physical therapy.

**Discussion:** Diagnostic criteria for GBS have these required features, progressive weakness of the legs and arms (sometimes initially only in the legs), ranging from minimal weakness of the legs to total paralysis of all four limbs, the trunk, bulbar and facial muscles, and external ophthalmoplegia. Areflexia or decreased reflexes in weak limbs. Supportive features of the diagnosis include but are not limited to progression of symptoms over days to four weeks, 80 percent reach nadir in two weeks, relative symmetry, mild sensory symptoms or signs, cranial nerve involvement, especially bilateral facial nerve weakness, recovery starting two to four weeks after progression halts, autonomic dysfunction, pain, no fever at the onset, elevated protein in CSF with a cell count ≤50/mm³ (usually <5 cells/mm³).

**Title:** Not Every Red Leg is Cellulitis: A Case of Calciosis Cuts of the Lower Extremity

**Authors:** Mitali Mehta¹, MD – Emergency Medicine Resident, PGY2, Laurence Dubensky², MD – Emergency Medicine Attending, Aventura Hospital & Medical Center Emergency Medicine Residency Program

**Introduction:** Many conditions, collectively known as pseudocellulitis, are characterized by generalized, cutaneous inflammation and often clinically mimic true cellulitis. The resemblance of pseudocellulitis to true cellulitis has resulted in significantly high misdiagnosis rates, leading to the unnecessary use of antibiotics and delays in appropriate treatment. This case report describes a case of calciosis cutis of the lower extremity, a rare imitation of cellulitis, and discusses the differentiating features, diagnosis and management of pseudocellulitis.

**Case Description:** A 77-year-old Latin-American female with no significant past medical history presented to Aventura Hospital and Medical Center Emergency Department complaining of right lower extremity pain and swelling. The patient reported progressively worsening redness, swelling, pain, and warmth of the right lower extremity and subjective fever over the last three days. Physical exam showed an ulcerated, indurated nodule of the lateral aspect of the right lower extremity with purulent drainage with surrounding erythema, edema, warmth, as well as multiple chronic cutaneous calcified nodules of the bilateral lower extremities. X-ray imaging studies of bilateral lower extremities described extensive sheet-like soft tissue calcification overlying the mid to distal lower extremities. Lab work showed a c-reactive protein level of 7.33 mg/dL and an erythrocyte sedimentation rate of 68 mm/hr. Serology was positive for rheumatoid factor, ANA, SS-A/Ro antibody, and SS-B/La antibody. The patient was admitted to the hospital for further evaluation and treatment. Surgical management included multiple debridements, allograft placement, and vacuum-assisted closure therapy. Wide excision biopsy and pathological analysis of calcified deposits revealed a diagnosis of cutaneous calcinosis. The patient recovered with no complications, and is currently undergoing local wound care of the right lower extremity with the assistance of negative pressure wound therapy and bi-weekly podiatry clinical follow-up.

**Discussion:** Calciosis cutis is described as the deposition of insoluble calcium salts into the skin and subcutaneous tissue, and can lead to complications such as persistent ulceration and secondary infection. It is one of the many causes of pseudocellulitis requiring accurate diagnosis, prompt treatment, and, sometimes, urgent surgical intervention. Recognizing the distinguishing features of true cellulitis and conditions that are clinically similar may help decrease the rate of misdiagnosis, as well as prevent unnecessary antibiotic use and admissions, delays in appropriate treatment, and rise in healthcare costs.
**Title:** Isolated intracranial rheumatoid nodule  

**Authors:** Jacob L. Miller, MD; Thomas Cowen, MS4; Daniel Aboubechara, MD; Roberto Fourzali, MD; Kristina Siddall, MD  

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**Introduction:** Rheumatoid arthritis (RA) affects 1% of the general population. Rheumatoid arthritis affects women two to three times more often than men. Approximately 20% of individuals with RA develop nodules, which are typically cutaneous. Intracranial rheumatoid nodules have rarely been reported, usually in close proximity to the dura mater or choroid plexus. Reports of isolated rheumatoid nodules in the absence of other systemic manifestations of RA are uncommon. Since the introduction of disease-modifying therapy, reports have become even less frequent. Incidents of rheumatoid nodule development, termed “accelerated nodulosis,” have been well documented in relation to methotrexate therapy in patients with rheumatoid arthritis. Other pharmaceuticals in this population have also been implicated. To date, there has been only one reported case of an intracranial rheumatoid nodule in a male patient.

**Case Presentation:** We present a case of a 60 year-old Hispanic man who presented to an outside facility with acute onset of seizures. His past medical history included diabetes mellitus, hypertension, and end-stage renal disease. The patient had also had a remote surgical history of a renal transplant. He was transferred to our institution for further care and was hemodynamically stable and without neurologic deficits upon arrival. Laboratory analysis demonstrated mild anemia, hyperkalemia, uremia, and an elevated creatinine of 7.9. Computed tomography of the head was performed and revealed a three-centimeter partially calcified lesion within the right frontal lobe. Magnetic resonance imaging further characterized the lesion as demonstrating mixed internal and peripheral signal and surrounding vasogenic edema. The reported differential diagnosis included a hemorrhagic neoplasm or an infectious or inflammatory lesion.

Craniotomy was performed for excision of the brain mass. Histology confirmed necrosis, palisading histiocytes, granular calcifications, hemorrhage, and lymphoplasmacytic infiltrate, suggestive of a rheumatoid nodule. Immunohistochemical stains confirmed the presence of reactive lymphocytes and plasma cells.

**Discussion:** This case illustrates an extremely rare case of an isolated rheumatoid nodule presenting within the brain. From a diagnostic imaging standpoint, this case illustrates the need to include non-neoplastic entities when reporting on intracranial lesions.

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**Title:** Multiple Myeloma was Never a Misnomer  

**Authors:** Dr. Edward Missinne, Aventura Radiology, Dr. Kristina Siddall, Program Director, Aventura Radiology.

**Introduction:** We present a case of multiple myeloma, which extensively involved the bone marrow, subcutaneous soft tissues, retroperitoneum, gastric mucosa, and lungs. The patient also had extraocular muscle involvement, a rare manifestation of the disease. We describe the clinical presentation and the pathologic diagnosis of the patient. This case highlights the full extent of advanced multiple myeloma, which is not often seen due to early detection and treatment.

**Case Description:** 65 year-old woman with diagnosed multiple myeloma presented with a one-week history of worsening proptosis and pain with extraocular movements of the left eye. CT of the brain revealed a soft tissue mass along the medial aspect of the left medial rectus muscle. The patient was also found to have elevated intraocular pressure and a lateral cantholysis was performed at the bedside to alleviate the pressure. MRI of the orbits demonstrated a lesion arising from the medial rectus muscle causing mass effect on the optic nerve and left globe. Intraoperative evaluation revealed a mass surrounded by fibrofatty tissue, separate from the medial rectus muscle, which was subsequently resected.

**Discussion:** There are few case reports of extraocular muscle involvement in multiple myeloma, described in patients with prior history of longstanding multiple myeloma. This case demonstrated this rare disease manifestation and illustrates additional uncommon locations of extra-skeletal multiple myeloma involvement.

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**Title:** Pyogenic liver abscesses presenting as a malignancy  

**Authors:** Gianfranco Molfetto, Alejandro Serrat, OMS-3, Taleb El-Masri, PGY-I, Jose Sanchez, Physician

**Introduction:** Pyogenic liver abscesses are a relatively rare complication that can arise from various etiologies. The annual incidence of liver abscesses is 2.3 per 100,000. There has been a significant decrease in mortality over the last 50 years, going from an astonishing 65% in 1972 to 31% in 1993 with newer studies suggesting a current mortality rate of 6%. Despite the tremendous decrease in mortality rates, pyogenic liver abscesses still present a tangible risk of death and should be treated with the utmost care. Clinically, patients will most commonly present with fever 90% of the time, with abdominal pain (75%), as well as elevated aminotransferases and leukocytosis. Interestingly our patient had an atypical presentation; their abdomen was found to be non-tender upon palpation and AST was found to be WNL while ALT was 72. He was also found to have multiple abscesses whereas the typical presentation is a singular lesion (77%). The abscesses are most commonly polymicrobial in nature caused by anaerobic or facultative enteric bacteria, although it may also be parasitic if caused by *E. histolytica*. The pathogenesis of these abscesses varies; it is most commonly caused by biliary tract disease. Other causes include seeding through hematogenous spread via the portal or hepatic veins, or secondary to post-hepatic trauma.
**Case Presentation:** We present a 57-year-old M with no significant PMHx presented with generalized fatigue and painless bloating. This was previously associated with fever, nausea, and vomiting, that had subsided 5 days prior to admission. On physical exam, the patient’s vitals were within normal limits, and his abdominal exam revealed a soft, non-tender, non-distended, and non-tympanic abdomen. CT of the abdomen revealed soft tissue stranding of the mid sigmoid that may represent colonic diverticulitis versus a colonic mass, especially given that the scan also revealed 2 large hepatic masses, one in each lobe, along with satellite lesions, that were suspicious for metastatic malignancy. At this time, the largest mass measured 4.5 cm. Needle biopsy was performed which resulted in the aspiration of cloudy yellow white fluid. Culture indicated the discovery of a polymicrobial infection involving *E.coli* and *Streptococcus anginosus*. The treatment can vary from antibiotics administration for 4-6 weeks, to percutaneous aspiration (US or CT guided), or finally as a last resort surgical drainage. This patient underwent the antibiotics course, however, eventually required percutaneous drainage of both abscesses. A final CT scan revealed complete resolution of both abscesses.

**Discussion:** The patient presented with generalized fatigue, painless bloating with only a slightly elevated ALT on lab work. Upon initial imaging we were swayed towards believing this may have been a malignancy that had metastasized to the liver, given that this patient had not done a colonoscopy prior to admission. Careful work up revealed the true diagnosis of pyogenic liver abscesses. This was a very subtle presentation for a rare diagnosis and highlights the importance of keeping a broad differential when working up patients with vague symptomatology.

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**Title:** Polymethylmethacrylate Pulmonary Embolism following Kyphoplasty

**Authors:** Oliver Morris, D.O., Karl Weller, D.O., Josephin Mathai, D.O. Emergency Medicine Residency Program, St. Lucie Medical Center. PBCGME

**Introduction:** Vertebral compression fractures make up approximately one half of all osteoporotic fractures in the United States, affecting over 700,000 people per year. Patients with compression fractures often experience severe pain that may limit mobility, increase morbidity and can be a significant source of healthcare resource utilization. Surgical therapies consist of minimally invasive techniques such as percutaneous balloon kyphoplasty and vertebroplasty, where a cement polymer is injected into the vertebral to stabilize the osseous structure. There are estimated to be over 25,000 kyphoplasty and vertebroplasty procedures performed in the United States each year and can be associated with severe intra and postoperative complications. This case report highlights one of the rarer but often more severe complications, polymethyl methacrylate (PMMA) pulmonary embolism.

**Case Description:** A 43-year-old male construction worker with a history of chronic back pain and recent kyphoplasty two days prior, presented to the ED for the second time that day for dyspnea. The patient had been seen in the ED earlier in the day by another provider for a nonspecific lower back and flank pain that was medically treated with improvement of symptoms. A few hours after arriving home, the patient became dyspneic and returned to the ED for evaluation.

On physical examination, the patient appeared to be mildly tachypneic. His blood pressure was 105/71 mm Hg, pulse 86, respiratory rate 20, and oxygen saturation of 95% on room air. He did not appear to be in respiratory distress with no accessory muscle use. Lungs were clear to auscultation but mildly diminished. No wheezing, rhonchi or rales. The heart sounds were regular, with no audible murmur. Abdomen was soft and nontender, with positive bowel sounds. No midline spinal tenderness. He had several well healing, non-erythematous paraspinal puncture wounds from the kyphoplasty procedure two days prior. The rest of his physical exam was unremarkable.

Initial workup consisted of basic metabolic panel, complete blood count, troponin, electrocardiogram and a chest radiograph. The Well’s Criteria for Pulmonary Embolism was applied, scoring 1.5 for having had a surgery in the previous 4 weeks. This score put him in the low risk group with a 1.3% chance of PE. The electrocardiogram showed a normal sinus rhythm at 85 beats per minute. A chest radiograph revealed pulmonary cement embolism with mild vascular crowding and atelectasis at the lung bases (Image 1). With this finding, a computed tomography angiography of the chest was ordered which revealed cement in distal pulmonary arteries consistent with cement emboli along with patchy, ground glass opacity worrisome for infiltrate (Image 2). The patient was immediately treated with heparin and admitted to the hospital for continued management. While there, he was treated according to guidelines for thrombotic pulmonary embolisms and started on 6-month coumadin therapy and discharged home 2 days later.

**Discussion:** This case demonstrates a rare case of a cement pulmonary embolism following kyphoplasty which could be fatal if not discovered early and treated with appropriate anticoagulation. Especially if it is not on an early differential.

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**Title:** One of a ‘Kien’: A Case of Kienböck’s Disease

**Authors:** Benjamin Morrison D.O. PGY III; Minjoo Kim D.O. PGY III; Alberto Villarreal OMS IV; Shane Williams D.O.; Joseph De Gaetano D.O. MSEd, FAAFP, FACOFP; Palmetto General Hospital/NSU-KPCOM Family Medicine Residency

**Introduction:** Kienböck’s disease also known as Lunatomalacia is a rare and potentially disabling disease affecting the blood supply to the lunate bone. This condition can present over time without history of trauma, but in most cases can arise acutely from injury or due to repetitive microtrauma. Pain and limited range of motion of the wrist are the common presenting symptoms. Chronic cases progress to collapse of the lunate bone with significant loss of wrist range of motion. It most commonly presents in patient’s 20-40 years of age with a 2-to-1 male-to-female ratio. This condition is an important consideration in patients who present with atraumatic mild, moderate, or severe wrist pain as the spectrum of pain and limitation coincides with the progression of the disease through its stages. The diagnosis ultimately requires radiographic evaluation of the carpal bones. Radiography is the best first step in diagnosis, however MRI has been shown to better stage disease and guide potential treatment options. When Kienböck’s disease condition is diagnosed in its early stages it can be treated appropriately to maximize functionality and pain reduction.
**Case Description:** An 82 year old previously healthy female presented at our Family Medicine clinic as an afternoon walk in with gradual onset right wrist pain with onset of symptoms 1 day prior to presentation. The pain was non-radiating and was accompanied by painful supination and decreased range of motion without alleviating factors. She did note some swelling along the dorsal aspect of her hand and denied any notable trauma to the region. The patient has a history of hyperlipidemia but was otherwise healthy at that time. Examination revealed decreased range of motion of the wrist in supination and pronation. There was also a noticeable circumferential swelling of dorsal radial side of the right wrist with tenderness to palpation of both the dorsal and palmar aspects. Laboratory evaluation included a complete blood count, ANA screening, RF screening, and a comprehensive metabolic panel. All were without abnormalities. Subsequent x-ray evaluation of the right wrist revealed collapse and sclerosis of the lunate bone suggestive of sequelae secondary to Kienböck's disease located in the right lunate bone. There were no acute fractures noted. Further MRI studies corroborated these findings and further identified cystic, edematous, and ligamentous changes to the surrounding anatomy. The patient was placed in a proper wrist brace, provided analgesia, and was sent for consultation with hand surgery. After lengthy discussion with both the specialist as well as her primary team, the patient elected for non-surgical intervention including continued bracing, analgesia, and physical therapy.

**Discussion:** This unique case illustrates a rare diagnosis presenting in an atypical fashion. Neither did this patient fall in to the usual demographic seen with this diagnosis, nor did she note any specific trauma or injury to her wrist. Most cases seen in literature reviews present with a form of trauma to the area or initial anatomical abnormality. This unusual presentation should guide both primary and specialist physicians to consider this diagnosis among their differential in elderly patients with new onset wrist pain. Prompt radiography and utilization of MRI, in addition to initial supportive measures helped guide this case quickly to its diagnosis and should be considered in similar future cases.

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**Title:** Not Your Average Infant with Emesis

**Authors:** Jared Mugfor, OMS III., Yael Subar, M.D. PGY-1
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**Introduction:** During the first six weeks of embryogenesis, the aortic arch develops from six symmetrical paired aortic arch vessels, as they merge together to form the normal left aortic arch. There is potential for anomalies to occur. These anomalies are commonly known as vascular rings and slings. Arteria Lusoria, or aberrant right subclavian artery (ARSA), is found in 0.4-1.8% of the world population. This most common congenital arch anomaly usually exits the aortic arch distal to the left common carotid artery and crosses in the posterior part of the mediastinum on its way to the right upper extremity. In 80% of individuals the aberrant artery crosses behind the trachea and esophagus. The anomaly is usually asymptomatic but may be associated with clinical manifestations such as pulmonary infections, stridor, wheezing, cyanosis, apnea and a “brassy cough,” dyspnea, dysphagia (which is called dysphagia lusoria), and chest pain. In contrast to adults, who more often present with dysphagia.

**Case Description:** We present a case of a 3-month-old Hispanic male who presented with nonbilious, nonbloody emesis after nearly every feed since birth. Emesis occurs after meals or with excitation. Episodes emitted with force, but are non-projectile and associated with choking and gagging. Patient often stiffens and arches back during emesis episodes. Parents complained of “noisy breathing” since birth. Mom describes perioral cyanosis with first few feedings after birth. Birth history was otherwise unremarkable. The patient has a history of GERD, treated with famotidine 3mg daily. Overfeeding was not suspected.

On physical exam, the patient was in no acute distress. Patient exhibited mild head lag likely secondary to macrocephaly (head circumference in 90th percentile). The rest of the exam was benign. Complete blood count, complete metabolic panel, urine analysis, and C reactive protein initially collected and were all within normal limits.

Ultrasound of the head was performed for evaluation of macrocephaly, and revealed no signs of hydrocephalus or increased intracranial pressure. A diagnosis of severe GERD was initially discussed with the parents to explain the refractory emesis. Evaluation for emesis included abdominal ultrasound, which ruled out pyloric stenosis. Abdominal X-ray for any possible bowel obstruction was unremarkable. The patient continued to have emesis inpatient therefore pediatric gastroenterologist further investigated with a swallow study. This study revealed a suspicion for double aortic arch or an aberrant right subclavian artery compressing the posterior esophagus. CT angiogram of the chest with IV contrast confirmed the presence of an aberrant right subclavian artery (ARSA).

**Discussion:** This case exemplifies that a rare, life-threatening condition can go undiagnosed. Patient’s symptoms were solely attributed to gastrointestinal etiology of severe GERD and milk-protein allergy. Aberrant arteries that follow a retrooesophageal course or the more dangerous, double aortic arches, can present with respiratory or gastrointestinal symptoms however these can in fact be secondary to a life-threatening vascular ring. Additionally, this anomaly should be taken into consideration during thoracic mediastinal surgical procedures; any unintentional injury of an aberrant artery can be extremely life-threatening.

References:

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**Title:** No More Tears - Nasolacrimal Duct Obstruction in Young Adults

**Authors:** Rajeswari Murugan, D.O., PGY-II, & Peter Cohen, D.O.
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**Introduction:** Epiphoria is defined as excessive tearing. Epiphoria can be caused by an increase in tear production or a decrease in tear drainage. In the absence of trichiasis, foreign bodies, tear deficiency, or cranial nerve V irritation, decrease in tear drainage is the most common cause of epiphoria. Lack of tear drainage can be caused by anatomical or functional problems. Anatomical obstruction can occur in any part of the lacrimal
treatment of these patients is necessary.

**Thrombosis and Atrial Fibrillation.** Nephropathy associated with its use needs to be further researched and controlled trials are recommended.

**Diabetes Mellitus,** eosinophils, and focal glomerulosclerosis.

**Renal biopsy** confirmed a diffuse tubulointerstitial nephritis, acute and chronic, with a patchy increase in interstitial inflammation and fibrosis without any precipitating cause and **Secondary acquired drainage obstruction (SALDO)** is caused by inflammation and fibrosis with or without any precipitating cause. Studies show the occurrence of symptoms 3 months after surgery. With stenting (Fig 4) of full nasolacrimal duct system for 1 month, pt had complete resolution of b/l epiphoria.

**Case Description:** We present a case of a 24 y/o female with the past medical history of Polycystic Ovarian Syndrome (PCOS), who presented to clinic for bilateral (b/l) excessive tearing of 2 months duration. Patient (pt) tried warm and cold compress with minimal relief. Pt denies wearing contacts or glasses, allergies, pruritus, crusting, redness, fevers, chills, eye pain, or vision loss. On physical exam, eye exam showed blepharal erythema b/l and was diagnosed with blepharitis. Pt was given Tobradex Drops BID b/l for 5 days, nighttime eyelid wipes, and counseled proper eye hygiene. Pt was compliant with instructions. Pt presented to clinic 1 month later with persistent symptoms and was referred to Ophthalmology. Ophthalmologist diagnosed pt with keratoconjunctivitis sicca and pt was given artificial tear drops BID b/l for 1 month, without an eye exam. Pt tried artificial tear drops with minimal relief. Pt presented with persistent epiphoria to another Ophthalmologist, as second opinion. During the eye exam, pt’s punctum b/l in upper and lower eyelids were abnormally decreased in size (Fig 2). Pt had positive tear drainage & irrigation and probing tests; which showed NLDO in all punctums. Manual dilation of punctums provided some relief; but pt did not tolerate the procedure secondary to pain. Pt had b/l Lower Lid 3- Snip Punctoplasty (Fig 3). Pt still had re-occurrence of symptoms 3 months after surgery. With stenting (Fig 4) of full nasolacrimal duct system for 1 month, pt had complete resolution of b/l epiphoria.

**Discussion:** This case illustrates the uncommon presentation of nasolacrimal duct obstruction in young adults. Moreover, the importance of physical exam using the ophthalmoscope is emphasized in this case study.

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**Title:** Dabigatran Induced Acute Interstitial Nephritis: An Important Complication of Newer Oral Anticoagulation Agents.

**Authors:** Mihir Nakrani MS-II, Swapnil Patel MD, Firas Ajam MD, Mayurkumar Patel MD, Jasmine Patel PharmD, Alsadiq Alhillan MD, Mohamed Hammouda MD, Mohammad A. Hossain MD, Anas Alrefae MD, Micheal Levitt MD, Arif Asif MD MHCM

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**Introduction:** Acute kidney injury (AKI) due to direct interstitial nephritis (AIN) is common and can lead to increased morbidity and mortality. Medications such as antibiotics, nonsteroidal anti-inflammatory drugs (NSAIDs), proton pump inhibitors (PPI) and rifampin are common offending agents. Anticoagulant associated AIN is more frequently reported with the use of warfarin, however, only few case reports have reported an association with the use of novel oral anticoagulants (NOACs). Herein, we report the case of a 59-year-old male who developed acute kidney injury after initiating dabigatran for the treatment of atrial fibrillation.

**Case Presentation:** A 59-year-old male, with a past medical history of paroxysmal atrial fibrillation, hypertension, diabetes mellitus, chronic kidney disease stage 3, and osteomyelitis was referred from the outpatient clinic to the hospital for evaluation of increased blood urea nitrogen (BUN) and creatinine (Cr). Patient was receiving warfarin, but four weeks prior the medication was changed to dabigatran for better compliance. A repeat of renal functions in the office showed markedly elevated serum Cr level of 4.7mg/dL. At the time of admission, the patient was asymptomatic with no evidence of hematuria, dysuria and oliguria. He had no nausea, vomiting, diarrhea, chest pain, shortness of breath, or changes in mentation. Initial laboratory investigation upon hospitalization revealed a BUN of 115 mg/dL, serum creatinine of 5.06 mg/dL, and eGFR of 14 mL/min. Patient also demonstrated serum potassium of 4.2 mmol/L and phosphorus of 6.4 mmol/L. Urinalysis revealed protein of 30 gm/l, large leukocytes, and epithelial cells. Patient’s INR was elevated at 4.01, and patient was anemic with a hemoglobin level of 9.5 g/dL (which was around his baseline). Patient was treated with sevelamer carbonate for hyperphosphatemia. A renal biopsy was scheduled, and a urine microscopy was repeated because of a persistently elevated Cr level. Urine microscopy revealed numerous eosinophils. Following the kidney biopsy, the patient was empirically started on prednisone for presumed AIN. Within few days of prednisone therapy, renal function started to improve and repeat urine microscopy did not display any eosinophils. Renal biopsy confirmed a diffuse tubulointerstitial nephritis, acute and chronic, with a patchy increase in eosinophils and focal granulocytic tubulitis, tubular atrophy, and interstitial fibrosis. Patient also had underlying nodular diabetic glomerulosclerosis secondary to type II diabetes mellitus, with moderate arteriolar sclerosis and hyalinosis.

**Discussion:** Direct oral anticoagulants, specially dabigatran, are increasingly used for better patient compliance for the treatment of venous thrombosis and atrial fibrillation. Nephropathy associated with its use needs to be further researched and controlled trials for the benefit of corticosteroid therapy in the management of these patients is necessary.

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**Title:** A Rare Look into Squamous Cell Carcinoma of the Scrotum: A Surgical Approach

**Authors:** Trevor Nezwek, OMS-III, Alex Hendon, OMS-III, Vikisha Hazarwala, OMS-IV, Ralph Guarneri, M.D., Nova Southeastern University, Broward Health Medical Center

**Introduction:** Squamous cell carcinoma (SCC) of the scrotum is a very rare disease, with a reported incidence of less than 10 cases per year in the United States. However, SCC is the most common type of scrotal malignancy with a median age of diagnosis of 52-57 years. Major risk factors associated with SCC of the scrotum are HPV exposure, occupational exposure to polycyclic aromatic hydrocarbons, PUVA therapy, and
immunosuppression.

Case Description: This is a 57-year-old African American male with a past medical history significant for hypertension and stroke who presented to the emergency room with an increasingly painful left testicular lesion for 3 years. 3 months prior to presentation, the patient was found to have biopsy-proven SCC of the left scrotum at an outpatient dermatology clinic. The patient complains of constant groin pain with no known alleviating or aggravating factors. He denied fever, chills, weight loss, dysuria, low back pain, chest pain, or shortness of breath. He also denied any prior history of sexually transmitted infections.

On physical exam, the patient had a 15x7 cm, tender, malodorous, fungating mass on the left scrotum extending laterally to the left groin. On the right groin, the patient had a 4x3 cm condylomatosus superficial lesion. No inguinal adenopathy or perianal involvement was appreciated. There were no penile lesions. Labs were within normal limits, including tests for HIV and syphilis. On ultrasound of the scrotum there was no testicular involvement and CT of the chest showed no signs of metastasis.

The patient elected wide surgical excision with biopsy of the left scrotal mass by general surgery. Intraoperatively, the decision to excise and fulgurate the superficial right inguinal lesion was made. Pathology confirmed left scrotal SCC in situ with foci of microinvasions < 1 mm with negative margins. Pathology of the right groin lesion also confirmed SCC in situ that extended to surrounding specimen margins. The biopsy of the lesion from 3 months prior to the patient’s presentation revealed p16+ immunohistochemistry, confirming a HPV16 etiology. After excision, mobilization of local skin flaps were used for primary closure and the wound was dressed and held in place with a scrotal support. The patient tolerated surgery well and was discharged in stable condition with home health for wound care and scheduled for follow up with general surgery, hematology/oncology, and internal medicine in 1-2 weeks.

Discussion: This case illustrates current recommendations on management of a rare yet interesting clinical entity—SCC of the scrotum. It also demonstrates the importance of a risk stratified approach for staging and treatment of regional lymph nodes.

Title: Hemorrhagic cholecystitis after rivaroxaban and dual antiplatelet use

Authors: Harry Nguyen, D.O. (1), Rosalyn Amante, D.O. (2), Adrian Perez, M.D. (1)

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Introduction: Hemorrhagic cholecystitis represents a remarkably rare phenomenon. Often overlooked, this complication can often prove fatal if not treated with urgent percutaneous drainage or cholecystectomy. Possible etiologies for bleeding within the gallbladder lumen include include trauma, biliary neoplasms, percutaneous interventions, and antiplatelet or anticoagulation medications. We present a case of a 74-year old male who developed hemorrhagic cholecystitis while on aspirin, clopidogrel and rivaroxaban.

Case Description: Our patient is a 74-year-old male with a past medical history of hypertension, atrial fibrillation and carotid stenosis who presented initially in an ambulatory clinic with an ongoing week-long history of colicky epigastric pain. The pain had progressively worsened with each meal before subsiding. He had been taking aspirin and clopidogrel for carotid stenosis, as well as rivaroxaban for atrial fibrillation. Due to the concern for symptomatic cholelithiasis, he had a right upper quadrant ultrasound which revealed a questionable gallbladder mass.

The patient was sent to the emergency department for further evaluation where a CT scan revealed possible acute cholecystitis. Labs were significant for elevations in liver enzymes. The patient was admitted for acute cholecystitis. A nuclear medicine scan showed findings consistent with cystic duct obstruction. Another right upper quadrant ultrasound revealed gallbladder wall thickening as well as a large vascularized mass in the gallbladder concerning for malignancy. Endoscopic ultrasound confirmed the presence of a complex appearing solid lesion in the gallbladder that could represent either sludge, stone, or malignancy. The patient was then taken for evaluation by the oncologic surgeon for a cholecystectomy, whereupon the gallbladder was removed and dissected in the operating room revealing a large blood clot without any luminal stones. As no mass was found, the patient was closed and discharged home following an unremarkable post-operative course.

Discussion: This case highlights a rare cause of hemorrhagic cholecystitis due to dual-antiplatelet therapy and rivaroxaban. Our careful review of the literature referenced only a few known cases of hemorrhagic cholecystitis due to either antiplatelet or anticoagulation therapy. Other cases in the literature suggest a possible conservative approach with percutaneous drainage of the gallbladder for hemorrhage, though that was not an option in our patient due to the clot which produced symptoms. We stress the importance of maintaining a broad differential when considering abnormal imaging findings when the clinical picture does not suggest an infectious process, and to also keep in mind hemorrhage and blood products as a possible etiology in acalculus cholecystitis.

Title: Trends in cervical disc arthroplasty and revisions in the Medicare database

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Background: Due to increased postoperative complications with anterior cervical discectomy and fusion (ACDF), there has been an increasing
interest in the use of cervical disc arthroplasty (CDA). Advancements in prosthetic designs and techniques have improved patient reported outcome measurements and minimized revision rates. There is a paucity in the literature regarding recent trends in CDA utilization and revision rates. The purpose of this study was to determine annual primary and revision CDA trends with the use of an administrative database.

**Methods:** A retrospective review from 2005–2014 was performed using the Medicare Standard Analytical Files from the PearlDiver supercomputer (PearlDiver Technologies, Fort Wayne, IN, USA). Patients who underwent primary CDA were queried using International Classification of Disease, ninth revision (ICD-9) and current procedural terminology (CPT) code 84.62 and 22856, respectively. Revision CDAs were queried using ICD-9 procedure code 84.66. Primary outcomes of this study included annual primary procedures, annual revision incidence (RI), and additional demographic data such as age, gender, geographic location, Charlson-Comorbidity Index (CCI); in addition to length of stay (LOS), cost, and reimbursement.

**Results:** The query returned 2,016 and 517 primary CDA and revision CDA procedures were performed in the Medicare database, respectively. The data showed that the CAGR of primary and revision CDA procedures to be 20.54% and 5.84% (P<0.001), respectively. RI and RB demonstrated a CAGR of −12.22% and −9.61%, respectively. Patients younger than the age of 65 represented the majority of the patients undergoing this procedure. Demographically, primary and revision CDAs were found highest in the South.

**Conclusions:** The data demonstrates a high rate of annual growth in CDA utilization (20.54%) and revision CDA (5.84%), indicating there is an increase demand for CDA in the United States. Compared to ACDF, patients who undergo CDA have improved patient reported outcome measurements and lower rates of postoperative complications.

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**Title:** An investigation into the relationship between diagnosis and treatment management for patient diagnosed with persistent asthma

**Authors:** Nilmeyer, Michuel, D.O.; Lee, Romeena, D.O.; Roman, Tanya D.O.; Amofah, St. Anthony, M.D.; Philippe, Elizabeth, M.D. Community Health of South Florida, Inc.

**Background:** It is estimated that 22 million Americans have been diagnosed with asthma, and it is one of the most common chronic diseases of childhood affecting an estimated 6 million children. Asthma affects the quality of life of patients diagnosed with asthma including limiting normal activities and disturbing sleep. Uncontrolled asthma can also lead to costly emergency room visits and hospitalizations and death. The 2007 National Heart Lung and Blood Institute’s (NLHBI) Guidelines for the Diagnosis and Management of Asthma provides comprehensive recommendations and guidance for treating asthma.

**Objectives:** The objective of this study is to determine if individuals who are diagnosed with persistent asthma are properly managed according to the NLHBI guidelines.

**Methods:** The study was a chart review designed as a retrospective cross-sectional study using patient data from Community Health of South Florida, Inc. (CHI), a large Community Health Center in South Florida. Inclusion criteria for this study included the following: patient had a primary care visit between January 1st, 2017, and December 31st, 2017, and patient must have an active diagnosis of persistent asthma [NC1] (ICD10: J45.50, J45.52, J45.5, J45.40, J45.41, J45.42, J45.4, J45.30, J45.32, J45.31, J45.3) age > 18. All patients who met the inclusion criteria were identified from the Electronic Health Record [NC4]. The goal of this study is to identify pitfalls in maintenance care identified by amount of rescue inhaler use reported by patients. Plan of action will be to improve medication compliance and educate patients on the importance of maintenance medication in order to prevent acute exacerbations of asthma.

**Results:** In 2017, approximately 2% of CHI’s (n=82,690) patients were diagnosed with asthma. Data in those with persistent asthma is currently being evaluated and will be presented during the poster presentation on November 9, 2018.

**Conclusion:** The results of this study will identify the consistency of treatment among patients with asthma at CHI per recommended guidelines. Results will also suggest opportunities for resident-driven quality improvement projects which may include patient and provider education regarding management and pharmaceutical interventions for the treatment of asthma. Tools like the Asthma Control Test can be used to re-evaluate previously diagnosed asthmatic patients and to ensure the proper treatment of asthma and prevent asthma exacerbations. [NC5]

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**Title:** Prophylactic Bilateral Mastectomy: Giving Women a Second Chance

**Authors:** Adedeji Olusanya OMS-III, Danay Herrera OMS-III, Gianfranco Molfetto OMS-III, Dr. Roberto Comperatore MD, Dr. Nuria Lawson MD

**Introduction:** BRCA1 and BRCA2 are human genes that produce tumor suppressor proteins. These proteins help repair damaged DNA and, therefore, play a role in ensuring the stability of each cell’s genetic material. When one of these genes is mutated its protein product is not made or does not function correctly. Subsequently, DNA damage may not be repaired properly. Cells are then more likely to develop additional genetic alterations leading to malignancy. It is estimated that 12% of women will develop breast cancer. By contrast, a recent large study estimated that about 72% of women who inherit a harmful BRCA1 mutation and about 69% of women who inherit a harmful BRCA2 mutation will develop breast cancer by the age of 80. Harmful mutations in BRCA1 and BRCA2 increase the risk of several cancers in addition to breast and ovarian neoplasms, including fallopian tube and peritoneal malignancies. Men with BRCA2 mutations, and to a lesser extent BRCA1 mutations, are also at increased risk of breast cancer and prostate cancer. Both men and women with harmful BRCA1 or BRCA2 mutations are at increased risk of pancreatic cancer. Women who are identified as being high risk due to a familial history of breast cancer or those who are known to be BRCA1/2 mutation carriers may undergo
Case Description: We present a 46-year-old female with a past medical history of TAH, radical vulvectomy, bladder surgery, vaginal cancer, omentectomy, and appendectomy that presented with elective preventative bilateral mastectomy secondary to +BRCA 2. Surgery was recommended due to an increased risk of developing breast neoplasm secondary to a positive BRCA 2 gene. She also has history of recurrent vaginal cancer that required pelvic exenteration. Medical oncology cleared her for the procedure. The patient successfully underwent the bilateral mastectomy without any complications.

Discussion: The case highlights the importance of prophylactic bilateral mastectomy in women who are BRCA1/2 positive. Studies have shown that the aforementioned procedure results in a 89.5-100% risk reduction in the development of breast cancer. Through this case report we strive to bring awareness of this risk reduction and urge those who are BRCA1/2 positive to consider this procedure.

Title: Acute Rheumatic Fever: A Diagnosis That Cannot Be Missed
Authors: Yordan E Orive Gomez, MD; Andrea M Estevez MD, Mailin Rivero Ortega MD; Jose Gascon; MD Internal Medicine Residency Program, Kendall Regional Medical Center

Introduction: Acute Rheumatic Fever (ARF) is a non-suppurative complication of Group A Streptococcus tonsillopharyngitis. Severe or recurrent ARF can produce permanent cardiac valve damage. It has affected an estimate of 33 millions of persons in developing countries, but the annual incidence in the United States has declined to approximately 0.04–0.06 cases per 1,000 children.

Case Description: A 21-year-old Hispanic male presented with complaints of progressively worsening diffuse joint pain, described as intermittent yet severe, initially localized to bilateral ankles, but gradually began to involve elbows, knees, and wrists bilaterally. Patient reported four episodes of pharyngitis in the preceding five months, but admitted to never completing a full course of antibiotics. At time of our initial encounter, patient was on day eighth of Augmentin, prescribed at urgent care center where a rapid strep test was positive. Other complaints included intermittent subjective fevers during each previous bout of pharyngitis, and for the past 10 days, a skin nodule in the right knee, transitory erythema of bilateral knees and anterior chest wall, and intermittent episodes of left-sided precordial chest pain. Although sore throat and chest pain had improved, arthralgias were worsening.

Physical examination revealed enlarged tonsils without exudates or erythema. No murmurs were auscultated. Annular erythema was noted on the right knee, with a non-tender subcutaneous nodule measuring 0.5x0.5 centimeters. Laboratory studies demonstrated leukocytosis with neutrophilia, as well as elevated erythrocyte sedimentation rate, C-Reactive Protein and Anti-Streptolysin O titer. Thorsthoracic echocardiogram was normal. Electrocardiogram revealed normal sinus rhythm without PR interval prolongation. Throat culture was negative for Streptococcus. These clinical and laboratory findings were compatible with ARF, and the patient was treated with Penicillin G benzathine in a single dose, with continued follow up in our outpatient clinic.

Discussion: This case report provides an example of an uncommon disease in the United States. The diagnosis was based on the 2015 Revised Jones Criteria in the epidemiologic context of a low-risk population. ARF occurs most commonly among children aged 5–15 years, yet our patient was 21 years old. Pericarditis may present with transitory precordial chest pain. Streptococcal serology is most useful in the diagnosis of ARF. Throat cultures and rapid streptococcal antigen tests are commonly negative by the time manifestations of ARF appear. Because it is a disease that is rarely diagnosed in developed countries, and due its predilection for the pediatric population, this diagnosis could be easily missed. Timely and accurate diagnosis of ARF remains of utmost importance in preventing Rheumatic Heart Disease. Clinicians must provide careful assessment and treatment to patients presenting with acute pharyngitis. The long-term cardiac sequelae of ARF can be devastating; prescribing the most effective secondary prophylaxis regimen is essential.

Title: Pericardial Tamponade Secondary to Stage IV Adenocarcinoma of the Lung
Authors: Divya A. Pandya, OMS-III, Amanda N. Hunter, D.O., Tariq Jaber, M.D., Cristina E. Savu, D.O.

INTRODUCTION: Pericardial tamponade is a medically emergent condition that occurs when fluid in the pericardial sac accumulates causing intrapericardial pressure to increase. The heart is surrounded by the pericardium, a fibroelastic sac that contains a thin layer of fluid. If abnormal amounts of fluid enter this sac, the ventricles can become compressed, comprising the diastolic filling of the heart. This can lead to decreased cardiac output, potentially leading to cardiac arrest. In the United States, incidence is approximately two cases in ten thousand people. 14% of cases are idiopathic while 61% are either malignant, bacterial or tubercular, with malignant causes being the most common. Dressler syndrome was only 1-2% of cases. Symptoms include pleuritic chest pain and dyspnea. Exam findings include sinus tachycardia, elevated jugular venous pressure, decreased heart sounds, pericardial rub, and pulsus paradoxus. EKG may show sinus tachycardia and low voltage QRS, as well as electrical alternans, a specific but not sensitive finding. Diagnosis is clinical, and is only confirmed by hemodynamic response to pericardiocentesis or pericardial window.

CASE DESCRIPTION: A seventy-seven year old Caucasian male with past medical history of hypertension and stage IV metastatic adenocarcinoma of the lung with lymph node involvement presented to the ED with acutely worsening chest pain. He became tachycardic and hypotensive requiring three vasopressors. The patient continued to decline and later exhibited altered mental status and underwent rapid sequence intubation to maintain patent airway. The echocardiogram showed a large pericardial effusion as well as diastolic compression of the right ventricle.
suggestive of cardiac tamponade. A therapeutic bedside pericardiocentesis was performed during which a considerable amount of fluid was removed. Following this procedure the patient’s hypotension and tachycardia resolved and vasopressor support was discontinued. A pericardial window for definitive treatment was performed the next morning. Fluid studies and pericardial sac biopsy were positive for adenocarcinoma consistent with metastases of patient’s stage IV adenocarcinoma of the lung.

**DISCUSSION:** Pericardial tamponade can be emergent when it deranges normal hemodynamics and leads to obstructive shock. Nonspecific symptoms usually precede these events, and in the setting of intrathoracic malignancy, can raise the suspicion for this diagnosis. The higher the suspicion the more efficiently a diagnosis can be achieved, with the use of simple, cost-effective bedside imaging like an echocardiogram. This method is the best imaging study to determine presence, size, and hemodynamic effect of a pericardial effusion. Adenocarcinoma of the lung (ADC-L), compared to all other cancers types, caused 58% of pericardial effusions in one study. As with our patient, hemodynamically unstable patients should have an urgent pericardiocentesis or pericardial window. This generally results in immediate symptomatic relief. ADC-L was also associated with 35% recurrence of pericardial effusion in 3 months, and 78% after one year. Pericardial window procedures have lower risk of effusion occurrence, compared to pericardiocentesis alone. Effusion recurrence rates without surgical intervention are as high as 90% in patients with malignancy. In addition, although recurrence rates in ADC-L patients are high, survival is also high, at 75% after 6 months. Given these statistics, we recommend that in patients with intrathoracic malignancy who present with pleuritic chest pain or dyspnea, that pericardial effusion diagnosis be suspected, and bedside echocardiogram be performed to rule this out. Definitive treatment would be pericardial window, regardless of hemodynamics, to prevent recurrence, as long as the malignancy is still present.

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**Title:** Myositis: From Nondescriptive Chief Complaint to Diagnosis

**Authors:** Simone Phang-Lyn OMS-3, Gianfranco Molfetto, OMS-3, Mouri Boucher, D.O., PGY-I, Jose Sanchez, M.D., Attending Physician

**Introduction:** Myositis is an immune-mediated inflammatory myopathy affecting 2 per 100,000 persons annually. Etiologies includes several types such as polymyositis, dermatomyositis, inclusion body myositis, immune-mediated necrotizing myopathy, eosinophilic, and granulomatous myositis. Patients typically develop an insidious, progressive, symmetrical weakening of proximal muscles. Common complaints are of difficulty arising from seated position, exercising, or lifting arms overhead. Interestingly, grip strength is typically preserved. The best approach to accurately diagnosing inflammatory myopathies includes careful history taking as well as a thorough physical exam and lab tests. These labs can show evidence of muscle damage and/or the presence of antibody markers that help to determine the etiology of the disease. Nearly all patients will have elevated creatine kinase (CK) levels, whereas antinuclear antibody (ANA) or anti-synthetase antibody assays are not always positive. Some patients will be “serologically silent” meaning they have no antibody markers related to myositis. The use of other diagnostic tools such as MRI can help demonstrate changes in muscle indicating the presence of inflammation, while an electromyogram can demonstrate abnormal electrical activity, also indicating muscle injury. Muscle biopsy can also be done as it is the most accurate test in diagnosing dermatomyositis or polymyositis, but may not always be necessary when there is a typical presentation of the disease. Treatment is usually initiated with prednisone that works to reduce inflammation causing muscle enzymes to fall and allow for recovery of muscle strength. However, since polymyositis and dermatomyositis cannot be cured, but can be controlled by medications, it is important for long-term monitoring for signs of disease reactivation. Patients need to have their CK levels and muscle strength tested on a regular basis.

**Case Presentation:** 66-year-old female with a past medical history of hypertension, previous episode of Bell’s palsy, and Herpes Zoster with postherpetic neuralgia, presents to the ED with progressive generalized weakness for the past 3 months. The patient complaints of unusually “heavy” limbs with difficulty raising her legs, brushing her hair, and getting up to a standing position. Associated symptoms include unsteady gait, difficulty with balance, low back pain, bilateral posterior thigh pain, and bilateral lower extremity paresthesias. Physical exam revealed limited active range of motion, inability to raise arms above shoulder height and inability to flex thighs with knees extended. Muscle strength testing revealed 3/5 muscle strength at the hip flexors and shoulder abductors. Labs showed a CK value of 14,392 indicating the presence of muscle injury. Muscle biopsy can also be done as it is the most accurate test in diagnosing dermatomyositis or polymyositis, but may not always be necessary when there is a typical presentation of the disease. Treatment is usually initiated with prednisone that works to reduce inflammation causing muscle enzymes to fall and allow for recovery of muscle strength. However, since polymyositis and dermatomyositis cannot be cured, but can be controlled by medications, it is important for long-term monitoring for signs of disease reactivation. Patients need to have their CK levels and muscle strength tested on a regular basis.

**Discussion:** This case highlights the importance of a thorough history and physical exam in a patient presenting with a vague and non-descriptive complaint such as weakness. Equally important as the use of steroids is to reduce inflammation, is the application of physical therapy for symptomatic improvement.

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**Title:** Pancreatico-pleural Fistula, a Rare Complication of Chronic Pancreatitis

**Authors:** Chelsea Pierce PGY-3, Sarah Arvaneh PGY-3, James Flanagan PGY-3, C. Halleman DO.
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**Introduction:** Pancreaticopleural fistula is a rare complication of chronic pancreatitis, but an important one to consider. Diagnosis may be challenging due to the predominance of respiratory complaints instead of abdominal complaints. Conservative therapy is first line and focuses on decompression of the pancreatic duct using endoscopic ultrasound as well as drainage of pleural effusions and bowel rest. However, more aggressive intervention, such as surgical correction, may be necessary to prevent reoccurrence of fistulas if continued conservative measures fail. The delay in
Case Description: This 54 year old female has a history significant for alcohol-induced chronic pancreatitis and recurrent left pleural effusion requiring thoracentesis. She presented with 10 days of worsening dyspnea. Imaging revealed a very large left pleural effusion with near opacification of the left lung. Chest tube was placed for drainage, and pleural fluid analysis revealed a sterile exudate, with elevated amylase level of 19082 U/L. MRCP and EUS revealed a fistulous tract from the pancreatic tail to the pleural space. The patient failed conservative management and her pleural effusion re-accumulated after removal of her chest tube causing her symptoms to return. Placement of a second chest tube was technically difficult and resulted in a large-bore chest tube being placed into the lung parenchyma. She underwent cardiothoracic surgery to perform VATS and wedge resection as well as abdominal surgery for repair of pancreaticopleural fistula, distal pancreatectomy and splenectomy. She improved and was discharged home. Two months later, she returned to the hospital for wound dehiscence and recurrent fluid accumulation around the pancreatic tail. Surgery provided wound care and interventional radiology was able to aspirate peripancreatic fluid with fluid studies consistent with a post-operative pancreatic leak. She was managed on IV antibiotics and Dobhoff tube feedings. Again, she improved and was discharged home. Follow up CT scan showed improvement after discharge and patient has had no further known complications.

Discussion: Pancreaticopleural fistula is a rare complication of chronic pancreatitis, occurring in approximately 0.4% of pancreatitis patients, and is most often associated with alcohol-induced pancreatitis. Early endoscopy and conservative measures are initially attempted. Unfortunately for our patient and for up to 65% of PPF cases, conservative measures fail and more invasive surgical measures are required, as well as management of further complications. Our therapy for this patient demonstrates the wide range of available treatment options for pancreaticopleural fistulas, from most conservative to most invasive. Complication rates increase with duration of conservative/medical therapy prior to surgical intervention, suggesting that in future cases which are unlikely to respond to medical management, early surgery may be more beneficial than a trial of conservative therapy.

Title: A Rare Cause of Infant Stridor: Innominate Artery Compression Syndrome

Authors: Nicole M. Pietras, D.O, MPH, Ira M. Stein, M.D.
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Introduction: Vascular rings are a rare group of congenital anomalies presenting with upper airway obstruction. Symptomatology is related to the structures compressed by the vascular ring (ie. the trachea or esophagus) as well as the degree of symptoms. Symptoms can range from mild dyspnea to severe symptoms such as airway obstruction or reflex apnea. This syndrome occurs when the innominate artery originates from the aorta in a more distal position, causing the artery to take a more leftward course across the trachea near the thymus. This more leftward course and thymus cause the artery to compress the trachea.

Case Description: This is a 5-month-old M presenting for reflux and hoarseness. The patient had progressive worsening hoarseness whenever the patient cried. The parents also noticed stridorous breathing at rest which worsened when the patient cried. The patient’s pediatrician initially thought the patient had reflux and the patient was placed on reflux precautions as well as ranitidine. The patient underwent treatment for four weeks, which did not improve his condition. The patient was referred to an ENT for concern of airway obstruction. The patient underwent a direct rigid laryngoscopy as well as a rigid bronchoscopy. The intraoperative findings include grossly normal true vocal cords with symmetric mobility (pictures 1, 2). Mild tracheal narrowing, approximately 60%, from the right side with pulsations, suspicious for a vascular ring (pictures 3, 4). Distal airway to carina and mainstem bronchi were grossly normal (pictures 5, 6). The patient was diagnosed with innominate artery compression syndrome and referred for possible surgical intervention.

Discussion: This case illustrates a rare cause of airway obstruction, innominate artery compression syndrome. Upon searching the literature, not many cases of innominate artery compression syndrome have been reported since the 1970’s and especially in the past 10 years. However, this condition can lead to airway obstruction and must be considered in a differential diagnosis, since the consequences can be full airway obstruction without surgical intervention.

Title: Diffuse Alveolar Damage within a Month of Initiating Amiodarone Therapy

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Introduction: Amiodarone is an iodine-based pharmaceutical used to treat cardiac arrhythmias. Although widely used due to its efficacy, amiodarone has numerous well-documented adverse effects, believed to be due to the long half-life of the medication and the overall accumulation of the active metabolite within the body. Amiodarone-induced pulmonary toxicity (AIPT) is one of the most life threatening and less common side effects. The incidence of toxicity increases with duration of treatment greater than two months, in setting of doses over 400 mg, and in patients of older age or with a history of lung disease.

Case Description: We present a case of a 51-year-old Caucasian man with COPD, CHF, hyperlipidemia and hypertension who presented to the ED with progressive dyspnea for one week and cough productive of whitish sputum. The patient had initiated amiodarone treatment for non-sustained
ventricular tachycardia 1 month prior to presentation. The patient had used his steroidal and long-acting beta-agonist inhalers without relief. The patient denied fevers, chest pain, or lower extremity swelling. Vital signs were significant for a respiratory rate of 22 and an oxygen saturation of 85% on 2 liters oxygen via nasal cannula. Clinically, the patient was diaphoretic and crackles were heard on lung auscultation, greatest in the upper lobes. Chest radiograph showed diffuse reticulonodular densities bilaterally, not present on an exam performed prior to starting amiodarone therapy. Chest CT showed bilateral pleural effusions and a diffuse crazy-paving pattern, greatest in the upper lobes. The differential diagnosis included pneumocystis pneumonia, ARDS, inhalation injury, pulmonary hemorrhage, and idiopathic interstitial pneumonia. The patient was started on BiPAP and admitted to the medical floor. After further work-up, he was diagnosed with acute amiodarone-induced hypoxemic respiratory failure and was placed on high-dose steroids. The amiodarone therapy was discontinued. After 10 days of steroids, his respiratory status returned to near baseline. He was discharged home with an extended steroid taper and 2L home oxygen.

Discussion: This case illustrates the importance of including medication toxicity in the differential of acute pulmonary disease. On CT, acute AIPIT can resemble several other entities with nonspecific pulmonary opacities, but can be distinguished by the upper lobe predominance and high-attenuation pleuroparenchymal lesions. High attenuation can also be noted within the liver and spleen. The treatment of AIPIT is long-term, high-dose corticosteroids, which usually resolves symptoms and radiological findings within 18 months. If untreated, the affected areas of the lungs develop fibrosis, and in rare cases, death can occur.

Title: Acute Urinary Retention following Cyclobenzaprine Use

Authors: Nora Quattrocelli D.O. PGY II, Hemang Thakor D.O. PGY II, Shane Williams D.O, Family Medicine Residency Program, Palmetto General Hospital

Introduction: Acute urinary retention is the inability to voluntarily pass urine. It is the most common urological emergency in the United States and is primarily seen in men. A variety of pathophysiologic mechanisms may be responsible for developing urinary retention, including outflow obstruction, neurological impairment and side effects of certain medications. Medications commonly associated with urinary retention include anticholinergics and sympathomimetic drugs. Infrequently, muscle relaxants like cyclobenzaprine, baclofen and diazepam have been associated with urinary retention, though this is exceedingly uncommon. Urinary retention in the setting of acute use of cyclobenzaprine has been reported in <1% cases, making it a challenge for physicians to identify as the cause.

Case Presentation: This is a 76 year old male with past medical history of hypertension and patent foramen ovale that presented to the emergency department with chief complaint of difficulty urinating for 24 hours. The patient was started on cyclobenzaprine 10 mg for 5 days for acute muscle spasm one day prior to presentation. The patient noted no other changes in medications, lifestyle or sexual practices that preceded urinary retention. Review of systems was obtained and was otherwise negative.

On exam, the patient was found to be in no acute distress, with no pertinent exam findings noted. A foley catheter was placed by nursing prior to examination which the patient reported relieved his symptoms. The collected urine was sent for analysis and was notable only for 1+ blood. CBC and CMP were also preformed which showed no change in renal function. The patient was instructed to discontinue the cyclobenzaprine and was discharged home with indwelling Foley catheter. Urologic follow up revealed complete resolution of patient’s urinary retention. Labs showed an elevated PSA at 44.3, which was attributed to recent placement of indwelling catheter. Patient has had no further incidence of urinary retention since initial presentation.

Discussion: Muscle relaxants represent a diverse group of drugs that are often prescribed in outpatient practice. Cyclobenzaprine is the most commonly prescribed muscle relaxant in the United States and accounts for 18% of all prescriptions written for chronic back pain. Cyclobenzaprine has antihistamine, anticholinergic, and sedative properties, as well as weakly inhibits norepinephrine and serotonin reuptake. It is likely the anticholinergic properties associated with cyclobenzaprine that cause acute urinary retention. Those with a history of urinary retention are at increased risk of developing this side effect and should be counseled by providers that this rare, though emergent side effect exists.

Title: An Unusual Presentation of Pediatric Fever: a rare diagnosis of PFAPA syndrome

Authors: Reeja Raj, Anais Roig-Cantisano, MD, Physician
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Introduction: Periodic fever, aphthous stomatitis, pharyngitis, cervical adenitis (PFAPA syndrome) is a rare inflammatory pediatric disorder that usually presents in early childhood (ages 2-5 years). Classically, patients with PFAPA syndrome present with a periodic high fever (over 39°C) that last for about a week and recur almost every month, and have at least one other typical or atypical symptom. Typical symptoms include aphthous stomatitis, pharyngitis, or cervical adenitis, while atypical symptoms may include joint pain, abdominal pain, or vomiting. Proper diagnosis of PFAPA is essential because the fever and additional symptoms do not respond to common antipyretic therapy or antibiotics. Treatment is with glucocorticoids for episodic therapy or tonsillectomy for curative therapy but most cases resolve spontaneously by puberty.

Case Discussion: We present the case of a 12 year old boy who presented to the pediatric Emergency Department (ED) with a one day history of fever (Tmax 104°F), headache and bilateral achy joint pain in his legs. His mother noted no improvement of fever or other symptoms with administration Ibuprofen. Patient denied vomiting, diarrhea, sore throat, meningesus, or recent sick contacts. Upon further questioning the mother reveal he has a past medical history of PFAPA syndrome. His symptoms recur monthly and always start with joint pain and high fevers that are not
relieved with antibiotics or NSAIDS; however, a single dose of prednisone completely relieves his symptoms within the hour. Upon physical examination, patient had no erythema, edema or exudate in the pharynx or tonsils and no lymphadenopathy. No ulcers were noted in the buccal mucosa or gingiva. He had tenderness to palpation of bilateral lower extremities. Lab values showed mild leukocytosis with left shift along with mildly elevated Erythrocyte Sedimentation Rate (ESR) and C-Reactive Protein (CRP) levels. Patient was given 2 mg/kg of oral prednisone for episodic treatment. Patient was evaluated a couple of hours after treatment and was noted to be afebrile with a subjective decrease in joint pain and headache.

**Discussion:** PFAPA syndrome is a childhood illness that continues to be extremely difficult to diagnose because it is so rare and since the symptoms can manifest very differently between patients. This case illustrates the importance of recognizing various possible atypical presentations of PFAPA which can ultimately help lead to a faster diagnosis and recovery time for the patient.

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**Title:** “Lost in The Forest” – A Rare Case of Forestier’s Disease (Diffuse Idiopathic Skeletal Hyperostosis).

**Authors:** Ram, A., Gandhi, PS., Myers, B., Mansour, J.

**Introduction:** Forestier Disease, also known as diffuse idiopathic skeletal hyperostosis (DISH), is a rare, non-inflammatory condition that largely develops in the elderly population because of calcification and osteophyte formation within the spinal column. In 1950, Jacques Forestier and Jaume Rotes-Querol initially described the clinical findings associated with this disease process as *senile ankylosing vertebral hyperostosis*. When the vertebral spine is affected, both swallowing and respiration can be disrupted. Patients with DISH in this area may initially be asymptomatic; however, as the condition progresses they are likely to develop dysphagia, aspiration of food, limited spinal motion and pain, and airway obstruction as well. We present a case of persistent dysphagia, cough, and dyspnea secondary to DISH, which was acutely worsening after a prolonged course.

**Case Description:** A 78-year-old man with no reported medical history presented to the ED complaining of a myriad of symptoms including sore throat, difficulty swallowing, a productive cough, and shortness of breath worsening over the past week. Due to the patient’s symptoms in combination with his concerning speech impediment, a CT of the neck was performed which revealed large bulky osteophytes projecting from the anterior cervical spine at the levels of C2 - C5. The osteophytes visualized were causing significant impingement of the patient’s esophagus and trachea, which helped establish a mechanical cause of the patient’s symptoms.

**Discussion:** Patients with DISH are likely to present with a myriad of symptoms, which depend on the location and severity of ossification. In cases such as ours, patients with ossification of the anterior longitudinal ligament of the cervical spine will experience hoarseness, dysphagia, odynophagia, and dyspnea as well. It is thought that along with the ossification process, patients will develop an enlarged anterior cervical osteophyte, which then results in mechanical compression of the esophagus and trachea. Physicians most commonly use a set of diagnostic criteria established in 1976 to help confirm a diagnosis of DISH. The following 3 conditions must be met: 1. *At least four contiguous vertebrae must have flowing and bridging ossification.*, 2. *The relative joint spaces must be maintained,* and 3. *There must not be any destruction, degeneration, or ankylosis of apophyseal and sacroiliac joints.* Although DISH has largely become a radiologic diagnosis, the radiologic findings must comply with the diagnostic criteria outlined by Resnick et. al. Due to the bridging ossification between vertebral bodies, motion is severely restricted and the center of vertebrae becomes weak. Thus, DISH has been associated with unstable vertebral body fractures following minor trauma. Physicians must be aware of this particularly important clinical association in patients with an established diagnosis of DISH, as these patients may suffer debilitating and irreversible neurological damage without appropriate acute management. Therefore, prompt recognition of potentially debilitating and/or life threatening symptoms, proper airway management, and utilization of appropriate diagnostic modalities is of the utmost importance in the acute management of these patients.

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**Title:** Solitary Fibrous Tumor of the Kidney


**Introduction:** Solitary fibrous tumors (SFT) are rare mesenchymal neoplasms that can originate anywhere in the body and rarely metastasize. Considering how extremely rare SFTs of the kidney are, the lack of defining features on imaging, making the diagnosis can prove difficult. The goal for this case presentation is to raise awareness of this rare condition, as well as to provide rational for the diagnostic and treatment strategies utilized in the management of this neoplasm.

**Case Presentation:** We present the case of a 72-year-old Caucasian male that sustained trauma in a motor vehicle accident and as part of the emergency room workup was found to have an incidental mass in the left kidney. The CT chest/abdomen/pelvis with contrast revealed a 2 cm mass in the left kidney concerning for renal cell carcinoma. Upon follow up 90 days later, repeat imaging revealed that the solid mass mildly increased in size to 2.5 cm. Based on these findings, a renal ultrasound and CT guided biopsy were performed. The ultrasound revealed an enlarging heterogenous mass within the upper pole of the left kidney and tissue obtained from CT-guided biopsy revealed a low-grade spindle cell neoplasm without mitotic activity. There was positive staining for vimentin, indicative of mesenchymal origin, although more specific mesenchymal markers (including CD14, actin, and smooth muscle myosin) were negative. This would tend to exclude leiomyomas, cellular variant of angiomylipoma, and solitary fibrous tumor. The clinical plan was to follow the patient with annual renal ultrasound and consideration for repeat biopsy or excision if the lesion becomes more clinically worrisome. Approximately two years later, a renal ultrasound and then CT abdomen and pelvis revealed further enlargement...
of the renal mass measuring approximately 4.5 x 3.5 x 3.9 cm and surgical excision was recommended. The patient agreed to robotic left partial nephrectomy and the mass was excised and sent for pathological analysis. The surgical pathology report revealed that the lesion again stained positive for vimentin, weakly positive for CD34, and negative for specific markers for leiomyoma (smooth muscle myosin/actin/desmin), neural tumor ($100), and angiomysfibroma (HMB45). The possibility of solitary fibrous tumor was now considered, although typically those tumors are strongly positive for CD34. Upon further immunohistochemical staining for bc12, the sample displayed diffuse, moderate cytoplasmic staining supporting a diagnosis of solitary fibrous tumor. There are no absolute criteria for determining malignancy in these lesions and therefore long-term follow-up was suggested. The tumor seemed indolent, both by clinical history, morphology and low mitotic rate and this partial resection was likely curative.

Discussion: Regarding renal SFTs, there are no clear evidence-based treatment guidelines, an unclear role of preoperative biopsy, as well as unclear length of post-resection follow-up imaging. This case demonstrates the rare diagnosis of renal SFT, a potential blueprint for successful management, and the need for further studies to determine optimal follow-up.

Title: Pneumoretroperitoneum secondary to Osteomyelitis

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Introduction: The retroperitoneum extends from the diaphragm to the pelvic brim. Pneumoretroperitoneum is rare. It is commonly associated with duodenal perforation, post-operative complications, emphysematous pyelonephritis, colonic perforations, or iatrogenic from endoscopy. There have been scattered case reports of emphysematous osteomyelitis creating retroperitoneal air. Emphysematous osteomyelitis is generally associated with diabetic patients. Since emphysematous osteomyelitis of spine is associated with significant morbidity and mortality, aggressive management with antibiotics and surgery is indicated

Case Description: We present a case of a 39-year-old African-American male with history of gunshot wound 14 years prior with subsequent paraplegia and loss of sensation below the nipple who presented with complaint of foul smelling urine. He subsequently was found to have pneumoretroperitoneum of unclear etiology.

On primary survey, his airway was patent, respiratory rate was 18, saturating 98% on room air, with a pulse of 109, and temperature of 36.9°C obtained orally. Clinically the patient appeared calm, nontoxic, and hemodynamically stable. On secondary survey, his abdomen was firm, but he reported no tenderness and there was no rebound or guarding. He had 3 sacral decubitus ulcers with foul smell and we were able to probe bone on all of them. Urinalysis was positive for UTI (ESBL and Acinetobacter) but due to patient’s chronic loss of sensation and concern for pyelonephritis a CT of the abdomen and pelvis without contrast was performed. It revealed a 20 cm focus of gas in the left abdomen with evidence of extensive osteomyelitis involving the sacrum, bony pelvis, and lower lumbar spine in addition to septic arthritis of bilateral hips. He had an ESR of 46 mm/hr and a CRP of 15.75 mg/dl, and glucose ranges of 87-102. It was postulated that the sacral and lumbar osteomyelitis was creating retroperitoneal air. MRI could not be performed due to retained bullet, lodged in the bone. General surgery was consulted for removal, however due to the location of the bullet, the risks of removing it outweighed the benefit of the MRI. Therefore he was evaluated by neurosurgery, who believed the osteomyelitis was non-operable and treatment should be medical management only. Patient received PICC line placement and antibiotic therapy with Meropenem 500mg q 6 hr IV and gentamicin 500mg q 24 hr IV. He was discharged home with home health and antibiotic therapy for 4-6 weeks.

Discussion: This case illustrates the importance of a complete evaluation of each patient, especially those with neuro-deficits that necessitate a broader differential.

Title: Parasystole in a Dyspneic Patient

Authors: Joseph Reimon, M.D., Dana Kajan (Medical Student – Southeastern NOVA University), Monica Ramirez (Masters in Medical Sciences Student – University of South Florida), Nikkitta Georges, M.D., Walter Ramirez, M.D.
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Introduction: Parasystole, a type of arrhythmia that is rarely documented in the literature, occurs as the result of the interaction between a “dominant” and an “ectopic” pacemakers. Both pacemakers fire independently at a fixed rate and can be located in either the atria or ventricles. The ectopic pacemaker is surrounded by a protective zone that prevents the dominant rhythm from forcing the ectopic pacemaker and its protective zone from depolarizing. Diagnosis requires the following findings to be present on electrocardiogram: 1) premature beats with variable coupling, 2) each interectopic interval is a multiple of the shortest interval, and 3) evidence of fusion beats. Parasystole can be further divided into a “fixed” and a “modulated” subcategory. Fixed parasystole occurs when the ectopic pacemaker is protected by an entrance block. In modulated parasystole, a partial entrance block with an escape route allows electrical communication with the ectopic pacemaker. We present the case of a 71 year-old male who presented to our institution with fixed ventricular parasystole, an uncommon electrocardiographic finding.

Case Description: Our 71-year-old male patient arrived to our institution with complaints of shortness of breath due to pulmonary edema. He had an extensive cardiac history which included non-ischemic cardiomyopathy, stage C heart failure with reduced ejection fraction, type A aortic dissection, which had been repaired, aortic valve replacement, and atrial fibrillation. The patient had an implantable cardiac defibrillator placed for
primary prevention and was on long-term oral anticoagulation therapy. The patient’s echocardiogram upon arrival confirmed a left ventricular ejection fraction of 20 percent, as well as diffuse hypokinesis. A 12-lead electrocardiogram showed sinus rhythm, complete right bundle branch block, left hemifascicular block, and premature ventricular contractions that met criteria for fixed ventricular parasystole. The patient responded well to intravenous diuretics and non-invasive positive pressure ventilation over a brief hospital course and was discharged shortly afterwards on guideline-directed medical therapy.

Discussion: Ventricular parasystole is a rare phenomenon of unknown prevalence arising from abnormal myocardial tissue. Because the parasystolic focus (the geographical area that includes the ectopic pacemaker and the surrounding protective myocardium) usually triggers activity at a rate of 30 – 40 events per minute, it is unusual to make the diagnosis on a 12 lead EKG. Our case is unique because all diagnostic criteria are found on the EKG obtained during hospitalization.

Title: Mid-Tendon Palmaris Longus – Dissection Presentation and Literature Review
Authors: Chad Richards, Sean Bacha, Kayla Brown, Aakash Trivedi
Nova Southeastern University, Kiran C. Patel College of Osteopathic Medicine

Introduction: The palmaris longus (PL) muscle is one of five muscles that originate from the common flexor tendon, which attaches at the medial epicondyle of the humerus, and has its own insertion distally into the palmar aponeurosis. The smallest of the wrist flexors, the PL lies medial to the flexor carpi radialis and lateral to the flexor carpi ulnaris. Although the PL contributes minimal biomechanical function, its wide anatomic variation can produce pathologies in the forearm and wrist such as median nerve entrapment. These variations include absent PL, bifurcated, and trifurcated, as well as reversed PL with a distal muscle belly.

Here we present cadaveric dissection of a unique PL with a distally migrated muscle belly and wide tendinous insertion. In addition, we discuss existing literature regarding PL variation and their documented frequencies as well as PL considerations in surgical procedures.

Case Description: Dissection of this male cadaveric specimen took place at Nova Southeastern University as part of the summer anatomy fellowship for the Dr. Kiran C. Patel College of Osteopathic Medicine. Dissection of 24 donors were examined for reversed palmaris longus muscles when this variation was discovered. The right PL on this specimen demonstrates a distally migrated muscle belly with tendon on either side. The distal tendon of this PL is as wide as the muscle belly, with almost no tapering demonstrated before insertion into the palmar aponeurosis.

Other musculature of the right arm appeared normal, with no demonstration of atrophy or distinct anatomic variation. The PL, despite its size and orientation, does not appear to be causing nerve entrapment or other pathology; however, the medical history of the donor regarding the upper extremity is unknown. Examination of the left forearm showed an absent PL, but otherwise lacking unique variation.

Discussion: Caucasian, Turkish, and Indian ethnicities showed to have an overall greater absence of the palmaris longus muscle of 25%, 26.6%, and 28% respectively1, 2, 3. In contrast, the populations of Yoruba Nigeria, and East Africa showed significantly lower overall absences of the PL at 6.7% and 4.4% respectively4, 5, 6. Since the PL assists in the flexion of the anterior forearm, it is possible that in populations where there is a prevalence of manual labor and activities involving hand grip and hand flexion strength, one would see an increased prevalence of present and unique PL7.

The palmaris longus (PL) tendon is often the first choice for tendon grafts needed in reconstructive surgery of the hand. Many surgeons choose this tendon because its length and diameter fit the parameters of the surgery. Using this case, along with further discussion of relevant literature, surgical and clinical considerations are reviewed.

Title: Cardiac Amyloidosis: Look for the Signs for an Early Diagnosis
Authors: Amin Rmeileh, D.O. Neda Naderi, OMS-IV. Arnoux Blanchard, M.D.
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Introduction: Cardiac amyloidosis is an uncommon infiltrative disease of the heart and a manifestation of a fatal systemic disorder if left unrecognized. The amyloid protein has many precursors with AL amyloid being the most commonly diagnosed. It is formed from abnormal light chains produced by dysfunctional plasma cells which are then deposited in almost every organ system leading to organ dysfunction.

The incidence of AL amyloidosis in the United States is 10.5 cases per million person-years and cardiac involvement in AL amyloidosis is 50% on initial evaluation. The median survival from heart failure onset is 6 months without treatment. High clinical suspicion is needed to make the diagnosis and there are many signs that can be recognized early in the disease process.

Case Description: A 58-year-old male with a past medical history of cardiomyopathy (CM), transient atrioventricular (AV) block, cryptogenic stroke with loop recorder monitoring presented to our hospital complaining of dyspnea on exertion of two days duration. He had associated symptoms of orthopnea, paroxysmal nocturnal dyspnea, and worsening lower extremity edema. Physical exam was positive for jugular venous distention, pitting lower extremity edema, hepatojugular reflux, and an S3 gallop. Over the past year, he had multiple hospitalizations for acute congestive heart failure (CHF) decompensation despite optimal medical therapy. A recent CT angiography did not reveal any obstructive coronary artery disease and the etiology behind his CM remained unknown. An interrogation of his loop recorder revealed frequent AV blocks over three seconds. The patient was admitted to the telemetry unit for treatment of his CHF and for electrophysiology specialty evaluation regarding permanent
Osteochondroma (osteochondral exostosis) is a tumor that takes the form of a cartilage-capped bony outgrowth on the metaphyseal surface of the bone. Osteochondromas are the most common skeletal tumor, comprising 20% to 50% of benign bone tumors and 10% to 15% of all bone tumors. They occur as either solitary or multiple tumors typically found in adolescents or children, most commonly (85%) presenting as a solitary non-hereditary exostosis. Classically, Osteochondromas occur around the knee joint in either the distal femur or proximal tibia with pain and a bony protuberance being the most common presenting symptoms. Radiographic findings are both characteristic and diagnostic, and therefore an osteochondroma is considered by the Orthopedic community as a diagnosis that should not require a referral to an Orthopedic Oncologist.

Case Presentation: We present a case of a 10 year old Caucasian male who presented complaining of chronic right knee pain associated with an expanding mass on the medial aspect of his knee. Upon examination in the office, the patient was found to have clinical and radiological findings consistent with an osteochondral lesion projecting from the medial aspect of his proximal tibia. Because of the clinical presentation, radiological findings, and nature of the lesion: a clinical diagnosis of Osteochondroma was made. Despite the usual observational management of these lesions, due to its size and discomfort that it was causing the patient the lesion was planned for excision. Ultimately, surgical pathology examination confirmed the clinically expected diagnosis of Osteochondroma.
**Discussion:** Osteochondromas as amongst many readily identifiable musculoskeletal lesions that have an indolent or self-limited course and do not require a biopsy or treatment unless they are symptomatic. Biopsy may confirm a suspected benign diagnosis but may be an unnecessary, invasive procedure in many cases. Careful analysis of clinical presentation and imaging findings will suffice for making the proper diagnosis. Our case highlights the classical consistency of the patient presentation and radiological findings with the diagnosis of Osteochondroma.

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**Title:** Chronic lumbar osteomyelitis leading to pyogenic sacroiliitis

**Authors:** Ilana G. Rosner, OMS III; Charlotta M. Jornlid, OMS III

**Introduction:** Infectious sacroilitis is a rare cause of sacroiliac joint (SIJ) pain, representing less than 2% of cases of septic arthritis.

**Case Description:** We present a 45-year-old woman with a history of chronic lumbar Coryneform bacterial osteomyelitis and discitis, treated with prolonged and repeated courses of intravenous IV antibiotics over the past year, who presented with new onset sacroilitis. She initially presented in August of 2017 to the emergency room with a one-week history of sudden onset lower back pain radiating down her left leg and into her big toe. Exam revealed pain with passive movement and straight leg raise. Magnetic resonance imaging (MRI) of the lumbar spine with and without contrast showed abnormal marrow edema in the lower L5 and upper S1 vertebral bodies, as well as the L5-S1 intervertebral disk space. Additionally, a 4.5 cm ventral epidural abscess was noted adjacent to the same vertebral bodies.

Over the following year, the patient was treated with a six-week course of IV Vancomycin, a ten-week course of IV Daptomycin and oral Ciprofloxacin, and a four-week course of oral Ciprofloxacin and Doxycycline. She required periodic hospitalization during this due to repeated low grade fevers, and pain exacerbations.

In August of 2018, she began experiencing pain in her right buttock and proximal posterior thigh. On exam, there was tenderness along the right SIJ, which was exacerbated by external rotation/Faber maneuver. An MRI of her pelvis with and without contrast showed “interval development of high T2 signal in the right posterior iliac bone and right sacral ala, and fluid collection in the SI joint space.” Synovial fluid aspirate was negative on culture. During this year she had elevated C-reactive protein (CRP), indicating chronic inflammation, which peaked at 14.3 mg/dL prior to presenting with sacroilitis. She was treated with IV Ciprofloxacin and discharged on IV Vancomycin. One month post treatment, MRI showed improvement with “decreased enhancement of marrow edema and resolution of the fluid collection in the joint.”

**Discussion:** Infectious sacroilitis presents a difficult diagnosis due to lack of symptom specificity and insidious clinical course. Our patient presented with many of the most frequent clinical signs, including lumbo-gluteal pain exacerbated by motion, fever, and elevated CRP. While the SIJ aspirate had negative cultures, a retrospective study of 39 adult cases of infectious sacroilitis done by Hermet et al. found that a pathogenic agent was unable to be isolated in six cases. Of the cases with agents isolated, only half were by means of an articular puncture. A study by Bindal and Krabak found that arthrocentesis was only positive in 50-88% of cases, and MRI imaging may be useful to distinguish infectious from non-infectious sources. In conclusion, in the absence of a culture, this patient demonstrates that the diagnosis can be made clinically. Her diagnosis was based on her history of chronic lumbar osteomyelitis, physical exam, laboratory values, imaging, and improvement following antibiotic treatment.

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**Title:** Hypercoagulable State in a Patient with Patent Foramen Ovale, a Perfect Set-Up for Paradoxical Embolism and Embolic Stroke

**Authors:** Nadiuska Sanchez, MD, Brinsley E. Ekinde, MD, Jordan Best, OMS3, Carlos Nasr, MD, Haleem Abdul, MD, Hannish Kumar, MD, Gerard Acloque, MD, Zachary Smith, OMS3

**Introduction:** In utero, a patent foramen ovale (PFO) creates a shunt from the right atrium into the left, thereby bypassing the non-inflated fetal lungs. Shortly after birth the increased pressure in the left atrium causes the foramen ovale to close. Failure of this physiologic shunt to close, along with ASD and Atrial Septal aneurysms, creates a set up for an embolus to be allowed to flow into the systemic circulation, in which it is commonly called a “paradoxical embolism.”

**Case Description:** We present the case of a 68 year old female who presented to our hospital as a transfer from an outside hospital for concerns of brain edema after a cerebellar stroke. The patient presented Monday morning after awakening suddenly with acute nausea, reddish vomitus and confusion. Over the next 24 hours the patient became more confused and required intubated for airway protection. CT scan of brain showed a large cerebellar stroke with a mildly displaced 4th ventricle with concern for mass effect, so patient was transferred to our hospital for further care.

The patient presented sedated, on mechanical ventilation and on a heparin drip, afebrile with stable hemodynamics. Repeat CT brain upon arrival confirmed: a large region of hypodensity involving nearly the entire mid and upper right cerebellum, as well as an evolving 2cm infarct in the left cerebellum, both characteristic of an evolving subacute infarction without hemorrhagic changes. A 2D Echocardiogram performed at transferring hospital showed a normal Left Ventricular systolic function, Ejection Fraction 60-65% and a PFO via bubble study. Pt was placed in the ICU and further studies at our hospital found a deep venous thrombosis (DVT) in the Left Popliteal Vein and a Right subsegmental Pulmonary Embolism. Given the diagnosis of DVT, PE, and prior diagnosis of a PFO, a Transesophgeal Echocardiogram was performed revealing an aneurysm in the interatrial septum without visualization of the PFO. The diagnosis of Cryptogenic stroke was made, and a loop recorder implantation was recommended to assess for arrhythmias.

The patient eventually underwent a craniotomy due to brain edema which was successful. Patient was weaned off pressors and sedation, but was
minimally responsive to voice with blinking to questions with significant residual motor and cognitive sequelae subsequent to stroke and hypoxemic respiratory failure. Weaning trials from the vent were unsuccessful, so tracheostomy was performed and a PEG was placed as the patient was unable to swallow. The patient was then transferred to a lower level of care and was subsequently discharged to a Long-term Acute Care Facility for continuation of care.

**Discussion:** This case illustrates the danger of physiologic cardiac anomalies in the presence of a hypercoagulable state, as well as the importance of understanding the specificity and sensitivities of diagnostic imaging, in order to more accurately interpret the data.

**Title:** When Pulseless Disease Presents with a Rapid Pulse

**Authors:**
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**Introduction:** Renal artery stenosis (RAS) is defined by the narrowing of renal arteries which causes a subsequent decrease in blood flow to the kidneys. Atherosclerosis accounts for 90% of cases of RAS, which has increased prevalence in patients with advancing age and the presence of cardiovascular risk factors. The other 10% of cases is due to fibromuscular dysplasia (FMD). Patients with FMD are typically female and are diagnosed by their early 50s. Because RAS is not commonly found in young individuals, it is imperative to have early medical detection to guide management properly in order to prevent further health issues. For this reason, it is important to recognize the less common causes of RAS which include different types of vasculitis, neurofibromatosis, congenital bands, extrinsic compression and radiation.

**Case Description:** We present a 20-year-old African American female with no known past medical history that comes to the Emergency Department with the complaint of severe headache and palpitations. She additionally states that she has had a 3-week history of shortness of breath, dyspnea on exertion, and fatigue. On presentation, she was found to have a blood pressure reading of 230/126 and a heart rate of 144 beats per minute. She was further admitted for hypertensive emergency and placed on a IV nicardipine infusion. The patient was found to be hypotensive, hypokalemic, and hypocholesemic on initial presentation. Drug screen was negative. Further work-up of the patient included ultrasonography of the bilateral kidneys and renal arteries which revealed an elevated velocity in the left proximal renal artery with evidence of RAS. Additional imaging was performed and included computed tomography angiography (CTA) of the chest and abdomen. CTA of the chest revealed a normal examination. CTA of the abdomen displayed circumferential thickening of the abdominal aorta from the renal arteries down to the bifurcation, consistent with an aortitis. Additionally, there was near complete occlusion of the left renal artery with an atrophied left kidney in comparison to the right. Further work up of the patient revealed an erythrocyte sedimentation rate (ESR) valued at >145 mm/hr (normal 0-22 mm/hr). Given this patient’s imaging findings, ESR, and clinical presentation she was given the diagnosis of Takayasu Arteritis. The patient was placed on a systemic steroid taper and continued to improve during the hospital course. Following discharge, the patient will be medically managed and followed on an outpatient basis.

**Discussion:** This case illustrates a less common cause of RAS in a young female patient. The purpose of this case is to increase awareness about the role of Takayasu Arteritis, also known as “Pulseless Disease” in patients with RAS. Hypertension occurs in 50% of Takayasu Arteritis cases through either the narrowing of one or both renal arteries, or by decreased elasticity of the aorta and its main branches. Due to the young age of individuals that present with Takayasu Arteritis, it is important not to overlook modest elevations in blood pressure in all patients. Prompt recognition of the disease entity with early treatment can prevent further complications such as organ atrophy, as seen with our patient.

**Title:** Cognitive Research Comparing the Effects of Light Alcohol Drinking on Cognition

**Authors:**
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Currently, the CDC and FDA do not recommend light alcohol consumption in any amount. Light drinking is defined as less than one drink per day for either sex. Everyday, new research continues to suggest that daily light alcohol consumption provides various health benefits. However, there is no universal consensus regarding these benefits. This study aims to compare verbal cognition in people who drink between 0.1 and 1 drink per day versus people who do not drink at all, accounting for covariates of Gender, Race, Age, and Socioeconomic Status (SES).

Neafy, EJ et al’s “Moderate alcohol consumption and cognitive risk” review study looked at 74 studies examining ratios found that of those 74 studies, 28% found a significant increase in cognition, 67% found no significant change in cognition, and 5% found a significant decrease in cognition. This study seeks to further compare alcohol consumption with cognition to provide more conclusive data.

369 participants were tested for verbal comprehension using the Woodcock-Johnson Psycho-educational Battery. Next, they were probed to guess their alcohol consumption. Then, subjects were asked a series of questions on education, income, and occupational status in order to calculate SES using a principal components analysis. After this data was collected, a one-way ANCOVA was performed on the data generating the tables of data listed below.

For this analysis, the hypothesis was that persons with light alcohol consumption will have significantly better cognition scores in comparison to non-drinkers. The dependent variable was the calculated verbal comprehension score. The independent variable was light alcohol consumption. Covariates include socioeconomic status, gender, race, and age.
Based on the ANCOVA results, a p-value of 0.045 concludes that there is a significant difference in verbal cognition between those who lightly drink alcohol daily versus those who do not drink at all with a higher mean cognition score in drinkers (91.69 versus 88.30). Analysis results found a significant difference between groups \(F[5, 369] = 4.04, p=0.045\). Results of this study thus are consistent and the hypothesis that light alcohol consumption is associated with better cognition factors.

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**Title:** Hypoglycemic episodes and atypical MRI findings in child with novel t(18;22) (q22.3;q13.2) translocation

**Authors:** Alejandro Serrat, OMS-3, Gianfranco Molfetto, OMS-3, Paulina Gines, OMS-3
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**Introduction:** The development of genetic sequencing as well as the substantial increase in quality and amount of genetic research have allowed for the discovery of many mutations and translocations which are compatible with life and explain syndromes and symptoms which previously were not understood. As the field of genetics flourishes, it is crucial to publish data on gene functions and chromosomal alterations that result in morbidity so that physicians can employ this data in the future. Deletions from the q arm of chromosome 18 occur in an estimated 1 in 40,000 newborns worldwide\(^1\). Duplications of chromosome 22 are much more common in q13.3 (at least 500 cases reported) with little data available regarding q13.2\(^2\). While there is data on both of these separate conditions, our patient has a novel t(18;22) (q22.2;q13.2) translocation about which we have been unable to find any specific publications or data.

**Case Presentation:** We present a 6-year-old Hispanic female who presented to the Emergency Department with bilateral leg weakness and cold extremities for 30 minutes. She was brought by her full-time caretaker to the school nurse who checked her blood glucose level and found it to be 39 mmol/L. Her mother reported two separate episodes of hypoglycemia in the prior 72 hours despite regular meals. Patient had never had hypoglycemic episodes in the past. Hemoglobin A1c was found to be only 5% with the only other notable lab result being elevated amylase at 134 U/L. Patient was transferred to a pediatric ED with endocrinologists and worked up. She was admitted and underwent a 19 hour fast after which she had a blood glucose level of 77 mmol/L and was ketone positive. Lab results during the fast were remarkable for high insulin levels at 43.70 uIU/ml, high C-peptide at 5.8 ng/ml and low growth hormone levels at 0.238 ng/ml. Further workup was needed to rule out hyperinsulinism and/or growth hormone deficiency.

Chart review revealed that she has an unbalanced translocation of chromosomes 18 and 22, specifically arr 22q13.2q13.33 (41,506,909-51,059,090) x3, 18q22.3q23 (72,147,005-78,014,1213) x1. This genetic abnormality is most likely to explain her history of seizures, hypotonia, neurosensorial hearing impairment, craniofacial abnormalities and global developmental delay as these symptoms have been associated with isolated chromosome 18 deletions and chromosome 22 duplications. There have been no reports of hypoglycemia or hyperinsulinism associated with these conditions. Three months prior to the hypoglycemic episode, she also had atypical MRI findings after a seizure that have not been seen in any data about either chromosome 18 deletions or chromosome 22 duplications. Abnormal iron deposition was visualized in the globus pallidi, thalamus and substantia nigra that could indicate neurodegenerative brain iron accumulation (NBIA) like pantothenate kinase degeneration (PKAN), neuroferritinopathy, neuroaxonal dystrophy (INAD) and aceruloplasminemia. She also had super and infratentorial ventriculomegaly.

**Discussion:** This case illustrates the presentation of new findings in a patient with a condition about which very little is known and highlights the need for more data and case documentation for future clinicians to draw upon.

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**Title:** A troubling case of troponinemia: diagnostic dilemma of ECG negative coronary vasospasm with elevated troponins and seizures in a young woman.

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**Introduction:** Cardiac troponins (cTns) are cornerstone of the workup of chest pain due to their sensitivity and specificity for myocardial injury. Although rare, troponinemia with negative cardiac workup may be attributed to coronary artery vasospasm. Coronary artery vasospasm is a sudden constriction of coronary arteries which results in transient myocardial ischemia leading to release of troponins. Risk factors of coronary artery spasm include young age, female, smoking, drug addiction, alcohol use, hyperventilation, beta blockers, emotional stress and anxiety. This is a case of prolonged troponinemia in an otherwise healthy woman with negative cardiac workup who later developed pseudozealures. We are proposing that her underlying psychological stress attributed to coronary vasospasm and pseudozealures.

**Case Description:** A 25 year-old Hispanic female with past medical history of anxiety and MVA two weeks prior came to the emergency department with an acute episode of atypical left sided chest pain which was pleuritic in nature. Her pain was associated with blurred vision, dizziness, palpitations and shortness of breath. She was admitted for chest pain rule out. Her initial troponins were elevated to 1.07 and repeat ECGs showed normal sinus rhythm and an incomplete right bundle branch block. Her chest X-Ray showed no abnormalities, Pulmonary CT Angiography ruled out pulmonary embolism, Cardiac CT Angiography showed no evidence of plaque or occlusion. Echocardiogram and cardiac stress test was negative. Cardiologist was treating her for possible myocarditis or coronary vasospasm. Two days after admission, she had a brain attack which was diagnosed as a psychogenic seizure. MRI of the brain with and without contrast was normal. Five days after admission she had another episode of seizure-like activity with chest pain. Overnight EEG was found to be normal. She had five other episodes of seizures, which were diagnosed as pseudozealures.
Her seizures resolved after she was started on Keppra and lacosamide. During her duration of stay in the hospital, her troponin I (cTn I) was constantly elevated around 3. Her entire cardiac and rheumatologic workup was negative. She is currently being treated on an outpatient basis for coronary artery vasospasm and pseudo-seizures. On one week follow up, she did not complain of any chest pain or seizures.

**Discussion:** Although elevated troponins are specific for myocardial damage, they are not diagnostically specific for any single disease process. Physicians need to have an array of differential diagnosis while encountering patients with elevated troponins.

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**Title:** Role of Radioactive Iodine Therapy in an Immunosuppressed Patient with Residual Papillary Thyroid Cancer.

**Authors:** Savya Shukla, M.D., M.H.A., Kristina Siddall, M.D., Seza Gulec, M.D., F.A.C.S. Diagnostic Radiology Residency Program, Aventura Hospital and Medical Center

**Introduction:** Radioactive iodine (RAI) is most frequently used in the treatment of patients with differentiated papillary and follicular thyroid cancer after thyroidectomy in order to ablate a thyroid remnant, eliminate suspected micrometastases, or eliminate residual disease. The most common side effects of treatment are sialoadenitis, transient loss of taste or smell, reduced salivary gland function and xerostomia, chronic or recurrent conjunctivitis, hematological abnormalities and second primary malignancies.

**Case Description:** We present a case of a 32 year-old woman who presented for a second opinion of papillary thyroid cancer treatment. The patient underwent a fine needle aspiration of a right thyroid mass, which revealed a papillary thyroid cancer. A total thyroidectomy and a bilateral modified radical neck dissection was performed and surgical pathology revealed metastatic disease in 13 out of 46 lymph nodes with extension into the perithyroidal soft tissue. As a child, the patient was diagnosed with Kostmann syndrome (infantile neutropenia) and juvenile rheumatoid arthritis. She was treated with neutopen and was hospitalized for numerous infections. At age 15, she developed Type I diabetes mellitus, and at age 19, she was diagnosed with acute myelocytic leukemia. She was treated with an unrelated mismatch bone marrow transplant. Her post-treatment course was complicated by multiple cardiopulmonary arrests, multi-organ failure and acute and chronic graft versus host disease (GVHD), for which she is still treated with immunosuppressive therapy. Hemothrombosis developed as a result of the transfusion of approximately 1000 units of blood she received. She continues to be treated for this condition with photopheresis and phlebotomies every few months.

The patient has a relatively aggressive thyroid disease with residual cervical nodal disease. She is at high risk of local recurrence and is a candidate for radioactive iodine therapy. The concern in her case is that RAI is often myelosuppressive and could potentially ablate her bone marrow transplant. Of note, her malignancy demonstrates ETV6/NOTK3 gene fusion and adjuvant therapy with experimental TRK inhibitors was contemplated, however, they were not utilized given the lack of substantial evidence and commercially availability. 1-123 scan showed avid RAI uptake of the tumor and PET/CT scan showed the tumor was FDG-negative. Her gene expression profile indicated strong expression of the RAI uptake and processing genes. The risk/benefit ratio for RAI treatment was determined to be in favor of the treatment and she was treated with 150nCi I-131 using the Thyrogen protocol.

**Discussion:** The role of radioactive iodine therapy in residual thyroid cancer is not well established in immunosuppressed patients, particularly those with a complicated medical history. Patients who have a thyroid malignancy that shows avid RAI uptake should undergo a gene expression profiling. If a tumor shows strong expression for RAI uptake and processing genes, the patients can benefit from RAI therapy.

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**Title:** A Rare Case of Primary Cardiac Burkitt Lymphoma

**Authors:** Khizer A. Sikander D.O, Charles A. Cevallos D.O., MPH., John J. Rozanski M.D Cardiology Fellowship Program, Broward Health

**Introduction:** Primary cardiac tumors are exceptionally rare with an estimated incidence of 1.38 of 100,000 per year. Fewer than 5% of all cardiac tumors are primary with the vast majority being metastatic. Most cardiac tumors are benign with atrial myxoma being the most type. Primary malignant cardiac tumors are 100-1000 times less common than metastatic disease to the heart. The most frequent primary malignant cardiac cancer is sarcoma. Cardiac lymphomas are exceptionally rare, with an incidence of 1.3% of all primary cardiac tumors.

**Case Description:** A 30 year old male with past medical history of HIV, mastoiditis, and otitis media presented to BHMC with a chief complaint of generalized weakness, fatigue, dyspnea on exertion, and chest tightness. Upon arrival to the emergency department, patient was noted to be tachycardic and a CTA of the chest with PE protocol was ordered. The study showed a very large mass in the right atrium. A stat bedside TTE showed a large obstructive mass was seen in the right atrium, encroaching on the tricuspid apparatus. Cardiovascular thoracic surgical review was called stat upon bedside review of the echocardiogram. CVTS evaluated the patient and initially felt that the mass was possibly a pulmonary embolus in transit. They took the patient to surgery urgently as the patient was tachycardic and the mass was obstructing his tricuspid valve. Patient underwent excision of intracardiac tumor with bypass, debulking of right atrial mass. Surgical pathology revealed CD10 positive B-cell lymphoma, morphologically consistent with Burkitt Lymphoma. This was confirmed with FISH. Patient underwent bone marrow biopsy and Lumbar puncture which were both negative for malignancy. A diagnosis of primary cardiac Burkitt Lymphoma was established. Patient was treated with hyper-CVAD chemotherapy.

**Discussion:** Primary cardiac lymphoma (PCL) represents 1.3% of primary cardiac tumors. PCL usually occurs in adults with a male-to-female ratio of 2:1. Symptoms associated with PCL are nonspecific, making early diagnosis difficult. Dyspnea is the most commonly reported clinical symptom at presentation (64%), followed by constitutional complaints (26%) and chest pain (24%). Congestive heart failure affects almost half of all patients. If there is direct infiltration of a coronary artery or ostium, the patient may experience angina. Cardiac arrhythmias are commonly identified on
electrocardiographic (ECG) tracing, typically an atrial arrhythmia or atrioventricular block, ranging from first to third degree. Transthoracic echocardiography allows for initial noninvasive assessment of cardiac disease. However, complementary assessment with cross-sectional imaging (CT or MRI) is now essential for further characterization of the tumor and the extent of involvement. Cardiac lymphomas are usually B-cell neoplasms, most frequently DLBCL, followed by follicular lymphoma and Burkitt lymphoma. Medical literature presents a myriad of treatment combinations including modalities of chemotherapy, radiotherapy, surgery, and even autologous stem cell transplantation.

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**Title:** Severe Lymphedema Secondary to Traumatic Injury  
**Authors:** Kiara Singer, M.S., OMS-3, Niral Patel, D.O. PGY-1, Michael A. Morrison M.D.  

**Introduction:** Lymphedema is a common complication after oncologic surgery or trauma. It occurs most commonly in the extremities or the face. It is caused by an abnormality of the lymphatic system leading to excessive buildup of tissue fluid that forms lymph, known as interstitial fluid. If left untreated, lymphedema leads to chronic inflammation, infection and hardening of the skin that, in turn, results in further lymph vessel damage and distortion of the affected body parts. The limb with lymphedema can develop cellulitis, a skin infection that requires antibiotics and possible hospitalization. Lymphedema is staged, and after stage 1 it is usually irreversible.

**Case Description:** We present a 35-year-old female with past medical history of chronic lymphedema, COPD, asthma, sickle cell trait, HTN, anxiety, and depression, who presented to the ED complaining of a 3-day history of bilateral lower extremity (BLE) swelling and pain. The patient had chronic lymphedema after a de-gloving injury to the BLE after falling out of a moving car and being dragged underneath it 2 years ago. She was airlifted to BHMHC and had emergent extensive soft tissue injury to the lower extremities, which required extensive plastic surgery reconstruction due to severe avulsion of the BLE soft tissue. She has been seen multiple times for chronic cellulitis, and treated with IV antibiotics and conservative management. In the last 3 days, she has noticed increasing burning pain and 2 wound sites that had become infected on her BLE. She has been out of her Lasix for the past few days. Otherwise, the patient is seen at home by PT, OT, and Wound Care.

**Discussion:** This case illustrates the necessity of investigation into lymphedema management. It is a common complication after breast cancer surgery, however, this patient’s case, status-post soft tissue avulsion repair is a less common injury. Nevertheless, it is a debilitating, life-altering complication that has no substantial treatment. Despite weekly OT, PT, and wound care the patient continues to have multiple cases of cellulitis over the last 2 years. Lymph node transplantation is a newer surgical procedure with reports of promising outcomes in patients with early-stage lymphedema in early studies. Lymphovenous bypass procedures, similar to lymph node transplantation, are also effective in patients with early-stage lymphedema. Despite crippling outcomes, conservative therapies are still the mainstay of treatment and patients continue to have a severely decreased quality of life.

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**Title:** Extrapontine Osmotic Demyelination Syndrome in the Setting of a Viral Illness  
**Authors:** Anita Singh, DO, MBA, PGY-I, Ari Ciment, MD  
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**Introduction:** In patients with severe hyponatremia (sodium <120 mEq/L), rapid correction of sodium (Na), (more than 8 mEq/L in 24 hours), may produce a rare and life-threatening complication called osmotic demyelination syndrome (ODS). Affected neurons are commonly isolated to the pons, referred to as Central Pontine Myelinolysis; however, brain demyelination may be more diffuse involving the neurons of the midbrain, thalamus, and basal ganglia, referred to as Extrapontine Myelinolysis. Features include dysarthria, dysphagia, visual changes, behavioral disturbances, seizures, encephalopathy, and rapidly progressive paraparesis or quadriplegias. In a large retrospective cohort study of hospitalized patients admitted with a Na <120 mEq/L, rapid correction at 24 hours was identified in 41 percent of patients, of which, one percent developed osmotic demyelination syndrome.

**Case Description:** A 47 year old female with ovarian failure on hormonal replacement presented to the emergency department (ED) with a four day history of subjective fevers, chills, cough, nausea, and vomiting. The patient was discharged from the ED after intravenous fluid hydration with the diagnosis of an upper respiratory viral illness. Two days later, the patient returned to the ED after a witnessed tonic-clonic seizure and was found to have profound hyponatremia of (Na 100 mEq/L) and white blood cell count of 17.12 x 10^3 uL. Her Na was 110 mEq/L 48 hours prior. Urine electrolytes were within normal limits, except a bicarbonate level of 14 of mEq/L. Urine electrolytes were consistent with hypoosmotic, normovolemic hyponatremia likely secondary to syndrome of inappropriate antidiuretic hormone (SIADH). Toxicology studies were negative, along with influenza A/B antigen. The patient was promptly given 200cc of 3% NaCl and 2L of normal saline boluses, started on a bicarbonate drip, and antibiotics for presumed aspiration pneumonia given her imaging findings. She was intubated, sedated for airway protection, and transferred to the ICU. Two hours later, repeat labs showed a Na of 109 mEq/L, and 124 mEq/L 24 hours after admission. Dextrose in 5% free water in addition to desmopressin was administered due to the concerns of ODS given the rapid correction of sodium levels. Imaging of the brain did not show any acute findings suggestive of ODS. The patient’s Na’s were maintained between 125-130 in the following 24 hours, and desmopressin and IV fluids were discontinued. The patient was extubated and there were no focal neurological deficits on physical exam, or encephalopathy. During the following days the patient endorsed slightly delayed speech and visual disturbances. Visual field tests were consistent with a partial left homonymous hemianopsia. MRI of the brain revealed areas of cortical hyperintensity most prominently involving the right occipital lobe, bilateral lenticulocapsular regions, and left perirolandic gyri, suggesting a diagnosis of resolving extrapontine myelinolysis.

**Discussion:** SIADH is one of the most common causes of hyponatremia in hospitalized patients. Several viruses have been reported to cause SIADH, however, only rarely has it been reported with upper respiratory tract illnesses and influenza. Moreover, patients who develop ODS as a consequence
of hyponatremia require intensive supportive therapy. Our case demonstrates that it is imperative to identify the patients who are at risk for ODS early so they can receive the appropriate medical intervention to prevent this rare and devastating complication.

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**Title:** A Case Report of Disseminated Urinary Tract Infection with *Raoultella ornithinolytica*

**Authors:** Zachary W. Smith, OMS-3, Derrick Cleland, OMS-3, Brinsley Ekinde, MD, Jose Barros, MD.  
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**Introduction:** *Raoultella ornithinolytica*, formerly known as *Klebsiella ornithinolytica*, is a rare, but increasingly more prevalent, pathogenic, gram-negative, non-motile, encapsulated, aerobic bacillus of the *Enterobacteriaceae* family. Previous studies on the bacterium demonstrated as few as only 10 documented cases of human infections recorded prior to 2014, and 187 prior to 2016. These cases demonstrated a wide-range of infectious processes, including infections of the urinary tract, gastrointestinal tract, soft tissue, and bacteremia with a relatively high rate of resistance to antimicrobial agents. It is also a causative agent of Scombroid Syndrome.

**Case Description:** We present a case of a 65-year-old Caucasian male from Louisiana with a past medical history of rheumatoid arthritis on chronic use of corticosteroids, who presented to the emergency department (ED) via ambulance for evaluation after being found unresponsive in his hotel room covered in copious amounts of diarrhea. Intravenous fluid resuscitation was started on scene by paramedics, with mild improvement of mental status upon arrival in the ED.

Physical examination in the ED showed the patient to be toxic-appearing, lethargic, grossly dehydrated, disoriented to person, place, time, and event, and unable to respond to questions. He was febrile at 38.5°C, tachycardic at 144 beats/minute, blood pressure of 97/69 mmHg with a MAP of 65, tachypneic at 25 breaths/minute and saturating at 97% on 3L nasal cannula oxygen. Complete blood count showed leukocytosis of 27,700/µl with 10% bandemia, and thrombocytopenia of 138,000/µl. Chemistry showed hyponatremia of 151 mmol/L, mild troponemia of 0.786 ng/ml, a blood urea nitrogen/creatinine ratio of 71/6.31mg/dl, aspartate aminotransferase (AST) of 270 U/L, and alanine aminotransferase (ALT) of 171 U/L. Urinalysis showed pyuria, 3+ hematuria, 2+ proteinuria, 2+ leukocyte esterase, gram-negative rods on culture. CT scan showed right lower lobe pneumonia, enteritis and colitis. Ventilation-perfusion scan showed high probability for pulmonary embolism.

The patient was admitted for sepsis, placed on IV hydration, oral anticoagulation, broad spectrum empiric antibiotics of vancomycin, cefepime, and metronidazole, with cultures pending. The patient responded well to treatment with improvement of mental status to his baseline within 24 hours. Blood and urine cultures grew *Raoultella ornithinolytica* sensitive to levofloxacin, but resistant to cefazolin, ampicillin, and meropenem. Treatment was de-escalated and the patient was discharged in stable condition with a 10-day prescription for Levofloxacin.

**Discussion:** This case demonstrates the presentation and course of treatment for a rare bacterial infection with *Raoultella ornithinolytica*. Due to the sparsely documented cases, growing incidence as a community-acquired infection, risk of misdiagnosis as *Klebsiella pneumoniae*, and high antibiotic resistance rates, an examination of this case’s presentation and subsequent course of management is essential to the successful identification and treatment of future cases.

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**Title:** Connecting The Dots: An Atypical Presentation Of Angioimmunoblastic T Cell Lymphoma

**Authors:** Andres Sobrado, MD, PGY-1, Lianne Zaragoza, MD, PHY-3, Rebecca Nosal, MS-3, Sergio Hernandez-Borges, MD, Physician

**Introduction:** Angioimmunoblastic T cell lymphoma (ATL) is the second most common peripheral T cell lymphoma. It is thought to arise from a subset of peripheral CD4 positive T cells corresponding to follicular helper T cells. Patients typically present with the acute onset of a systemic illness, and lymph node biopsy demonstrates a polymorphous infiltrate with a prominent proliferation of high endothelial venules and follicular dendritic cells. However, we are reporting a case of an atypical presentation of ATL which presented as a vasculitis of the lower extremities and which originally resulted in morphology and immunophenotype consistent with reactive lymphoid hyperplasia and no evidence of lymphoma or metastatic carcinoma.

**Case:** A 65-year-old male presented to the ED with a palpable purpura of lower extremities and lower trunk associated with nasal voice and palpable lymphadenopathy in the left cervical chain. These symptoms were associated with recent penicillin use for the diagnosis of sinusitis made by his PCP. Based on the size of the lymphadenopathy and the clinical picture that did not fit completely with a vasculitis presentation, a right suprACLavicular lymph node biopsy for morphology and immunophenotyping was obtained. The results were consistent at that time with reactive lymphoid hyperplasia. The patient was discharged to follow up with HEMONC. However, T-cell gene rearrangement was reported as positive for T-cell receptor gamma gene rearrangement. Additional stain for PD-1 stained T-lymphocytes, raising the suspicion for a T-cell lymphoma. Hence, the case was sent in consultation to University of Michigan, which reviewed the specimen and obtained PCR testing, which was positive for clonal rearrangement of the TCR gamma locus. The diagnosis was concluded in an addendum to the original report as ATL.

**Conclusion:** This case highlights the fact that ATL can be seen in association with vasculitis and that as clinicians we must trust our instincts, especially when clinical suspicion is out of proportion to pathology results. This case also highlights the importance of a good physical exam since the lymphadenopathy triggered initial workup and further imaging. In this case, we had a patient with recent ingestion of penicillin for sinusitis presenting to what seemed at first a reactive/allergic vasculitis associated with reactive lymph node and with a pathology that supported that...
suspicion. However, since the suspicion continued to be high and the gene rearrangement studies showed evidence suspicious for T-cell lymphoma, a second opinion was obtained and along with PCR, the diagnosis of ATL came to light. Diagnosis is essential in these patients since ATL is generally an aggressive disease. Remission can be attained in many patients but with frequent relapses and infections being the most common cause of death, so the early diagnosis and close follow up of these patients can be life-saving.

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**Title:** Repairing Quadruple Hernias With Included Spigelian Hernia Via Modified Desarda No-Mesh Technique

**Authors:** Michael Sochacki, OMS-3; Everett Wilson, M.S., OMS-3; Dr. Robert Tomas, D.O., FACOS

**Introduction:** Hernias occur when tissue protrudes through a weakness in the abdominal wall. Direct inguinal hernias occur medial to the Inferior Epigastric vessels, and indirect inguinal hernias occur lateral to the vessels through the deep inguinal ring. Umbilical hernias occur when tissue protrudes into the umbilical wall often causing a visible bulge. Spigelian hernias comprise roughly 1% of all hernias, occurring through a defect in the anterior abdominal wall adjacent to the semilunar line. The hernia sac passes through the transversus and internal oblique aponeurosis then spreads out beneath intact external oblique aponeurosis. These hernias are often undiagnosed but can cause serious issues including bowel obstruction & strangulation.

**Case Description:** 72 year old male complains of bulges in both groins for several years associated with dull pain that worsens with exertion. Denies any nausea, vomiting, hemoptysis, constipation, or diarrhea. Physical exam confirms bilateral reducible inguinal hernias, marble sized umbilical hernia, and grapefruit sized reducible Spigelian hernia in LLQ, all without obstruction or gangrene. Based on the history and physical exam, no imaging was indicated. Patient seeking hernia repair without mesh and agrees to repair via modified Desarda technique.

**Discussion:** To repair the inguinal hernias, oblique incisions were made lateral to the pubic tubercles. Dissection was done through the external oblique aponeurosis (EOA), exposing the sperrmatic cord and ilioinguinal nerve. These structures were encircled and moved aside for protection. Inspection revealed bilateral indirect inguinal hernias. The hernia sac was dissected from the cord structures, sutured, and inverted at the internal oblique. The direct space was also reinforced with suturing. Further reinforcement was provided by suturing the EOA to the inguinal ligament. The spermatic cord was returned to the inguinal canal and the EOA was closed over it via suturing. To repair the Spigelian Hernia, dissection was done down to the intersection of the left rectus muscle and left external oblique muscle revealing the wall defect with hernia sac protruding through. The hernia sac was dissected, the wall defect was sutured closed, and the bowel was reduced back into the peritoneal cavity. The external oblique was closed and sutured to the deep musculature to provide further support. Patient performed Valsalva and upon inspection of all 4 repair sites there were no remaining defects and all hernias were reduced. Surgery was well tolerated and patient discharged from hospital 2 days after surgery with an 8 week 10 pound weight restriction and instructions to follow up in the office. The umbilical hernia was exposed via curvilinear incisions just below the umbilicus, and separated away from the anterior rectus fascia then reduced back into the peritoneal cavity. The primary defect was closed with a running suture and reinforced with a second layer above and below. A final suture layer closed the superior and inferior poles and articulated the primary and secondary suture layers. The umbilical hernia was stabilized by suturing it to the anterior rectus fascia. Patient tolerated surgery well and was released from the hospital 2 days post operation.

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**Title:** A Colicky Abdominal Pain to Keep an ACE Away: A Case Presentation

**Authors:** Alberto Rando Sous, Alberto PGY-1 (1), Katherine Medrano TY-1, Gina Domingo TY-1, Jose A Gascon , MD

**Background:** Angioedema’s pathophysiology core is the loss of vascular integrity, allocating fluid into the interstitial tissues, through the action of inflammatory mediators. It is a self-limited, deep edema within dermal and subcutaneous tissues. It usually invades areas with loose connective tissue, such as the face, lips, mouth, and throat, larynx, uvula, extremities, genitalia, and bowel wall. Bowel wall angioedema (BWA) is of all types, the less common and the more difficult to diagnose because of its clinical presentation, which is a diffused colicky abdominal pain.

**Case Presentation:** A 44-year-old female with a history of Primary Hypertension controlled on lisinopril 20 mg one daily for the last 5 years, was admitted with a chief complaint of abdominal pain accompanied by fatigue and headache. Patient also reported a dry cough present mainly at night and that had started 2 weeks prior to this episode, not alleviated with over the counter drugs. She denied any nausea, vomiting, dyspepsia, anorexia or any other gastrointestinal (GI) symptoms. Physical examination revealed a moderate distressed woman, with normoactive bowel sounds and progressive pain at light and deep palpation of left upper quadrant. Labs were grossly normal with only mild hypophosphatemia. CT of the abdomen was done showing thick-walled loops of small bowel in the left upper quadrant and mid abdomen with adjacent free fluid in the abdomen and pelvis. C1 and C4 came back within the normal limits. IV fluids and analgesia as well as GI prophylaxis was initiated, lisinopril was discontinued. Pain subsided 48 hours after patient was admitted.

**Conclusion:** The early diagnosis of BWA is difficult to make, due to its nonspecific presentation. The fact that this allergic reaction presented in this case after more than 5 years of had started such a therapy, could even confuse more its clinical approach. However, our female patient had started a dry cough 2 weeks prior to the onset of the symptoms reported, and had informed no other gastrointestinal symptomatology associated to her abdominal pain that subsided after the ACE-i was discontinued. The normal values of C1 and C4 also supported our final diagnosis. Angioedema caused by ACE-i usually resolves within 24 to 72 hours, after the offending agent is discontinued, as it happened to our patient.

**Keywords:** Angioedema; Angiotensin receptor antagonists; Bowel wall angioedema
**Title:** Recurrent Fever of Unknown Origin during Pregnancy  

**Authors:** Michael Sparks, MD PGY2 – St. Vincent’s Family Medicine Residency

**Introduction:** Fever of unknown origin presents a diagnostic conundrum in any patient. Recurrent fever of unknown origin presents a larger diagnostic conundrum. Furthermore, fever during pregnancy can result in alarming findings including fetal distress and thus requires prompt diagnosis and treatment. This case explores the challenges with the diagnosis of a relatively common condition with an uncommon presentation.

**Case Description:** This is the case of a 25 year old G4P3003 who presented to the family medicine clinic at 9 weeks gestational age for routine prenatal care. Her prior 3 pregnancies were all delivered vaginally at term and were without complications. During this gestation, her prenatal course was unremarkable until 22 weeks gestational age when she presented to the OB triage complaining of right flank and right upper quadrant pain. She was found to be febrile and a urinalysis performed was consistent with a urinary tract infection. An abdominal ultrasound (non-obstetric) was performed and showed cholelithiasis without any signs of cholecystitis. She was started on appropriate empiric antibiotics for the presumed urinary tract infection. Interestingly, her urine culture would result positive only for 50,000 yeast.

Over the next several weeks she presented to OB triage multiple times with similar complaints of fever, nausea, vomiting and right upper quadrant/flank pain. Blood cultures and urine cultures would remain negative throughout the remainder of her pregnancy. At 29 weeks gestational age, she would present again with fever, abdominal pain, and fetal tachycardia. A thorough review of systems would fail to elicit any other symptoms again. After carefully considering risks vs. benefits and consultation with maternal fetal medicine, abdominal CT imaging was performed. It was inconclusive for a diagnosis but did show thickening of the cecum, terminal ileum and area of the appendix. Fevers and fetal distress would resolved with hydration.

Several weeks later, after presenting with continued symptoms, MRI of the abdomen was performed showing a 5cm probable phlegmon in the right flank, with the radiologist favoring a diagnosis of appendicitis. Plans were made for the patient to be delivered at the earliest favorable gestational age via cesarean delivery with the general surgery team present for further management. Our patient would undergo a partial resection of her colon of the area in question. Pathology results would show findings consistent with Crohn’s disease. She was subsequently started on steroids and referred to gastroenterology for further, long term management.

**Discussion:** While pregnancy brings a host of physiologic changes with their own implications for care, it is important to not forget other common illnesses can present during pregnancy as well. This case highlights the need for clinicians to keep a wide differential diagnosis for all patients, especially when presenting for multiple admissions. It is also important to remember the anatomical changes that occur during pregnancy and how this impacts our physical exam skills.

**Title:** A Chaotic Series of Unfortunate Events: Complications of Acute Appendicitis  

**Authors:** Kaitlyn Steward, OMS III¹, Maja Magazin, OMS III¹, Austin Zearley, OMS III², Bhumi Kumar, D.O.³

**Introduction:** Acute appendicitis is a common pediatric emergency that often results in uncomplicated appendectomies. The development of inflammatory adhesions is a rare complication of acute appendicitis which can lead to bowel obstructions and intestinal volvulus formation. This complication presents in less than 1% of all cases but can cause life threatening consequences¹. Appendix perforation can lead to additional intraabdominal complications including the development of abscesses which pose further therapeutic challenges for clinicians. Here we present a case of acute appendicitis which led to a series of gastrointestinal complications that required aggressive efforts.

**Case Description:** This is a case of a 7-year-old Caucasian male patient who presented to the emergency department with diffuse, crampy abdominal pain for 2 days. He was afebrile at 99.5 degrees with an elevated CRP of 11.6 and leukocytosis of 13x10^3. Imaging showed a non-visualized appendix. Due to a non-diagnostic ultrasound and the presence of inflammatory markers, the patient was admitted for further observation. Serial abdominal exams revealed worsening diffuse abdominal pain as the patient started to develop signs of systemic decompensation. Investigation with an exploratory laparotomy revealed a perforated appendix, necrotic omentum, and ischemic small bowel obstruction with volvulus. The patient’s post-op course was further complicated with intermittent fevers of 103 degrees which promoted addition imaging. CT scan of the abdomen revealed a large 9.5x7.1x7.3cm perisplenic abscess with a moderate left sided pleural effusion. Subsequent management included the placement of a drain and continuation of antibiotics as the size of this intraabdominal abscess caused significant therapeutic challenges. The combination of these perioperative complications led to aggressive medical management and the patient remained in house until he was stabilized.

**Discussion:** Intraabdominal abscesses only occur in about 5% of all patients that present with acute appendicitis¹. Even more uncommon are mechanical small bowel obstructions secondary to postinflammatory adhesion development. Although acute appendicitis is a common medical emergency, this case demonstrates the possibility of rare complications that can lead to extended health care management. Medical professionals should continue to be wary about these potential life threatening complications of perceived simple emergencies. Examples of how these complications presented and were managed were important for development of future guidelines in similar cases.

**Title:** A unique case of Lemierre syndrome caused by Streptococcus constellatus introduced by a pharyngeal injury  

**Authors:** Christian Hailey Summa, M.B.S., OMS-I, Dr. Kiran C. Patel College of Osteopathic Medicine
Introduction: Lemierre Syndrome is a rare, potentially life-threatening infection that typically develops from invasion of bacteria through pharyngeal mucosal tissue, followed by septic thrombophlebitis, most often involving the internal jugular vein. Nearly 90 percent of cases are caused by *Fusobacterium necrophorum*. The current case describes *Streptococcus constellatus*, a component of the natural flora, as the causative agent of Lemierre syndrome.

Case Presentation: A 40-year-old female presented with odynophagia, neck swelling, erythema and induration, as well as dysphonia and mild tenderness to palpation. Laryngoscopy showed serofibrinous debris and thickened secretions. A CT scan of the neck showed a large fluid and gas collection originating from the left hypopharynx and extending into the left parapharyngeal region. The CT scan also showed focal narrowing of the left internal jugular vein with a flow void indicative of thrombus. Dissection in the deep tissues of the neck revealed purulent drainage that was sent for culture. The wound culture grew *Streptococcus constellatus*.

Deviation from the Expected: The present case describes an atypical causative agent for Lemierre syndrome: *Streptococcus constellatus*.

Discussion: The pathogenesis of Lemierre Syndrome is complex and not well defined. What is known is that *Fusobacteria necrophorum* is the most common cause of Lemierre syndrome. Complications of this disease can be caused by dissemination of septic emboli which travel to major organs and cause damage. Accordingly, prompt diagnosis and treatment of Lemierre syndrome is critical to ensure improved patient outcomes.

Conclusion: Despite only one other reported case of *Streptococcus constellatus* as the cause of Lemierre syndrome, it is important to identify this organism as a possible cause due to the severity of the disease without proper treatment.

Title: A Case of Anterior Thigh Compartment Syndrome

Authors: Kevin Summers, PGY-2 Physician Preceptors: Dr. Kevin Taylor, MD and Dr. Thomas Mateese, DO

Introduction: This is a case of anterior thigh compartment syndrome diagnosed in the emergency department. The patient presented with severe left hip pain, and thought he dislocated it. Work-up was negative for hip or bony abnormalities, however frequent patient re-assessments found increasing swelling and pain of patient’s anterior left thigh, leading to a diagnosis of compartment syndrome, and ultimately surgical fasciotomy.

Case Description: The patient is a 66 year old male presenting to the emergency department with sudden onset left hip pain. He has history of diabetes, COPD, CHF, DVT on Coumadin, bladder/prostate cancer s/p cystectomy with indwelling Foley catheter, lung cancer with metastasis to bone and stomach, s/p colostomy placement due to metastasis, left hip replacement, and left thigh mass resected surgically with femoral rod placement a couple weeks prior. He is brought in by EMS from a rehabilitation facility, where he is in rehab from his recent left thigh surgery. He had rehab in the morning with no trauma or injuries, and then took a nap. He was awoken suddenly from sleep with severe pain in his left hip, and was then brought into the ED. His pain is located in his left hip, 10/10 in severity, sharp in nature, and worse with any pressure to the area. He is unable to move his left leg due to the pain. He thought he dislocated his prosthetic left hip, and is yelling in pain. Review of symptoms is positive for left hip/thigh swelling and pain. He denied any other complaints. Work-up was initiated with suspicion for left hip dislocation as leading differential. X-rays showed no hip dislocation, and no evidence of fractures. Patient was re-evaluated multiple times while in the ED, and found to have increased swelling in the anterior aspect of his left thigh with pain out of proportion that was difficult to control. This raised concern for compartment syndrome; therefore the orthopedist was called to bedside, who then decided to take the patient immediately to the operating room for fasciotomy. In the OR, 2L of blood was drained from the patient’s left thigh. The patient was then taken to the ICU for further management.

Discussion: This case shows the importance of frequent patient re-evaluations, always keeping a wide differential diagnosis, and the importance of a complete history and physical exam. The patient’s history included being on Coumadin, which put the patient at risk for spontaneous bleeding, especially after recent intervention, which ended up being the cause of his compartment syndrome. By keeping a wide differential, anchoring was avoided, and multiple causes of the patient’s presentation were pursued. The physical exam and frequent re-evaluations of the patient ultimately led to the diagnosis of compartment syndrome, due to increasing swelling, firmness of patient’s anterior thigh, and pain that was out of proportion and difficult to get under control.

Title: A Case of Acute Severe Hepatotoxicity and Mild Constriction of Common Bile Duct Associated with Ingestion of Green Tea Extract: A Clinical Challenge.

Authors: Balarama Krishna Surapaneni<sup>1,2</sup>, M.D., Michele Le<sup>2</sup>, D.O., Julian Jakobovits<sup>2</sup>, M.D., Rakesh Vinayek<sup>2</sup>, M.D., Sudhir Dutt<sup>2</sup>, M.D.,
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Introduction: Consumption of herbal and dietary supplements (HDS) has increased worldwide as potential treatment for weight reduction and metabolic enhancement. Recently published prospective study of drug-induced liver injury (DILI) demonstrated that herbal and dietary supplements (HDS) accounted for 16% of all cases of hepatotoxicity in the United States
Case Description: A 50-year-old Caucasian woman presented with a 2-week history of diminished appetite, night sweats, weakness, and truncal pruritis. Patient had a past history of systemic lupus erythematosus (SLE) controlled with medications. Home medications included Vitamin D and folic acid. Physical examination was remarkable for severe scleral icterus. Laboratory data were significant for total bilirubin elevated to 38 mg/dL and the direct bilirubin to 32 mg/dL. Markedly elevated AST to 1657 U/L and ALT to 1170 U/L. ALP was normal at 113 IU/L. MRCP showed edema surrounding CBD without signs of a stricture. An ERCP evaluation showed a normal biliary tree with possible constriction of the distal CBD. A sphincterotomy was performed and a stent was placed in the distal CBD which was removed 2 weeks later. She was prescribed ursodeoxycholic acid (ursodiol) and cholestyramine to treat pruritis. However, in following 2 days, the patient developed increasing nausea and vomiting resulting in admission to the hospital. Lab findings were significant for total bilirubin 37 mg/dL, direct bilirubin 31 mg/dL, AST 669 U/L, ALT 558 U/L, and ALP was normal. Additional lab data included a negative acetaminophen level, Ethyl Alcohol, and Urinary Toxicology. Serologic markers of autoimmune hepatitis (filamentous actin, antinuclear antibodies [ANA], and Liv/Kid antibodies), hepatitis A (HAV Immunoglobulin M [IgM]) and Immunoglobulin G (IgG)), hepatitis B (HBsAg, IgG anti-HBc, anti-HBe IgM), hepatitis C (anti-HCV, HCV RNA by PCR), and hepatitis E (HEV IgM and IgG), HIV, herpes simplex virus (HSV), Wilson’s disease (ceruloplasmin and copper assessment in 24 hour urine) and alpha-1-antitrypsin deficiency were all negative. However, smooth muscle antibody was weakly positive at 1:320. A computed tomography (CT)-guided liver biopsy revealed acute hepatocellular injury event with intact basic architecture of the liver. She was empirically started on prednisone therapy 40 mg for resolution of jaundice and intense pruritis.

On further questioning, the patient admitted to taking over-the-counter nutritional supplements (Vital Stem) containing Green Tea Extract daily for 1 month. After excluding other potential causes of acute liver injury, it was presumed that her severe hepatic necrosis was most likely due to GTE. The R factor for liver injury was calculated with a score of 31.06 consistent with hepatocellular damage.

Discussion: We report a case of acute severe hepatic necrosis presumably due to consumption of nutritional supplement advertised to boost vitality and stem cells in human body.

Title: Sperm Procurement in a Brain Dead Patient: an Ethical Dilemma

Authors: Amy Surti DO, MS, PGY-3; Tariq Jaber MD, MPH, PGY-2; Sandeep Jain MD

Introduction: Artificial methods of conceiving children are becoming increasingly popular as technological advancements make them more affordable and accessible. As the average age for having a first child increases, it is becoming more common for people to harvest their own gametes years in advance. The laws governing the extraction of and use of gametes are behind the times, as are the laws that govern the rights of children created by these methods. We present a unique case in which a request to procure cells capable of creating new life from a brain dead patient revealed uncharted territory with regard to clinical guidelines, medical law and ethical considerations.

Case: We present the case of an aged 47 Caucasian male who developed a subarachnoid hemorrhage after receiving thrombolytics during a cardiac catheterization in the Bahamas. He was intubated, sedated and flown to Fort Lauderdale to our facility for more advanced care. His rectal temperature on arrival was 107°F. The patient quickly developed multiorgan failure and was pronounced brain dead. Prior to withdrawal of care, his wife requested samples of his sperm to be extracted so she could continue her dream of conceiving a child. In the months prior to this, the couple had tried in vitro fertilization at a fertility clinic in the Caribbean, with Testicular Aspiration used as the method of sperm extraction, but this was unfortunately successful despite multiple attempts. Per the wife’s request, input from multiple specialties was sought, including urology, and our team was informed that sperm extraction would not be feasible due to multiple reasons. Firstly, due to the severe hyperthermic state, the sperm would likely not have been viable for fertilization. Also, sperm is considered viable only if harvested 24 hours after death, and ideally within the first 3 hours. Additionally, there was no consent from the patient for posthumous sperm collection or any collection beyond that which was used for the initial unsuccessful fertilization attempts. After multispecialty input and a review by the ethics committee, the wife’s request was denied and care was withdrawn.

Discussion: Although the technology within the field of fertility medicine continues to advance, the laws governing the actual extraction of gametes and conditions of usage for fertilization purposes remains relatively vague. Currently, an individual must consent for gamete extraction in different settings, both during life and after death. Due to the nature of the process of in vitro fertilization and the possibility of creation of a life, most consent forms at such performing facilities dictate specific clinical conditions under which fertilization can occur, specifically that prospective parties involved are alive and consent at that time. In our case, the patient’s right to autonomy and right to die with dignity was a priority, and this may not have included the process of sperm retrieval, which went against the wife’s wishes. There was also the consideration of the different between organ vs gamete donation: donating an organ preserves life and donating gametes creates life. A survey study of attitudes towards posthumous reproduction among couples looking to conceive, performed at Columbia University, showed that a majority would not agree to such reproduction, likely reflecting what many in today’s society would consider unethical. In addition, the rights of the conceived child should not be overlooked. Federal and Florida laws currently state that unborn or posthumously conceived children have no rights to the deceased parent’s estate, although their already-living siblings would have such rights. We live in a multicultural society that harbors various ideas regarding conception, and current laws have but touched upon this subject. As artificial conception becomes more common, this issue will increase in incidence and will likely become a hot topic of consideration in the future.

Title: An Atypical Case of an Atypical Disease: Hemorrhagic Dengue Fever Without Hemorrhage

Authors: Alexander Tarr, OMSIII, Debra Spears OMSIII, George Michel, M.D. Nova Southeastern University, Dr. Kiran C. Patel Colle of Osteopathic Medicine, Larkin Community Hospital
**Introduction:** Dengue fever is a relatively rare condition within the United States, with almost all cases of Dengue reported regarding travelers or immigrants from higher prevalence areas (Latin America, Southeast Asia, and the Pacific islands). It is spread by the Aedes mosquito, a species that is not typical in the continental US. Despite its low contractile rate in the US, the CDC estimates that worldwide Dengue is responsible for 50 to 400 million infections annually, with approximately half a million cases of hemorrhagic dengue, and 22,000 deaths. With the high global prevalence and the large travel and tourism industries in the US, one should place the disease in the differential diagnosis of anyone with recent travel to endemic areas who presents with fever or recent history of high fever within the last 2-7 days. The presentation of Dengue varies significantly from person to person, with some contracting “breakbone” fever of severe muscle and bone pain and others contracting the hemorrhagic form.

**Case Description:** We present the case of a 46-year-old Indian male with PMHx significant for β-thalassemia minor presenting with 5 days of cough, shortness of breath, chest pain, and watery diarrhea. The patient had recently traveled to India, Singapore, Australia and Thailand on a cruise ship. He reported to the ship physician and tested negative for influenza, malaria, legionnaires disease, and group A streptococcal infection. CXR demonstrated bilateral hilar consolidation and air bronchograms. Due to the vague nature of his symptoms, he was started on Rocephin, Zithromax, and Tamiflu, and placed in isolation. His symptoms failed to improve over the next 4 days, so he was brought to the hospital when the ship reached port.

On initial evaluation, the patient’s vitals were within normal limits, more specifically he was afebrile (98 F). On physical exam, the patient was mildly jaundiced, he exhibited musculoskeletal chest pain and had intermittent cough. Labs were significant for WBCs of 1.8 (nl 4.5-11), HCT of 35.6, MCV of 56.3, RDW of 19.1 (nl 11-15), platelets at 11 (nl ~300), AST of 260, and ALT of 132. Chest XR was noteworthy for prominence of the right hilum. CT Chest done the same day showed bilateral pleural effusions: Moderate on the right and small on the left. Despite these findings, the patient exhibited only occasional dry cough, which was provoked by speaking. As the cause source of his symptoms was unknown, he was started on broad spectrum antibiotics (Zosyn and Vancomycin), and hematology and pulmonology were consulted.

By hospital day 3, labs were noteworthy for continued thrombocytopenia, despite platelet transfusion, as well as rapidly increased liver enzymes (AST 399, ALT 218). The patient developed significant hepatosplenomegaly. A MRCP showed no blockage of the common bile duct, and it was concluded there was no structural explanation for the elevated LFTs. Bronchoscopy was negative for endotracheal lesions. Blood cultures showed no bacterial growth.

Although the diagnosis remained unknown, the patient recovered over several days, and labs began to greatly improve. Final labs were noteworthy for positive Dengue IgG and IgM, indicating a current infection, as well as a history of infection with a different serotype. Quantiferon was positive, though bronchoalveolar lavage was negative for acid fast bacilli indicating latent tuberculosis as the cause of hilar adenopathy.

**Discussion:** This case illustrates the importance of obtaining a travel history and including Dengue fever in the differential of any patient presenting with recent fever. Due to the variable presentation of the disease, if the patient’s vitals remain stable, he can be treated conservatively and symptomatically, rather than aggressively starting broad spectrum antibiotics as to not increase the stress already placed on the body or cause unwanted side effects.

**Title:** Coronary Artery Air Embolism Following a Percutaneous Lung Nodule Biopsy

**Authors:** Dustin Tew DO1, Julio Zayas MD1, Orlando Enrizo MD1

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**Introduction:** Coronary artery air embolism is a rare complication of percutaneous lung biopsy, likely secondary to communication between the pulmonary vein and the ambient air. Once the biopsy tract is created, factors that increase the pressure gradient between the atmosphere and the pulmonary vein drive air into the systemic circulation, increasing the risk of an air embolism. Risk factors that increase this pressure gradient include: positive end-expiratory pressure ventilation, coughing, obstructive pulmonary disease with air trapping, and prone patient positioning. Since the majority of these risk factors are not modifiable, awareness of their role in causing air emboli can lead to early detection of this complication.

**Case Description:** The patient is a 69 year-old female with a history of hypertension, insulin-dependent diabetes mellitus and breast cancer status post mastectomy and chemotherapy. The patient had no other pertinent family, surgical or social history. The patient reported nausea with occasional vomiting at home for three days. The patient reported a single syncopal episode at home and went to the hospital. Upon arrival, the patient was in no acute distress and mild nausea. The remaining review of systems was negative. The patient denied fever, neurologic deficits, or visual disturbances.

Initial serologic work up revealed hyperglycemia, the remaining serologic tests were unremarkable. A non-contrast enhanced computed tomography (CT) of the brain revealed asymmetric hypodensities in the left parietal and left occipital lobes. Given the patient’s history of breast cancer, a full metastatic work-up was performed. CT of the chest revealed a 1.4 cm mass in the right upper lobe. CT of the abdomen was unremarkable. The patient refused any neurointerventional work-up at this time. The decision was made to biopsy the lung mass to determine if metastatic disease was present or if the mass represented new primary lung disease or cancer.

The patient underwent a CT-guided lung biopsy. After the lung biopsy was performed, the patient became severely bradycardic and hypotensive. The patient was alert and oriented and responded appropriately. A post-procedural non-contrast CT was performed and revealed diffuse intraluminal air within the coronary vessels and aorta. The patient was transferred immediately to an on-site hyperbaric well. The patient tolerated hyperbaric treatment well. On postoperative day 1, the patient was asymptomatic and was discharged without any long-term side effects.

**Discussion:** Coronary artery air embolism is a rare complication of percutaneous lung biopsy, likely secondary to communication between the pulmonary vein and the ambient air. Risk factors that increase this pressure gradient include: positive end-expiratory pressure ventilation, coughing, obstructive pulmonary disease with air trapping, and prone patient positioning. Since the majority of these risk factors are not modifiable, awareness of their role in causing air emboli can lead to early detection of this complication. Arterial air embolism is a major complication associated and physicians should be aware of how to manage these patients appropriately.
Title: Posterior Reversible Encephalopathy Syndrome Presenting as Severely Altered Mentation

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Introduction: Posterior Reversible Encephalopathy Syndrome is a relatively rare neurological condition which was recently elucidated in 1996. It is mostly seen in patients secondary to uncontrolled hypertension. This case is unique in that it elucidates a rare cause of reversible encephalopathy. It is characterized by a rapid onset of symptoms, usually headache, seizures, altered consciousness, and visual disturbance. The syndrome usually resolves within a week, once the inciting factor is treated. Hypertension is integral to the pathophysiology of PRES. Patients with PRES present with an interruption in brain autoregulation usually secondary to uncontrolled hypertension. Cerebral vessel damage results in vasogenic edema which results in encephalopathy.

Case Description: This patient is a Caucasian male who presented to the ED with altered mental status and agitation. We were unable to obtain a proper history at this time. However, the patient appeared to be in his 50s, with unknown past medical history. EMS states that he was found unconscious in the back of his vehicle. When he arrived at the ED, he was given Ativan and Haloperidol to allow for evaluation. No history was obtained. His vitals upon arrival included a temperature of 100.2F, heart rate 113, respiratory rate 22, blood pressure 185/72, and O2 sat 98% on room air. Upon examination, he was resting comfortably in bed. He does not follow any commands, nor does he vocalize. Head was normocephalic/traumatic. Pupils were equally reactive to light and accommodation. There was no pupillary dilatation noted. No conjunctival injection, no icterus. No blood in the ear canals. His skin was mildly dry, there was no evidence of acute trauma. However, multiple track marks were found on his lower extremity. Neck was supple, with negative Kernig and Brudzinski signs. Cardiac exam showed tachycardia, with regular rhythm. No murmurs, rubs, or gallops. No JVD, or carotid bruits. Lungs were clear to auscultation with no rales, rhonchi, or wheezes. Abdominal exam was unremarkable. Pertinent labs include a WBC count of 13.9, an anion gap of 17, a lactic acid of 3.4, and urine toxicology positive for opioids. A respiratory panel was negative, troponin was negative. A chest X-ray, CT brain, and CT cervical spine were performed which showed no abnormality. An EKG showed normal sinus rhythm. At this point, the patient meets SIRS criteria and was given 1g of ceftriaxone in the ER. Upon admission, he was started on vancomycin and meropenem, with pending blood/urine/sputum cultures. The patient presented with altered mental status, however we were unclear as to what his baseline was. We had no identifying information regarding the patient at this time and were unable to obtain medical records. One day after admission, the decision was made to discontinue haloperidol in order to perform a psychiatric examination. Once it was discontinued, the patient continued to have altered mental status. He would not vocalize, but he would follow simple commands. He could open his eyes and would track us around the room. It was determined that the cause of his altered mental status was not psychiatric in nature, but most likely organic. Eventually an MRI was ordered which showed signs of Posterior Reversible Encephalopathy Syndrome. This is most likely secondary to his uncontrolled hypertension. It was later determined that he was non-compliant with his blood pressure medication. The patient is currently in the ICU, on a nicardipine drip. We are controlling his blood pressure, and his mental status should slowly improve over the course of the week.

Discussion: Here we present the case of a patient with altered mental status of unknown origin. Drug abuse was high on the differential diagnosis but it is important to rule out causes of reversible encephalopathy such as PRES. It is often difficult to assess patients with altered mental status due to an inability to obtain a proper history. It is important to keep PRES on the differential as it is a treatable, reversible cause of encephalopathy.

Title: Serum lactate, a misleading marker in the acute phase of Mesenteric Ischemia

Authors: Hemang J Thakor, DO PGY I; Eve McLean DO PGY III; Muhammad Arsalan Karim- residency applicant; Dr. Nora Quatrarelli, DO PGY II; Attendings: Dr. Anais Cortes, MD; Dr. Ilan Rzadkowolsky-Raoli, MD; Dr. Peter Cohen, DO

Introduction: Mesenteric ischemia results from inadequate episodic or constant splanchnic hypoperfusion unable to meet metabolic demands. Acute mesenteric ischemia (AMI) may result from an abrupt occlusion of a single vessel (typically involving superior mesenteric artery), while chronic mesenteric ischemia (CMI) is a multi-vessel disease. CMI also known as intestinal angina usually presents as postprandial abdominal pain, weight loss, nausea/vomiting and aversion to food. The clinical picture of CMI may remain initially obscured as collateral arteries compensate for the loss of flow to the main arteries. Serum lactate has been widely regarded as the best marker for indication of ischemic bowel syndrome. Though numerous clinical studies have proven that serum lactate is a nonspecific marker and one that doesn’t indicate early hypoperfusion injury to intestine. Therefore, clinicians should have low threshold for imaging studies despite serum lactate being negative in order to properly diagnose mesenteric ischemia in a timely manner. The gold-standard imaging modality to identify AMI or CMI is CTA, but catheter-based angiography has an advantage over CTA as it can play both diagnostic and therapeutic roles.

Case: Here we present a case of a 67 y/o female with the past medical history of HTN, non-insulin dependent DM type II, suspected irritable bowel syndrome and a current smoker who was initially admitted to Palmetto General Hospital for an NSTEMI and suspected community acquired pneumonia. The patient underwent cardiac catheterization, which revealed severe triple vessel disease, requiring a CABG. While being medically optimized for CABG, the patient began to complain of progressively worsening, diffuse abdominal pain. The pain was described as dull and achy, was exacerbated after meals and was associated with nausea and a one-time episode of non-bloody, non-bilious vomiting. She continued to have regular, non-bloody bowel movements and was passing gas appropriately. Initial workup included an upper GI series, which showed a non-obstructive gas pattern. The patient continued to complain of worsening abdominal pain. At this point, a CT scan of the abdomen without contrast was performed and revealed pericolonic fat stranding in the region of the splenic flexure, possibly indicative of infectious, inflammatory or ischemic causes. A serum Lactate level drawn at this time was found to be within normal limits. Within a few hours, the patient developed hypoxic
respiratory failure requiring intubation. Post-intubation, two subsequent serum lactate levels were elevated. IR was contacted immediately and the patient was taken for emergent abdominal angiography. This revealed complete occlusion of the superior and inferior mesenteric arteries (SMA & IMA). The patient subsequently underwent successful stenting of the SMA.

Discussion: Serum lactate is a sensitive marker for tissue hypoperfusion and ischemia. It is one of the traditional lab values clinicians rely on when ruling out acute mesenteric ischemia. However, serum lactate only becomes elevated once transmural bowel infarction has already occurred. Several cases and studies have reported a complete absence of lactic acidosis even with extensive intestinal ischemia.\(^1\)\(^3\)

In chronic mesenteric ischemia, the splanchnic circulation is able to invoke an extensive network of collaterals to compensate for the lack of blood flow. During acute on chronic ischemia, intestinal perfusion can initially be compensated, delaying a rise in serum lactate levels.\(^2\) Furthermore, the liver is able to efficiently clear lactate from the porto-systemic circulation, thereby decelerating serum lactate elevation.\(^4\)

A negative serum lactate does not rule out acute mesenteric ischemia, especially in the early and crucial phases of the disease. Serum markers have been found to be unreliable in timely establishing the diagnosis.\(^1\)\(^3\) Definitive imaging should therefore not be delayed when clinical suspicion is high, especially when risk factors for acute mesenteric ischemia are present. As for imaging, while CTA is the gold standard for diagnosing AMI or CMI, catheter-based angiography may be preferable to CTA in those institutions with IR capabilities, as this can serve as a both diagnostic and therapeutic tool.\(^6\)

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**Title:** Urinothorax: A Radiologists Role in Expanding the Differential Diagnosis.

**Authors:** Zachary Thwing MD, Kristina Siddall MD

**Introduction:** Pleural effusion is a common radiological finding often diagnosed without a second thought. We report a case of pleural effusion in a patient secondary to obstructive uropathy from surgical resection of the left ovary and uterus. Urinothorax is a rare cause of pleural effusion that occurs when urine enters the pleural space and should be considered in the differential of patients that have undergone recent gynecologic, urologic, or other intraperitoneal surgical procedures and subsequently developed a pleural effusion. The proposed mechanism for the unusual appearance of urine in the pleural space is via lymphatic drainage or via direct transdiaphragmatic passage. Thoracentesis with measurement of pleural creatinine is a key diagnostic criterion, which is not included in the routine analysis of pleural fluid. Our objective with this case study is to prepare radiologist to make correlations between the seemingly unrelated findings of urinary obstruction and pleural effusion to ultimately recognize the possibility of a more esoteric diagnosis that can be significantly aided by the addition of a simple, cost effective test to the analysis of a tapped pleural effusion.

**Case Description:** A 42-year-old female with a pmh of ovarian cysts, s/p left ovary resection and hysterectomy, presented to the ED with abdominal pain, SOB, and chest pain. Chest x-ray, CT abdomen, pelvis, and chest were performed, showing bilateral pleural effusions, ascites, left sided obstructive uropathy with left kidney deenhancement and moderate hydroureteronephrosis.

Upon admission, the differential diagnosis was broad: a primary tumor, cardiac etiology, infectious etiology, lymphatic tear secondary to gynecological surgery, tuberculosis, and ureteral injury. PPD, cardiac work up, UA, CA 19-9, and more was all within normal limits. Paracentesis was performed and showed light yellow fluid with pH 8, total protein 3, albumin 1.7, and LDH 94. SAAG was calculated at exactly 1.1. Thoracentesis drained 2.3 Liters of clear yellow fluid, pH 8, total protein 3.3, and LDH 121. As per Light’s criteria, it was a transudative effusion. Suspicion for urinothorax then prompted a pleural creatinine measurement, which was 0.9 compared to serum creatinine of 0.39, with a ratio of 2.3. This is greater than the normal range of less than 1 and is pathognomonic for urinothorax. Cystoscopy and retrograde pyelogram were then performed, showing a stricture and extravasation of contrast from the left ureter. The patient underwent percutaneous nephrostomy with stent placement by IR. The pleural effusion and ascites subsequently resolved and the patient was discharged home.

**Discussion:** Common presentation of urinothorax includes chest pain, shortness of breath, cough, pleural effusion, and recent history of urologic or gynecologic procedure. The diagnosis of urinothorax is difficult because it is a rare cause of pleural effusion and its key diagnostic criteria, the pleural creatinine to serum creatinine ratio, is not routinely performed on laboratory analysis of pleural fluid. Urinothorax is rare so it should only be considered after ruling out more common causes of pleural effusion. The treatment for urinothorax is aimed at simultaneous treatment of the underlying cause and symptomatic relief of the effusion. In the absence of routine pleural creatinine measurement, a high index of suspicion is needed to make the diagnosis. We believe that radiologist can play a key role in expanding the differential for clinicians because of their unique role in reviewing images in a holistic manner.

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**Title:** Advanced Nonseminomatous Germ Cell Tumor in a Young Male Presenting as Back Pain and Melena

**Authors:** Yale Tiley, D.O., Andres Rodriguez MS4, D.O., MBA, Jose Sanchez M.D., Andrea Dager, D.O., Juan de la Ossa, D.O., Anabelle Alvarez, MS4, Renuka Tolani, MS3, Samuel Harris, D.O., Raul San Juan, D.O.

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**Introduction:** Testicular cancer is the most common form of cancer in young American males ages 15-35. In 2018, about 2310 new cases of testicular cancer have been diagnosed. There are three main types of primary testicular neoplasms: germ cell tumors, sex cord-stromal tumors and extragonadal tumors. Germ cell tumors can further be classified as seminoma or non-seminoma. Non-seminoma tumors are more common than seminoma, and tend to grow quicker. Non seminoma tumors can be classified in four subtypes: yolk sac tumor, teratoma, embryonal carcinoma and embryonal carcinoma.
**Case Description:** A 24-year-old Hispanic male presented from urgent care due to dyspnea on exertion x 3 days. His only complaints were melena and abdominal pain 2 weeks prior along with a 1-week history of diffuse nonspecific back pain. PMH of sciatic pain, Bell’s palsy, and right cryptorchidism. Past surgical history consisted of a right orchiopexy at 6 years of age.

On admission in the ED, the patient appeared pale, in NAD, tachycardic (128 bpm), with hemoglobin 7.3. CXR showed multiple opacities in B/L lungs. Scrotal US showed hypoechoic foci present within the right testis. CT scans showed diffuse mass like lesions in the lungs, liver, kidneys, and spleen with supravacular, mediastinal, retroperitoneal, and left iliac lymphadenopathy. During hospital course, patient was intermittently tachypneic and tachycardic, without signs of active infection/sepsis; Hgb between 5.9 and 8.9, with a single reported episode of melena, and a total of 5 PRBC transfusions administered. Lab results: low Hgb, AFP tumor marker (12.4), haptoglobin (235.0), LDH (2,659), and HCG (275,541). EGD found gastritis, colonoscopy found sigmoid diverticulosis, but no signs of active GI bleed. MRI brain showed possible hemorrhagic metastasis involving the right posterior parietal lobe. Bone marrow aspiration was only remarkable for nucleated RBCs. Biopsy of peri-aortic mass-like lesion showed mixed nonseminomatous germ cell tumor (NSGCT) with features of embryonal carcinoma, choriocarcinoma, and yolk-sac tumor. No orchiectomy was recommended at the time. Port-A-Cath was placed and patient received first cycle of BEP chemotherapy with dexamethasone before discharge.

**Discussion:** This case illustrates the atypical presentation of testicular cancer in a young male.

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**Title:** New-Onset Pathological Compulsive Gambling and Hypersexuality Due to Parkinson Disease-Related Medications.

**Authors:** Cuong T. Ton, D.O. (1), Lorynn Hunter, D.O. (2), Ashok Patel, M.D. (3)

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**Introduction:** Pathologic gambling and hypersexuality related to dopamine agonists have often had devastating consequences that may overshadow even the symptoms of PD. These drugs are routinely advocated as first-line treatment of PD. In view of their common use, we wanted to assess the risks of these medication-induced behavioral syndromes and to avoid misdiagnosis to primary mental disorders such compulsive gambling and hypersexuality often seen in bipolar mania. In addition, we want to emphasize the importance of not jumping to conclusion of a mental disorder or assume all the information from an ex parte is correct.

**Case Presentation:** We present a 65-year-old male retired oceanographer who graduated with his PhD from Duke university that was admitted on an ex parte brought about by his son who shows concern that his father has the inability to care for himself due to son’s belief his father mental deterioration due to his father’s Parkinson disease and episode of excessive spending on gambling and pornography rental in excess of over 30,000.00 in a few short weeks.

This patient presents as alert and oriented x 4, pleasant with some anxiousness and confusion as to why his son would have “done this to him.” He has a past medical history of Parkinson’s disease, Chronic Atrial fib and flutter, hypertension, hyperlipidemia, GERD and venous insufficiency. His current medications include Furosemide (Lasix) 40 MG Tab Oral Twice Daily, Lopressor 100 MG P.O Daily, Pradaxa 150 MG Tab PO BID, Mirapex 0.5 PO TID, Cymbalta 60 MG PO Daily, Cardizem 120 MG Tab at bedtime, Celebrex 100 MG PO At bedtime., Miralax Powder 17 Grams bedtime, Sinemet 25/100 PO TID, Potassium Chloride 10 MEQ tab daily, Nexium 40 MG po Daily, Valium 10 MG P.O. at bedtime and Hydrochlorothiazide 50 MG P.O Daily.

As for his psychosocial history, the patient states he drinks approximately 3 bottles of wine per week, but does not feel he has a drinking problem nor has a history of alcohol use disorder (BAL on admission was negative). He does have an isolated episode of depression in remission and is not being treated with antidepressants at this time. On admission to the inpatient unit his physical exam and vital signs were normal, All admitting laboratory test results were normal other than potassium low at 3.0, urine for toxicity screen was positive for benzodiazepines (prescribed). Despite patient’s son insistant that patient need long term placement due to his inability to manage his finance and care for self, patient quickly regained insight of his risk-taking behaviors once one of his dopamine agonizing Parkinson’s medication of discontinued. Patient was able to return home after a long investigative collateral by social services including a family session with the concerned son. The doctorate patient has yet to be readmitted for risky or compulsive behaviors since Sinemet was stopped.

**Discussion:** This case illustrates the presentation of a patient who presents with pathological gambling and hypersexually that is not caused by a primary mental disorder as in bipolar manic, but due to his medication used to treat his Parkinson’s.

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**Title:** Effectiveness of Hemodialysis as Treatment of End-Stage Renal Disease Associated with Granulomatosis with Polyangiitis (Wegener’s Granulomatosis)

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**Introduction:** Granulomatosis with polyangiitis (GPA), formerly known as Wegener’s granulomatosis, constitutes one of the four well-known pulmonary-renal syndromes. If left untreated, patients with GPA have mortality rates of approximately 90% within two years of initial diagnosis. Those with complications from underlying disease, such as diffuse pulmonary hemorrhage or advanced renal failure, have a much higher mortality rate than patients with GPA without manifestations of organ failure. In addition, mortality rates are even higher amongst those who require maintenance hemodialysis for management of renal failure as a sequela of GPA (Falk 2018). This is because hemodialysis could potentially disrupt
the adjunctive therapies traditionally given to patients with GPA—namely immunosuppressants such as cyclophosphamide—leading to higher overall infection rates.

**Case Presentation:** We discuss the case of a 70-year-old female with a past medical history of GPA managed with Acthar® Gel (repository corticotropin injection) and frequent extended spectrum beta-lactam (ESBL) infections who was referred to the emergency department by her primary care physician (PCP) after discovering abnormal lab values. She presented to her PCP complaining of feeling fatigued at home with decreased urination. Upon discovering hyperkalemia (6.1 mEq/L), patient was referred to the emergency department (ED) for further workup. In the ED, patient was found to have a creatinine of 10.9 mg/dL and was admitted for management of chronic kidney disease (CKD), pending Optiflow placement for possible hemodialysis. While admitted, patient’s condition worsened, with developing altered mental status and increased episodes of vomiting. Patient was sent for her first hemodialysis treatment, during which she developed hypokalemia at 3.1 mEq/L, hypotension at 88/33 mmHg, hypoglycemia at 59 mg/dL, and worsening altered mental status. Patient was admitted to the ICU at that time for management of hypotension refractory to fluid resuscitation. Chest x-ray and CT chest were obtained at that time, showing bilateral pleural effusions with interstitial and airspace opacities, and increased number and size of thick-walled cavitary lesions secondary to GPA, respectively.

**Discussion:** End-stage renal disease (ESRD) occurs in approximately 10-26% of patients with GPA. As this occurs later in the course of the disease, many patients have already been started on immunosuppressive therapy. Therefore, whether to continue immunosuppressive therapy when beginning hemodialysis for GPA management and treatment has become a controversial topic in medicine. According to Lioniaki et al (2009), while GPA patients with ESRD receiving hemodialysis decreased their overall recurrence rates of renal complications per year, infection rates doubled amongst those also taking immunosuppressive therapies. It has therefore been suggested that adding immunosuppressive therapy should be saved for patients with signs of active vasculitis. Other treatment options, including plasma exchange for induction therapy, have shown increasing success at lower creatinine levels than previously recommended (2.85 mg/dL as opposed to 5.7 mg/dL), as demonstrated by Szpij et al (2010). Due to the development of new therapies for management of GPA, more research must be conducted so as to come closer to the optimal maintenance schedule for those with GPA.

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**Title:** The Best Tissue is Your Own Tissue: Innovative Hybrid Surgical Approach for Spigelian Hernia Repair

**Authors:** Danny Tran, OMS-III (1), Jonathan Wu, OMS-III (1), Michael Lopez, D.O. (2), Darren Koppel, M.D. (3)
Nova Southeastern University Kiran C. Patel College of Osteopathic Medicine (NSU-KCOM) (1), University of Miami/JFK Medical Center (2), West Palm Beach VA Medical Center (3)

**Introduction:** A Spigelian hernia is a herniation through the aponeurosis of the transverse abdominal muscle (also known as the Spigelian aponeurosis). These hernias occur at the Spigelian hernia belt, a 6 cm wide zone above the arcuate line, located between the umbilicus and interspinal plane. Spigelian hernias are rare, making up only 1-2% of all hernias. Congenital Spigelian hernias are due to a congenital failure of fusion of mesenchymal layers, while acquired Spigelian hernias occur because of small splits in the fascial layers and typically arises in adults during the 4th-7th decades of life. Patients present with sharp pain and/or swelling in the mid-lower abdomen, lateral to the rectus muscles. There is an increased risk of bowel incarceration because of the Spigelian hernia’s narrow orifice. CT scan and ultrasonography are used to diagnose Spigelian hernias, but CT scan has far greater sensitivity and specificity.

**Case Description:** A 71-year-old male with PMHx of COPD presented to the emergency department with a 3-day history of RLQ abdominal pain that is intermittent and dull in nature. He reported associated constipation and vomiting. He stated about 6 years ago, after a spine class, he started experiencing a similar abdominal pain in the same area which never completely dissipated. We surmise this may have been the origin of the Spigelian defect in this patient. On abdominal exam, there was moderate tenderness in the RLQ with a reducible palpable mass. Labs were WNL except an elevated WBC of 15.4 x 103/μL. Abdominal CT scan demonstrated findings suggestive of an incarcerated Spigelian hernia with partial small bowel obstruction and a transition zone at the level of the incarcerated distal ileal small bowel loop within the hernia. The patient underwent a hybrid approach consisting of transabdominal preperitoneal repair (TAPP) and open repair. The patient’s own parietal peritoneum instead of a prosthetic mesh was used to cover the Spigelian defect. Post-operatively, he developed ileus and bilious vomiting, so a nasogastric tube was placed. He required 2 days of total parenteral nutrition but afterwards began having multiple bowel movements. He was discharged on the 14th day of admission and followed up 4 days later, reporting resolution of his abdominal pain and constipation.

**Discussion:** Spigelian hernia repairs are seldom reported in literature. In a recent case study by Halyk, et al on the repair of a Spigelian hernia, the authors reported using a TAPP approach. Halyk raised the superior and inferior peritoneal flaps to dissect the hernia and closed the neck using intracorporal suturing. In this patient, we started with a TAPP approach but transitioned into an open repair due to the significant amount of small bowel present in the hernia. Because of the availability of parietal peritoneum to cover the defect and the increased risk of adhesions associated with mesh placement, we decided not to employ a prosthetic mesh. This is the only reported case in the literature where a Spigelian hernia was repaired laparoscopically without a mesh, instead utilizing the patient’s own parietal peritoneum tissue to cover the defect.

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**Title:** Loss of CDKN1C in a Recurrent Atypical Teratoid/Rhabdoid Tumor

**Authors:** Dustin Tran, OMS-II (1); Sandra Camelo-Piragua, M.D. (2); Avneesh Gupta, M.D. (2); Kate Gowans, M.D. (3); Patricial L. Robertson, M.D. (2); Rajen Mody, M.D. (2); Carl J. Koschmann, M.D. (2)

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Introduction: Atypical teratoid/rhabdoid tumor (AT/RT) is a malignant embryonal central nervous system tumor that occur primarily in infants and young children. AT/RT shares common histological characteristics with other embryonal tumors such as medulloblastoma but is distinguished by inactivation of SMARCB1 (INI1). AT/RT is widely diagnosed through immunohistochemistry analysis of the absence of INI1. This embryonal tumor has a historical overall median survival of 8.5 months after treatment including mono or combo-therapy of surgery, chemotherapy, and radiotherapy. Though new AT/RT management protocols improved 2-year overall survival to 70%, AT/RT remains a devastating tumor and half of all patients will develop progression or recurrence by 2 years.

Case Description: We present a case of a 6-week-old infant African American girl who presented with respiratory distress, irritability, lethargy, and a bulging fontanelle. Magnetic resonance imaging (MRI) revealed a 4.6 x 3.0 x 3.6 cm right posterior fossa mass with obstructive hydrocephalus. She underwent a suboccipital craniotomy and gross total resection of the tumor. The tumor histopathologic diagnosis was an AT/RT (WHO grade IV). Due to her age and tumor grade radiotherapy was withheld, and she received adjuvant chemotherapy according to Dana-Farber Cancer Institute pediatric AT/RT protocol, IRSIII, which includes 10 cycles of multiagent chemotherapy with vincristine, cisplatin, etoposide, cyclophosphamide, doxorubicin, temozolomide, actinomycin, intrathecal cytarabine, and hydrocortisone. Surveillance MRI scans showed a new deep 3 mm lesion not amendable to surgical resection. Chemotherapy was changed to methotrexate, ifosfamide, carboplatin, and etoposide followed by triple-tandem autologous stem cell transplant with carboplatin/thiotepa conditioning. She was disease free for 6 months until another surveillance MRI showed new lesions in the suprasellar region and basal ganglia. She began metronomic therapy with bevacizumab, cyclophosphamide, etoposide, celecoxb, fenofibrate, and thalidomide. She underwent palliative subtotal resection of a 41 x 43 mm right frontal lobe lesions followed by palliative radiation therapy (20 fractions of 2 Gy for total dose of 40 Gy). Following completion of radiotherapy, she began mono-agent therapy with alisertib, an aurora kinase A inhibitor, obtained through compassionate use and has remained with stable disease. Her recurrent tumor was whole genome sequenced and revealed a novel mutation in a cell cycle inhibitor, CDKN1C in addition to hallmark SMARCB1 inactivation.

Discussion: This case demonstrated the efficacy of targeted therapy using small molecules to inhibit tumorigenesis pathways and yielded new information about AT/RT’s tumorigenesis pathway. In this case, we report a novel mutation that AT/RT may use to escape cell cycle regulation and pose potential targets for patients afflicted by this disease.

Title: Case Report: Hyponatremia and Respiratory Distress in an Adolescent Female

Authors: Ashley Van Putten, DO PGY1, Alyson Trillo, DO PGY2; Dr. Bobby Kumar, MD

Introduction: Legionella pneumonia is caused by species of Legionella found either in water or soil. In water, the species can live in biofilms or intracellular parasites within protozoa. Contamination of water sources with concentrations high enough to cause infection can occur when changes in water flow or pressure disrupt biofilms, releasing large amount or bacteria into the surrounding water.

Case Description: A 17-year-old female with past medical history of iron deficiency anemia and depression presented to the emergency room with complaints of six days of fever (maximum temperature of 103.6°F) and increased work of breathing. On day of presentation, she also reported multiple episodes of non-bloody, non-bilious emesis, decreased appetite, diarrhea, chest pain, body aches, and right upper quadrant abdominal pain. On presentation, she was febrile, with oral temperature of 103.1°F, tachycardia, and in severe respiratory distress with subcostal and supraclavicular retractions, decreased breath sounds, and significant crackles auscultated on the right side. Initial oxygen saturation was 89% on room air, with improvement to 98% on 2 L/min of oxygen via nasal cannula. Chest x-ray showed extensive right upper lobe pneumonia with patchy infiltrates in the left upper lobe. Due to right upper quadrant abdominal pain and persistent diarrhea, an abdominal ultrasound was performed, which was unremarkable. Initial labs on admission revealed no leukocytosis, mild microcytic anemia (hemoglobin 11.3 g/dL, MCV 60.6), hyponatremia (sodium 125 mmol/L), hypokalemia (potassium 3.3 mmol/L), elevated liver enzymes (AST 141, AST 57), elevated GGT (52 units/L), prolonged coagulation studies (PT 17.7 seconds and PTT 30.0 seconds), minimally elevated lipase (200 units/L), positive toxicology for cannabis, urinalysis with 100 mg/dL of protein and a specific gravity of 1.024, elevated C-reactive protein 36.6 mg/dL, and a negative urine pregnancy test. STD testing was negative. The patient was admitted for hypoxia and respiratory distress secondary to multi-lobar pneumonia and found to have transaminitis and hyponatremia. She was initially placed on empiric antibiotic treatment with azithromycin and ceftriaxone. She was started on intravenous fluids of normal saline to maintain adequate oxygen saturation. Secondary to this decompensation, a repeat chest x-ray was performed, which revealed increasing bilateral pulmonary opacities. Subsequently, CT of the chest was done, but did not show pleural effusions, masses, loculations, or abscess. CPT and albuterol treatments were initiated. Patient gradually improved and returned to room air on hospital course day 6. Additional laboratory testing and modification of antibiotics eventually led to the diagnosis and improvement of this patient.

Discussion: Legionella is a rare cause of atypical pneumonia, especially in pediatric populations. We confirmed atypical pneumonia in a pediatric patient caused by Legionella species. Although the source of her infection was not identified, her recent hospitalization and cannabis use with water-based smoking apparatuses raises concerns as sources.

Title: The Shear Terror of Baseball - Spontaneous Coronary Artery Dissection in a Male Athlete.

Authors: Gustavo Vargas, MD MBA; Jilla Azarbal, MD MPH MBA, Marco Mejia MD FACC, Rajesh Tota-Maharaj, MBBS FACP FACC.

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**Introduction:** Spontaneous coronary artery dissection (SCAD) refers to the formation of either an intra-coronary intramural hematoma or intimal disruption (as opposed to atherosclerotic plaque rupture or intraluminal thrombosis) (1). SCAD is an uncommon cause of myocardial infarction (1-4% of cases of myocardial infarction), and typically occurs in individuals with few or no conventional cardiac risk factors. The incidence of SCAD is much more common among women (91%) (2), and is associated with pregnancy, peri-menopausal status, and individuals with systemic arteriopathy, mainly fibromyalgia dysplasia. An intense emotional or physical stressor triggering SCAD has been described in some patients. Stress catecholamine surge during these events has been postulated to lead to coronary artery shear stress that may contribute to SCAD (1).

**Case Presentation:** A 55-year-old Latin male baseball player with a history of hypertension and paroxysmal atrial fibrillation presented to hospital for evaluation of chest pain. Pain was left-sided, pressure-like, 8/10 severity with no radiation and no alleviating or aggravating factors. He also experienced nausea and palpitations. The episode of chest pain lasted less than one hour and resolved with sublingual nitroglycerin in the ED. Of note, one hour prior to the onset of chest pain, the patient was being threatened and chased by another person wielding a baseball bat.

In the ED, physical examination was unremarkable and the patient remained asymptomatic. EKG showed no ischemic changes. Initial troponin was negative, but repeat troponin after admission was significantly elevated at 17, consistent with acute myocardial infarction. Diagnostic cardiac catheterization the morning after admission showed mild 30% tapering of the mid-left anterior descending artery (LAD), with otherwise normal coronary arteries. Left ventriculography showed anterior wall hypokinesis, with a left ventricular ejection fraction of 60%. While in the recovery area, the patient developed recurrent chest pain, and EKG at that time showed ST elevation in leads V3-V5. Repeat emergent cardiac catheterization showed an acute 100% occlusion of the mid-LAD. Successful balloon angioplasty of the mid-LAD was performed, with reperfusion of the mid and distal LAD. Angiographic appearance at the end of the procedure was consistent with spontaneous coronary artery dissection.

The patient was prescribed dual anti-platelet therapy, and had an uneventful recovery. He was discharged from the hospital three days later, and at follow-up six weeks later, had no recurrence of chest pain. The patient did not require the use of long-term statin therapy.

**Discussion:** SCAD is a rare cause of non-atherosclerotic myocardial infarction, and should be considered in patients presenting with myocardial infarction with a paucity of cardiac risk factors. While rare, SCAD can occur in men, especially where there is a preceding physical or emotional stressor.

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**Title:** Relationship between mold exposure and Myalgic Encephalomyelitis (ME)/ Chronic Fatigue Syndrome (CFS) in female patients.

**Authors:** Varona Berdial MD, Aurelio 1; Sanchez Artiles MD, Angel E2; Lopez MD, Lorena A; Gonzalez MD, Hector 2; Rey MD, Irma3

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**Background:** A growing body of scientific literature has shown that exposure to mycotoxin producing mold has been recognized as a significant health risk for humans. Research has related mycotoxins with human immunological diseases including ME/CFS where mitochondrial damage with impaired oxidative phosphorylation, low ATP stores and increased lactic acid after exercise play a fundamental role. Exposure to mycotoxins has been related to aggravation of ME/CFS symptoms (Smets et al. 1995) **Objective:** This study was conducted to determine the relationship between exposure to mycotoxins and the persistence of ME/CFS symptoms in female patients, as exposure may increase symptomology.

**Participants and Methods:** We performed a cross sectional type study that used 25 female participants from the Institute of Neuroimmune Medicine (INIM) at Nova Southeastern University who met the criteria for a diagnosis of ME/CFS as outlined by Fukuda, et al. in 1994. Participants were evaluated for history of current or past mold exposure. The participants had a mean age of 49 years.

**Results:** 20 of 25 ME/CFS subjects reported being exposed to mold in their homes. In the exposed patients, symptoms including headache, flu-like symptoms, fatigue, cognitive complaints and various neurological complaints were more severe, with neuro inflammatory symptoms most severe. In addition, 17 subjects were tested for mycotoxins in a new cohort. At the time of the report, 4 tests were positive, 2 negative and 9 tests pending. We will report symptom associations when testing is complete.

**Conclusion:** Exposure to mixed molds leads to multiple immunological and neurological symptoms that characterize ME/CFS. Further studies should longitudinally evaluate the presence of mycotoxins in human urine from patients suffering from chronic fatigue syndrome with a history of toxic mold exposure.

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**Title:** Treatment of Post-ECT Agitation in a Patient with Bipolar Disorder and Alcohol Use Disorder: A Case Report

**Authors:** Angela T. Vittori, M.D., Samuel Neuhut, M.D., Clara Alvarez Villalba, M.D.

**Introduction:** Electroconvulsive therapy (ECT) is one of the most important and safe techniques for treatment resistant depression4. However, post ictal agitation can be a severe complication of ECT that requires immediate intervention12. Post-ECT agitation can occur in 12 % of the cases15. The use of propofol and benzodiazepines (like midazolam) were reported in the treatment of this outcome15. Although, the use of these medications, specially, in the elderly population can be challenging and disadvantageous16.
Case Description: We are presenting a case of a 73-year-old Caucasian male with a psychiatric history of a Bipolar Disorder and Alcohol Use Disorder, moderate, and no history of withdrawals presents to the psychiatric inpatient unit in order to receive first time bilateral electroconvulsive therapy (ECT) for treatment-resistant depression. ECT was scheduled in the Post Anesthesia Care Unit (PACU) and patient was given Etomidate 20 mg and Succinylcholine 100 mg followed by ECT treatment. The patient within 5 minutes post-ECT became severely agitated and combative. He was given Midazolam 50 mg/40ml infusion and Lorazepam 2 mg IV which exacerbated his agitation. Due to his history of alcohol use disorder, it appears benzodiazepines had a paradoxical effect on his behavior. Eventually, the patient required Dexamethasone 200 mcg/2ml and transfer to the ICU. For his next ECT session, it was determined that benzodiazepines would be avoided to treat his post-ECT agitation. Following his next ECT, the patient became again severely agitated and was given Haloperidol 5 mg IV and Diphenhydramine 50 mg IV with a positive outcome and resolution of the agitation.

Discussion: We illustrate the efficacy of neuroleptic medications to treat post-ECT agitation. We also exemplify benzodiazepine response in patients with a history of alcohol use disorder and post-ECT agitation, and the possibility of a paradoxical agitation with the use of benzodiazepines in this subset of ECT patients.

Title: Acute Promyelocytic Leukemia Presenting as a Stroke

Authors: By Thomas Walsh DO, Christopher Foth DO, Jose Sanchez MD

Introduction: There are approximately 600-800 new cases of acute promyelocytic leukemia (APL) each year in the United States [1]. Of those cases 25% are the hypogranular “atypical” type of APL which is associated with increased thrombogenesis [2]. The coagulopathy in hypogranular APL is similar to disseminated intravascular coagulation in presentation with precipitous consumption of platelets and microvascular thrombosis. This can subsequently lead to uncontrolled bleeding in the acute phase, with thrombogenesis predominating in the chronic phase [3].

Case Presentation: A 71 year old female presented with aphasia and right sided weakness since waking up. She admits to transient neurological deficits in the past few months that she did not seek medical care for. Upon arrival to the ED she was immediately was taken for a CT of the head followed by CTA of the head and neck and CT cerebral perfusion; all of which were normal. The symptoms of aphasia and right sided weakness resolved shortly after and she was admitted to the neurological intensive care unit for close monitoring. Incidentally, she was noted to have a monocytosis of 29% on manual differential. A peripheral smear was performed which showed monocytosis with circulating myeloid blasts. Hematology oncology was consulted and ordered a CT guided bone marrow biopsy. She was seen the next morning at 5 AM with no deficits at that time. However, upon returning to round at 11 AM a right sided facial droop was noted and she complained of minor right sided upper and lower extremity weakness. A stat MRI and MRA of the brain was performed at this time which showed small left basal ganglia and left periventricular acute ischemic infarcts on a background of mild ischemic encephalomalacia. This facial droop became permanent and the minor right sided upper and lower extremity weakness evolved into right sided hemiparesis. The CT guided bone marrow biopsy came back showing hypogranular (~90%) bone marrow with 43% myeloid blasts mostly without granules. FISH was sent and came back positive for the (15;17) translocation consistent with acute promyelocytic leukemia. She was immediately started on all-trans retinoic acid and began induction chemotherapy with daunorubicin and cytarabine.

Conclusion: Acute promyelocytic leukemia is a rare disease that must remain on the differential for emergency department physicians and neurologists. Early initiation of all-trans retinoic acid can prevent neurological sequelae in these patients. Conversely, use of iPAs can result in life threatening hemorrhage through both hemorrhagic transformation and the consumptive coagulopathy that can occur in APL.

Title: IgG4-Related Lymphadenopathy

Authors: Crystal Wang, DO PGY3; Rakhee Shah, DO; Don Luong, MD

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Introduction: Immunoglobulin G4 (IgG4)-related disease is a multi-organ immune-mediated condition that involves infiltration of IgG4-positive plasma cells and fibrosis. Lymphadenopathy associated with IgG4-related disease can be classified as multicentric Castleman disease-like (type I), follicular hyperplasia (type II), interfollicular expansion (type III), progressive transformation of germinal centers (type IV), and inflammatory pseudotumor-like (type V).1,2 We report a case of IgG4-related lymphadenopathy that presents as reactive follicular hyperplasia with robust response to steroids.

Case Description: A 68-year-old white male with PMHx of HTN presented with recurring right-sided non-tender neck mass that first appeared 19 years ago. He admits to malaise and 50 pounds weight loss over the past one year. He denies fever, chills, night sweats, nausea and vomiting. Surgical history significant for right lymph node excision and biopsy in 1999 which was benign and negative for lymphoma; left parotid mass excision and biopsy in 2017 which was benign; appendectomy and hernia repair. Upon physical exam: palpable lymphadenopathy in bilateral neck and left supraclavicular fossa. Abdomen was soft without hepatosplenomegaly. Initial laboratory work-up was remarkable for white blood cell count 13.5, hemoglobin 13.1, hematocrit 43.4, platelets 254,000, creatinine 0.9, elevated ESR and CRP, elevated ANA 1:1280 homogenous pattern, elevated IgG subclasses 1 and 4. Serum protein electrophoresis showed elevated gammaglobulin suggesting a chronic inflammatory response. Urine protein electrophoresis was normal. Right neck lymph node biopsy was performed which showed reactive follicular hyperplasia with focal progressive transformation of germinal centers. No evidence of lymphoma or malignancy. Positive stain for IgG4. Patient was placed on 60 mg prednisone with taper by 20 mg every 4 weeks. He has had a robust response and improvement. Repeat PET scan is pending with consideration of initiating Rituxan.
Discussion: This case illustrates the importance of recognizing and treating IgG4 lymphadenopathy. When lymphadenopathy is the initial presentation, it is critical to recognize IgG4-LAD so that patients can receive timely treatment to avoid multi-system organ damage.

Title: A Rare Cause of Dysphagia - Esophageal Small Cell Carcinoma
Authors: John Wang, OMS-III, Sae-In Kay, OMS-III, Dinh Pham MD
These author contributed equally to this work

Introduction: Dysphagia among elderly adults is a prevalent condition resulted from subtle physiologic changes in swallow-functions or other health complications. Studies have shown that approximately 20% of age 50+ community-dwelling persons suffer from some type of dysphagia. Acute dysphagia is an alarming symptom and requires a prompt evaluation to rule out malignancies, with esophageal and gastric cardia cancer being more commonly associated with rapidly progressive dysphagia in elderslies. We report a case where the patient’s dysphagia was found to be from esophageal small cell carcinoma, an extremely rare type of extra-pulmonary small cell carcinoma (ESCC).

Case Presentation: A 79-year-old Caucasian female presented to our geriatric clinic with a 1-week history of difficulty swallowing and several choking episodes during meals. She also complained of regurgitation of some foods, prolonged coughing at night and expectoration of secretions. A video fluoroscopic swallowing study was performed and the patient was diagnosed with moderate-severe pharyngeal dysphagia. As a result, she was recommended to have solid meals alternating with thin liquids via straw and to clear throat after ingesting liquid. However, she reported minimal improvement and was further evaluated three weeks after with an upper endoscopy, where a friable mass extending from 18 to 25 cm was detected in the proximal esophagus. A biopsy was taken from this mass and revealed small-cell neuroendocrine carcinoma with tumor cell. A PET-CT scan then revealed a large superior mediastinal mass, displacing the esophagus leftward. There were additional mediastinal and right paratracheal lymph nodes involvement as well. Based on these findings, the patient was diagnosed with stage IV poorly differentiated ESCC of the proximal esophagus with hepatic metastases. Systemic chemotherapy with irinotecan and cisplatin in view of the national shortage of etoposide was initiated. After two cycles of chemotherapy and her 1 month follow-up, she demonstrated a significant response to the initial therapy. Her dysphagia has improved significantly and she was able to self-feed with solid and liquid. She will be continuing chemotherapy instead of radiotherapy, due to potential risk of esophageal stricture and irritation, preventing her from further exacerbation.

Discussion: It is important to keep malignancy at the top of differential in elderly adults presenting with acute dysphagia. Esophageal cancer is typically asymptomatic and the first sign is often dysphagia. ESCC is extremely aggressive; early multi-organ metastasis and frequent relapses despite of aggressive treatment regimen are common, with less than 15% 5-year survival rate. Surgery and/or radiation and chemotherapy with a platinum-based drug such as etoposide are the main treatment regimen.

Title: Neuroendocrine neoplasms: a diagnostic challenge and therapeutic dilemma
Authors: Jessica Waserstein OMS-4, Elizabeth Akselrud OMS-4, Alochana Ragula PGY-2, Jennifer Reyes Linn MS-3

Introduction: Cancer of unknown primary site (CUP) accounts for 3-5% of all invasive cancers. Neuroendocrine tumors (NETs) comprise about 1% of all CUP. NETs are a heterogeneous group of neoplasms that differ in their behavior, histology and response to tx. NETs of unknown primary site are relatively uncommon and account for only 10-14% of all NETs. If the NET is well-differentiated, which is the case with this pt, it often initially p/w liver metastases and may p/w clinical sx due to tumor production of bioactive substances. NENs presenting as CUP are often recognized as undifferentiated or poorly differentiated small cell carcinoma. The initial evaluation of these pts includes abdominal CT and either somatostatin receptor targeted imaging with gallium (Ga-68) dotatate or with indium-111 (111-In) pentetreotide, also known as the octreotide scan. If localization fails with these measures, upper and lower endoscopy is usually performed with primary attention to the terminal ileum. If a primary site is still not localized, it is recommended that pts be managed and treated like those with well-differentiated NETs of the GI tract. The definitive dx is made after immunohistochemical stains are performed on biopsy tissue. Tx depends on the clinical scenario and may include local or systemic therapy and even liver transplant.

Case presentation: We present a 15 y/o AA female with no significant PMH, who presented to the HemeOnc clinic for evaluation after an abdominal CT showed multiple lesions on her liver concerning for malignancy. About 1 year prior to this finding, she had an annual checkup with her pediatrician and was found to have mildly elevated LFTs. Over the past year, she has had associated 22lb weight loss, night sweats and abdominal pain in the RUQ and epigastric region, resolved with zantac. She was admitted for further evaluation of her liver masses. During her hospital stay, she was worked up with a liver biopsy that showed a diagnosis of neuroendocrine tumor to the liver. She had an abdominal CT with pancreatic protocol to try to establish a primary tumor but was negative, an MRI and octreotide scan, which only showed the liver lesions and an upper and lower endoscopy, which were negative. Her labs were within normal limits, her serum was negative for CEA, CA 19-9 and AFP tumor marker but was elevated 5-HIAA and chromogranin. Pathology stains showed very low mitosis and Ki67, negative TTF1, which is a pancreatic marker but was positive for CDX2, which is a small intestine marker, indicating possible location of the primary lesion. She was D/C home after 10 days of inpatient monitoring with close clinic b/u after her case was discussed on several tumor boards.

Discussion: This case illustrates a very rare presentation of NET, given the unknown primary location and the patient’s age. The median age of dx for CUP is around 65 y/o and is most commonly found in the pancreas or intestinal tract. CUP remains a mystery, posing a diagnostic challenge to pathologists and a therapeutic dilemma for oncologists. NET in itself, is already an area of medicine that has not been sufficiently studied and needs to be further explored. Little is known about these tumors and the appropriate medical therapy, management options and prognosis due to the
Hepatocellular Carcinoma: A Unique Case Presentation of Tumor Thrombus to the Right Atrium

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Introduction: Hepatocellular carcinoma (HCC) is a leading cause of cancer-related deaths. HCC is prone to vascular invasion, also known as tumor thrombus (TT), but metastasis to the cardiac cavity is rare. Invasion into the IVC and right atrium (RA) occurs in about 0.67-4.1% of HCC patients. When the TT has invaded this far, the prognosis is poor. In addition to other HCC complications, RA TT may lead to sudden death due to right heart failure or pulmonary embolization. Furthermore, treatment options at this stage are limited and not curative.

Case Description: We present a case of a 63-year old female with past medical history of Hepatitis C (HCV), HTN, lung nodules, and polysubstance abuse who presented with nausea and non-bloody, non-bilious vomiting for 2 weeks associated with low PO intake. Endorses lightheadedness when changing position from sitting to standing, as well as abdominal distension and two episodes of non-bloody watery diarrhea. On exam, patient appeared jaundiced with abdominal distension and a palpable lobulated liver with 2+ pitting edema. No spider angiomas, fluid wave, or jugular venous distension were appreciated. Initial labs revealed hyponatremia with hypochloremia, acute kidney injury, and transaminitis with AST at 99 and total bilirubin 4.2. Ethanol level was within normal limits. A CT of the abdomen suggested a mass in the left lobe of the liver and was followed by an ultrasound revealing a 4.9 x 3.6 x 4.2 cm mass in the left lobe. Follow up labs were significant for increased AFP at 6160.2 and increased lactate dehydrogenase with a low viral load. Follow up with a CT liver triple phase revealed a large liver mass with extension into the RA with TT and necrosis of the liver. An echocardiogram revealed a 6x3 cm RA mass versus thrombus although very likely a mass component. A definitive diagnosis of hepatocellular carcinoma was unable to be obtained with tissue biopsy due to her high risk of bleeding given her thrombocytopenia and mild coagulopathy. Due to her advanced staging, she is not a candidate for surgery or chemotherapy. Palliative care will be managing her pain and transferring her to hospice.

Discussion: This case highlights the importance of identifying risk factors and diagnosing HCC at an early stage. This patient has many attributable risk factors to HCC including polysubstance abuse and Hepatitis C. Although HCC is prone to hematogenous invasion, it most commonly spreads to the lungs, lymph nodes and adrenal glands, and an extension to the heart is rare. Few treatments are available in advanced HCC, but surgical intervention should be first line and there have been cases reported who respond positively to surgery such as cardiopulmonary bypass or resection of the tumor under veno-venous bypass, total vascular isolation, and in situ hepatic cooling. Sorafenib is a second line option in palliative care, but is only recommended if surgery is contraindicated. Due to this patient’s thrombocytopenia and coagulopathy and the family’s recommendations, neither forms of treatment are indicated.

Acute Hypereosinophilic Syndrome: Spontaneous Non-Obstructive Arterial Emboli with Septic Shock, Acute Kidney Injury, and Hypereosinophilia

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Introduction: Arterial emboli typically originate in the heart and account for 55 to 87 percent of lower extremity emboli. There are three main methods of emboli formation that are cardiac in nature: 1) stasis of blood within the left atrium or left ventricle, 2) debris from diseased valves (native or prosthetic), and 3) septic emboli from infective endocarditis. In addition, other sources of arterial embolization that are non-cardiac in etiology can include hypercoagulable disorders, rupture of the fibrous cap overlying an atherosclerotic aortic plaque, dislodgement of a mural thrombus that formed within an aneurysmal sac, and paradoxical embolization from a venous thrombus that has embolized to the right heart and crossed into arterial circulation via an intracardiac septal defect or pulmonic circularity defect. After a patient presents with an arterial emboli and they have been stabilized, identification of the embolic source is necessary. It is often determined that embolic source is due to a cardiac etiology, however, when this is not the case further exploration is warranted. Rarely, hypercoagulable states are the cause of emboli including hypereosinophilic syndrome. While the exact mechanism of hypercoagulability remains confounded, many case reports have demonstrated patients to develop vessel occlusion and embolization in the setting of hypereosinophilic syndrome.

Case Description: This is the case of a 48-year-old male who presented to the emergency department with the chief complaint of low back and right leg pain with full body pruritis and subjective fever for one day’s duration. While in the ED, the patient became severely hypotensive, as low as 54/21 mmHg, with a profound leukocytosis, an elevated lactate acid, increased eosinophil count, and severe acute kidney injury. He required large-volume fluid resuscitation, pressor management with Levophed, and broad-spectrum antibiotic coverage. However, on primary clinical examination, the patient remained alert and oriented times three, appeared calm, and did not appear to be in acute distress. CT angiogram revealed a nonocclusive embolus of the right common iliac artery. Vascular surgery was consulted and determined there was no acute limb ischemia, peripheral pulses were palpable, and there was no surgical intervention necessary. Heparin drip was initiated for anticoagulation therapy. Nephrology was consulted and deemed that urgent hemodialysis was not needed because the acute kidney injury was improving only with IV fluids. Throughout the hospital course, the leukocytosis improved with broad-spectrum antibiotics and kidney function returned to normal. However, the patient had a persistently elevated eosinophil count as high as 35% with an absolute eosinophil count of 4030. Heme/Onc was consulted and the patient was worked up for many causes for eosinophilia including myeloproliferative and autoimmune disorders, all of which were negative. The patient was afebrile, asymptomatic, and
Discussion: This illustrates an extremely unusual presentation of arterial embolism and organ dysfunction in the setting of hyperesinophilia. It highlights the importance of investigation and proper diagnosis of embolization and hyperesinophilia for management of current condition and future sequela, as treatment should be directed at the underlying cause and associated issues.

Title: Progression of Discoid Lupus to Lupus Profundus: An Unexplained and Likely Underreported Phenomenon

Authors: Christopher White, DO, PGY-21, Katherine Braunlich, DO, PGY-31, David Baltazar, OMS-42, Richard Miller, DO, Program Director1
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Introduction: Lupus erythematosus is a multisorgan disorder that can be delineated into systemic and cutaneous partitions, with an equal proportion of people having isolated cutaneous findings as those having wholly systemic disease. Cutaneous lupus erythematosus (CLE) is divided into acute, subacute, and chronic presentations. Discoid lupus erythematosus (DLE) and lupus profundus (LP) are both chronic variants, and represent the most common and one of the least common dermatologic presentations, respectively. Discoid lesions comprise up to 80% of all lupus-specific cutaneous findings; LP is found in just 2-3% of cases. Within the small population that develop LP, over 30% of them have concurrent discoid lesions, but only 2-4% of patients with DLE go on to develop LP. Overall, the diagnosis of DLE or LP portends a 10-20% lifetime risk of developing SLE. Thus, it is critical that the clinician aptly identify these cutaneous findings so that a thorough systemic investigation can be completed. There exists sparse literature regarding the progression of DLE to LP. While various studies have reported the concurrent rates of these dermatologic findings, there have been no specific factors identified that can be used to predict the development of LP. Despite the fact that DLE and LP are often recalcitrant conditions, the disease processes and presentations are quite different and, thus, there is tremendous utility in discerning between the two. Early detection of LP affords proper advancement to systemic steroid and antimalarial therapies, with the hope of limiting or even avoiding the disfiguring subcutaneous atrophy that often results from active disease. These concerns demand that the clinician monitor cutaneous lupus patients closely for evidence of new or progressive symptoms.

Case Description: We report the case of a 35-year-old Caucasian female with biopsy proven DLE initially treated with intralesional steroids. On follow-up visit, discoid lesions persisted and new atrophic subcutaneous plaques had developed. Biopsy of the new plaques revealed lupus profundus. Due to the more aggressive nature of LP and the likelihood of significant lipodystrophy evolving into disfiguring scars, transition to systemic therapy would be appropriate.

Discussion: This case represents progression of DLE to LP, a process which is underrecognized and unexplained by the current literature. Due to the chronicity of cutaneous lupus, it is necessary that clinicians recognize the presentation and risk factors for this entity and, specifically, identify signs.
that correlate with evolution of DLE to LP. This will allow proper treatment modalities to be enacted, limiting the ill effects of the disease.

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**Title:** A Case of Hereditary Hemorrhagic Telangiectasia in an Aspiring Female Collegiate Athlete

**Authors:** Everett Wilson, M.S., OMS-3; Mark Sakr, DO, CAQSM, FAAFP; David Espinoza, MD

**Introduction:** Hereditary Hemorrhagic Telangiectasia Type 1 (HHT1) is an autosomal dominant disorder of abnormal capillaries prone to rupture. Diagnostic criteria include recurrent epistaxis, telangiectasia, visceral lesions, genetic mutations, and family history. HHT1 is associated with increased risk of mucosal lesions, DVT, hepatic involvement, cranial arteriovenous malformations (AVM) formation, and GI bleeds.

**Case Description:** 17 year old Caucasian female high-school volleyball player with family history of HHT1, positive mutation in Endoglin Exon 6, history of recurrent epistaxis, and history of bilateral pulmonary AVMs seeking clearance for participation in collegiate volleyball. Physical exam was within normal limits; no definite telangiectasia on extremities, nasal polyps, oral lesions, or neurological defects. HEENT, cardiorespiratory, abdominal, MSK, and skin otherwise normal. Recent Computerized Tomography (CT) scans showed a small residual right lower lobe AVM that was unchanged from 2011 and no new pulmonary AVMs. The “ground-glass” opacities previously observed in her right upper lobe noted on radiographic imaging were largely resolved. Cranial Magnetic Resonance Imaging (MRI) was negative for AVMs. Cranial Magnetic Resonance Angiogram (MRA) showed a hypoplastic A1 segment of the right Anterior Cerebral Artery (ACA) with compensatory flow from the left ACA through a hypertrophied intercommunicating artery; MRA otherwise unremarkable. Repeated pulmonary function tests were unchanged. Her liver was normal on CT.

**Discussion:** Given the propensity of capillary rupture in HHT, there was initial concern about the various impacting traumas associated with volleyball. However, the patient was cleared to participate. She has played competitively for several years without complications. Repeated imaging indicates no progression of the residual AVMs in her lungs, no new AVMs, no cranial manifestations, no previous or current GI bleeds, and all other tests within normal limits. The standard screening protocol for HHT1 is cranial, lung, and abdominal screening every 3 years. However, clearance required that she have biennial screenings.

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**Title:** Don’t Look Inside the Air Conditioning Unit: Legionnaires’ Pneumonia Complicated by Aspergillosis

**Authors:** Jonathan Wu, OMS-III (1), Christian R. Alvarez, M.D. IMG (3), Laura Ziton, D.O. (1,2)
Nova Southeastern University Kiran C. Patel College of Osteopathic Medicine (1), Broward Health (2), Universidad de Guadalajara Centro Universitario de Ciencias de la Salud (3).

**Introduction:** Legionnaires’ disease (LD) is caused by an aerobic, nutritionally fastidious, gram negative rod. Legionella organisms can be found in natural aquatic habitats, artificial sources, air conditioning units and compost. Transmission occurs via inhalation of aerosolized mist or aspiration of contaminated water. Incubation period is 2-10 days. Some risk factors are advanced age, smoking, and predisposing underlying condition. An estimated 8,000-18,000 cases of LD are reported in the U.S. each year. It’s the 2nd most frequent cause of severe pneumonia requiring ICU admission. In Florida in 2015, 306 cases were reported, 96.7% hospitalized, and 9.2% died; average incidence rate over the past 5 years has increased by 34.3%. Aspergillus spores are found in the environment indoors and out. Because aspergillosis is not a reportable infection in the United States, the exact number of cases is difficult to determine. Coinfection of Legionella and Aspergillus has been rarely reported.

**Case Description:** A 61 y/o African American female presented to the ED with a 3-day history of diarrhea, vomiting, fever and chills was initially diagnosed with viral gastroenteritis and discharged. Three days later, she was transported by EMS to the ED because of reported “heart racing”, dizziness and shortness of breath. HPI was significant for a report of working with a friend in attempt to fix her home A/C unit 2 weeks prior which involved partial disassembly of the unit. Medical and social history remarkable for glucose intolerance, and employment as an administrative manager for Waste Management. She had >20 pack year cigarette use.
Patient presented in SVT with a rate of 180 bpm and respiratory insufficiency. Initial labs revealed WBC 13.80, K 6.5, AST 125, ALT 100, and CXR with right pleural effusion. The following day, urine antigen study for Legionella was reported positive. Subsequent CXR revealed severe bilateral pulmonary infiltrates. Heart rate control was achieved rapidly with IV B-blockers but she subsequently experienced episodes of paroxysmal atrial fibrillation. Patient rapidly developed fulminant respiratory failure complicated by ARDS and was intubated. IV antibiotics of Azithromycin and Levofloxacin were initiated. A trial of corticosteroids was initiated on Day 13, and dose was doubled on Day 20. On Day 17, patient was extubated but reintubated on Day 21 due to hypoxia, tachypnea and copious secretions complicated by dysphagia. On Day 30, Aspergillus non-fumigatus was noted on repeat sputum culture and Voriconazole 200 mg IV q12h was initiated. Patient was unable to be extubated, yet stabilized and transferred to a long-term acute care facility for continuation of IV therapy and respiratory rehabilitation.

**Discussion:** The index of suspicion for Legionella should be elicited by patient history of gastrointestinal symptoms and fever followed by respiratory complaints. Early screening and identification of this organism is essential for prompt treatment and potential avoidance of fulminant disease. Furthermore, repeat sputum cultures of ventilator dependent individuals receiving IV corticosteroid treatment is essential for identification of complicating fungal infections.
**Title:** Cri du Chat Syndrome: A Case Study on Development and Therapies

**Author:** *Shelley Xu, OMS-III, **Katiana Garagozlo, M.D., PGY-II, *Cyril Blavo, D.O., MPH & TM
* Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine; **Broward Health Pediatric Medicine Residency Program.

**Introduction:** Cri du Chat syndrome, French for “Cat Cry Syndrome”, is a rare genetic syndrome affecting 50-60 Americans per year. It is caused by a deletion of genes on the short arm of chromosome 5. This syndrome is characterized most notably by a cat-like cry during infancy, a range of dysmorphic facial features, and varying degrees of intellectual and developmental delays that place the children on the autistic spectrum. Although there are rare instances of autosomal dominant inheritance, Cri du Chat syndrome is rarely inherited and does not seem to be associated with a particular ethnicity, culture, or location.

**Case Presentation:** We present a 5-year-old boy, presents with facial dysmorphism, including microcephaly, micrognathia, epicanthal folds, and low and posteriorly set ears. He has a high-pitched voice and speaks softly, but has no oral deformities. He also presents with muscular hypotonia, especially in his lower extremities, which affects his gait. At 5 years he has the physical and cognitive development level of a two-and-a-half-year-old child.

Born to a 24-year-old G3P3 mother with no significant medical history, via a spontaneous vaginal delivery at 32 weeks gestation, the child weighed 4 pounds at birth. The physical assessment at birth revealed microcephaly, micrognathia, and dysmorphism. He was admitted to the neonatal intensive care unit for genetic evaluation. His grandmother first noticed his unique cry on his third day of stay and described it as a “newborn kitten”-like cry. Chromosomal microarray (CMA) confirmed presence of terminal deletion at 5p with a breakpoint at 5p14. He was subsequently diagnosed with Cri du Chat syndrome.

Prenatal care was routine and included the use of prenatal vitamins and close follow up with her obstetrician. However, the course of the pregnancy was significant for premature contractions at 7 months, which resulted in a hospital admission for observation. At this admission, the mother underwent routine ultrasound screening which described the fetus as small for gestational age. The family undertook genetic testing when the child was 3.5 weeks old. Genetic counseling records report that his mother has 2-3 syndactyly, and a maternal second cousin has developmental delay and behavioral problems. He has one 8-year-old brother and one eleven-year-old sister who are both healthy and do not have any genetic issues.

The child is attending physical therapy to strengthen his gait and posture, and has been playing with Legos for many years to improve his muscle tone and dexterity. He is seeing an occupational therapist to assist him with adapting to his surroundings. Special education classes at school include sign language to assist him with self-expression and linguistic development.

**Discussion:** Cri du Chat syndrome is a congenital disorder without any known prevention strategy. Nevertheless, early rehabilitation through speech therapy, physical therapy, and special education have proven to be beneficial. Rehabilitation is most successful when the family is supportive, involved, and works consistently with a specialized healthcare team.

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**Title:** IgA vasculitis in a Plaque psoriasis patient on Humira

**Authors:** Natalie Yanes, D.O., Robert DiGiovanni, D.O., Rakhee Shah, D.O.
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**Introduction:** Immunoglobulin A vasculitis (formerly Henoch schonlein purpura) is a systemic vasculitis characterized by palpable purpura, abdominal pain, arthritis, and renal disease. It is less common in adults and has a male predominance. The renal involvement has been found to be more prevalent in adults.

**Case Description:** Patient is a 50 year old Caucasian male with a past medical history of plaque psoriasis on Humira 40mg SQ q 2 weeks and hypertension who presented to the hospital with a 10 day history of petechiae, palpable purpura, and hemorrhagic bullae of the lower extremities. He initially developed the rash while on vacation in Hawaii. He denied any URI symptoms. Dermatology obtained wound cultures which showed heavy growth of group b streptococcus and a punch biopsy was obtained. He was started on Clindamycin and the Humira was held. The rash was spreading up to the trunk and he was developing areas of central necrosis. He also developed joint pain and swelling of the wrists followed shortly afterwards by abdominal pain. Labs revealed negative ANA, normal complement levels, IgA was mildly elevated at 413, ASO elevated at 653, RF screen negative, cryoglobulins not detected, hepatitis panel negative, dsDNA negative.

He was started on Indomethacin with complete resolution of the joint pain. The abdominal pain was attributed to constipation as he had relief with bowel movements. Due to the group B strep he was seen by ID who started him on IV cefazolin and clindamycin with conversion to oral clindamycin upon discharge. The skin biopsy results returned with leukocytoclastic vasculitis with vascular deposition of IgA and C3. The patient was hesitant to take steroids and was managed conservatively.

After discharge the patient followed up with Rheumatology, Dermatology, Nephrology, and Gastroenterology. The petechiae, purpura, and hemorrhagic bullae completely resolved. He had no recurrence of the joint pain or abdominal pain. In the hospital it was noted that he had moderate hematuria on urinalysis. Urinalysis done on FU demonstrated hematuria and proteinuria. The patient then developed nephrotic range proteinuria and LE edema. He underwent kidney biopsy which showed IgA dominant glomerulonephritis, focal proliferative type, most likely an expression of HSP. His renal function was deteriorating and he was started on prednisone 60mg daily.

**Discussion:** Although the patient had a group b streptococcus skin infection this is believed to have been a superimposed infection and not the trigger. There are case reports linking Humira to HSP which is the potential trigger in this case.
Magnetic Resonance Imaging Myelogram for the Diagnosis of an occult Cerebral Spinal Fluid Leak in the Thoracic Spine

Authors: Yi Yang, M.D., M.P.H., Kevin Carr, M.D., Yafell Serulle MD, PhD, Ravishankar Shivashankar, M.D.
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Introduction: In patients with occult cerebrospinal fluid (CSF) leaks or CSF leak syndrome, orthostatic headaches are a common presenting symptom. The MRI myelogram is an underutilized diagnostic tool in the evaluation of these patients. Similarly, for a subset of patients within this cohort, particularly those with meningeal diverticula or prior neurological trauma, MR myelography can be an integral tool for diagnosis. Historically, the CT myelogram or radioisotope cisternography has been the imaging modality of choice. This is compounded by the fact that intrathecal gadolinium administration is an off-label use for imaging purposes thus making MR myelography an under-utilized technique.

Small retrospective series demonstrated that MRI brain with IV contrast alone is on par with CT myelogram and that MR myelography is on par with radio-isotope cisternography in the diagnosis of occult CSF leakage. Furthermore, multiple small retrospective and prospective studies suggest that the increased neural soft tissue contrast provided by MR myelography can provide superior detection, localization, and post-blood patch evaluation of these leaks, making it a superior diagnostic and monitoring tool. Nonetheless, this technique continues to be underutilized. We present the case of a headache sufferer for which the MR myelogram diagnosed CSF leakages at multiple sites.

Case Description: Our patient is a 38-year-old male who presented with a 2-month history of orthostatic headaches. Initial clinical work up including CSF serology and CT imaging of the brain were non-confirmatory. Follow-up MRI of the brain demonstrated T1 pachymeningeal hyperintensity and a diagnosis of meningitis was made. After unsuccessful treatment, further MR imaging of the spine demonstrated epidural T2 hyperintensity along the paraspinous muscles. These findings were suspicious for a CSF leak, and as such an MR myelogram was used to accurately diagnose leakages at T4 through T8. He was then treated with image guided blood patching.

Discussion: When there is high suspicion but no confirmatory evidence of spontaneous intracranial hypotension on initial work up, MR myelogram is an accurate diagnostic tool to detect and localize CSF leaks.

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Medulloblastoma and the Importance of Taking a Detailed History and Physical Exam.

Authors: Zhao Zhang, M.S., Joseph Wirth, M.D.

Introduction: Medulloblastoma is the most common malignant brain tumor in the pediatric population, making up 20% of all pediatric brain tumors. They can occur in both children and adults, although greater than 70% of cases occur in children less than 18 years of age. Medulloblastomas are considered high-grade embryonal tumors based on histology and cell of origin, and have historically been grouped with other embryonal tumors under the category of primitive neuroectodermal tumors (PNET). Medulloblastomas are noninvasive yet rapidly growing tumors and unlike most brain tumors, Medulloblastomas spread through the cerebrospinal fluid and frequently metastasize to different locations along the surface of the brain and spinal cord. Metastasis down to the cauda equina at the base of the spinal cord is termed “drop metastasis”.

Case Report: An 11-year-old male patient and his father present to the pediatrician with intense right knee pain and suspected leg fracture. His father states that his son fell while playing and possibly suffered a leg fracture and requests a referral to see an orthopedic surgeon. The pediatrician, suspicious of how the fracture occurred, decides to take a detailed history of the child while reviewing his past medical history. The child was born full term at 40 weeks by normal vaginal delivery from a gravida 1, para 1 mother with no significant past medical history and without any complications. APGAR score was 8 and 10 at 1 and 5 minutes respectively. Past medical history and family history is noncontributory. On physical exam he is alert, oriented and in no acute distress. Vital signs are within normal limits. Upon questioning on how the boy fell, he stated that he had a sudden and complete loss of muscle strength and subsequent foot drop, which caused him to trip and hurt his leg. The child also admits to having experienced blurry vision of recent onset as well as flu-like symptoms and nausea, having vomited once in the morning despite having a good appetite. He then mentions that within the last 2 weeks he has had a headache that has progressively worsened. He also says that there was another instance in which his left leg suddenly gave out in the morning upon awakening, causing him to fall, but did not sustain any significant injuries so he never ended up seeing a pediatrician until now. Thinking that the etiology of the foot drop might be central and neurologic in origin, the pediatrician performed a series of neurologic exams on the child, which included walking in a straight-line heel to toe, Romberg test, and alternating finger to nose test, all of which was failed by the child. Deep tendon reflexes were +4 bilaterally for both patellar and Achilles. Eye exam showed decreased peripheral vision bilaterally with papilledema and optic nerve edema. These findings prompted the pediatrician to order labs and images including a stat MRI of the brain with contrast, which revealed a mass in the posterior fossa. Upon biopsy, a diagnosis of medulloblastoma was made.

Discussion: This case illustrates the importance of taking a detailed history and not missing the true etiology of what caused the child’s leg fracture.

Rapid identification of large ovarian cyst with point-of-care ultrasound

Authors: Sean Zhao, M.D., Huy Tran, M.D., Isaac Azar, M.D., John Childress, M.D.
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Introduction: In the US ovarian cancer accounts for approximately 3% of all cancer in women. It accounts for the second highest incidence among
all gynecologic malignancies\(^1\) and is responsible for the most deaths of any gynecologic cancer. One of the reasons underlying these startling statistics lie in the insidious onset of non-specific symptoms that predisposes to delayed diagnosis and care. Risk factors include older age, white, +BRCA, infertility; decreased risks include OCPs, breastfeeding, multiparity, salpingo-oophorectomy, and tubal ligation.\(^2\) We present a case of a 40-year-old female with a two month history of abdominal pain due to a large adnexal mass, identified with point-of-care ultrasound in the emergency department.

**Case:** 40 year old female G1P1 presented to the ED with diffuse, sharp, intermittent, lower abdominal pain over the past 2 months. Pain increased in severity over the past 3 days, and worsened with movement. This was associated with constipation, abdominal bloating, and early satiety. She denied dysuria, vaginal discharge, abnormal bleeding, or known ovarian cysts.

Vitals: afebrile, within normal limits aside from mild tachycardia (105 bpm). On exam, the patient was in no acute distress. Abdomen was soft, mildly distended with LLQ tenderness without guarding or rebound. CBC, CMP, and urinalysis were unremarkable.

A transabdominal point-of-care ultrasound performed revealed a large cystic structure with septations and internal echoes which encompassed the entire anterior abdomen. (Fig 1) This prompted a CT of abdomen and pelvis which revealed a 26 x 11 x 23 cm large complex solid and cystic right adnexal mass highly suspicious for ovarian/gynecological malignancy. (Fig 2) The mass effect led to moderate right-sided hydronephrosis. Due to the large size, mass effect, and concern for malignancy, it was recommended the patient be admitted for further work-up and treatment, but she left against medical advice. She was later re-admitted for subsequent management at a later date after having been seen by an outside gynecologist.

**Discussion:** Ovarian cancer can present with chronic, vague symptoms, with a relatively benign exam. It is imperative to recognize specific ovarian ultrasonographic patterns concerning for malignancy including increased wall thickness, septa, large size, irregular morphology, and presence of flow. Emergency physicians should also recognize malignant ovarian characteristics and perform adjunctive imaging with appropriate follow up. The most predictive morphologic finding for malignancy was a solid mass with centrally located flow.\(^2\) Thus, point-of-care ultrasound should be considered as an initial imaging exam when considering ovarian pathology as an etiology.

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**Title:** Evaluation of the TeleStroke/Vascular Neurology Clinic in Rural Minnesota

**Author:** Crystal Acosta, OMS II, Sarah Zastrow, RN, Deborah Loer, PhD, Nicole Cook, PhD

**Background:** Access to post-stroke neurological care in rural areas can be difficult to obtain due to distance, weather, patient disability and other factors. A needs assessment on access to stroke care was performed in CentraCare Health’s service area in rural Minnesota in 2015. The needs assessment demonstrated that CentraCare’s service area had about 6% more senior citizens residing in their service area counties than the state average. Several gaps in care were also identified including lack of education on post stroke care and difficulty commuting to the closest stroke center. In response to this need, CentraCare Health developed a Telestroke/Vascular Neurology Clinic in 2016, with support from a HRSA Rural Health Care Services Outreach Grant.

**Objective:** The objectives of this study were to evaluate Telestroke/Vascular Neurology Clinic in terms of 1) patient experience, 2) patient health outcomes (quality of life and measure of disability), 3) readmission rates and, 4) identification of promising practices and opportunities for programmatic quality improvement.

**Methods:** Data used in the evaluation included (1) distribution and analysis of a patient experience survey, 2) administration and analysis of the Ferrans and Powers Quality of Life Index Stroke Version-III and a modified Rankin Scale, 3) analysis of hospital readmissions rates, 4) information collected from stakeholder and key staff via semi-structured telephone interviews. Analyses included descriptive and inferential statistics (paired t-test) and development of a SWOT analysis.

**Results:** The data that was gathered suggests that patients view the Telestroke/Vascular Neurology Clinic to be a positive experience and out of the 23 patients surveyed, 87% felt that the quality of care they received was as good as a face-to-face visit. The patient quality of life and degree of disability scales showed a statistically significant change from baseline to the 6 months follow-up with improvements in both quality of life and degree of disability. Readmission rates were lower for patients using the program (6.8%) than for other patients not enrolled (8.9%). The SWOT analysis of key stakeholder interviews also identified several opportunities for future expansion of Teleneurology.

**Conclusion:** In summary, the Telestroke/Vascular Neurology Clinic demonstrated that patients had a high degree of satisfaction with their TeleNeurology experience and had a significant improvement in their quality of life and degree of disability. Patients also had lower readmission rate compared to other patients. Though some challenges were identified, the program was very acceptable to collaborating providers. Overall, this study confirms the importance of providing alternatives for patients in rural areas in order to reduce barriers to accessing care.

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**Title:** Normative Values for Inter-Hand Tissue Dielectric Constant Ratios with Possible Applications in Post Mastectomy Lymphedema

**Authors:** Evelina Arzanova, OMS-II, Samar Eisa, OMS-II, Scarlett Somarriba, OMS-II, Harvey N. Mayrovitz, Ph.D., College of Medical Sciences, NSU

**Background:** Early detection and tracking of lymphedema that develops in some women after breast cancer related treatment is facilitated by the use of tissue dielectric constant (TDC) measurements since TDC values are highly dependent on localized skin water. In practice, detection assessments are done using inter-arm differences or ratios that, when exceeding specified thresholds, are suggestive of lymphedema. Changes in status can also
be tracked using these ratios. However, in contrast to the availability of inter-arm TDC data that may be used for threshold ratios for at-risk arms, there is little information regarding inter-hand TDC ratios that are needed to estimate thresholds for at-risk hands.

**Objective:** The specific aim was to determine normative inter-hand TDC ratios from which lymphedema at-risk ratios could be estimated in both young and mature women.

**Methods:** After signing an IRB approved consent, 70 women (35 YOUNG and 35 MATURE) participated. YOUNG were <30 years (18-29, 25.1 ± 2.2) and MATURE were ≥ 50 years (50-87 years, 67.3 ± 9.9 with all data shown as mean ± SD. MATURE had a greater body mass index (BMI) than YOUNG (28.9 ± 5.4 vs. 23.7 ± 3.7, p<0.001). Inclusion required there be no history of hand or arm trauma or edema and no skin condition of the hand area. All but three were self-reported right-handers. Measurements were done with subjects’ supine on a padded examination table with arms side-resting palms down. A site on each hand dorsal within and near the middle of the web space was marked and TDC was measured in triplicate with the TDC-device placed in contact with the skin for 6-7 seconds. A built-in pressure sensor allowed for reasonably consistent applied pressures to be achieved.

**Results:** Results show that hand dorsum TDC values of MATURE women are less than YOUNG women on dominant hands (36.7 ± 9.2 vs. 42.7 ± 9.0 p<0.008) and also on non-dominant hands (35.5 ± 8.4 vs. 42.0 ± 8.2, p<0.002). These differences represent 14.1% reductions in TDC for dominant hands and 15.1% for non-dominant hands. Despite these differences in absolute TDC values between age groups, the dominant to non-dominant TDC ratio did not differ between YOUNG vs. MATURE (1.017 ± 0.109 VS. 1.035 ± 0.090, p = 0.452). The overall mean of the normally distributed ratio was 1.026 ± 0.100. For this distribution a plausible conservative reference threshold TDC ratio, above which would suggest hand lymphedema, is its mean value plus 2.0 SD which equals 1.226 and can be rounded to 1.23. For the presently measured values no subject’s ratio exceeds this value and only one subject (1.4%) has a ratio greater than 1.200.

**Conclusions:** The aim of this research was to provide normative inter-hand TDC ratios for subsequent use to detect and possibly track hand edema or lymphedema using tissue dielectric constant measurements. Based on the present measurement set, the inter-hand TDC ratio seems to be a useful parameter. The threshold ratio suggested (1.23) is somewhat arbitrary since no measurements have as yet been prospectively made on lymphedematous hands to verify its efficiency. Although follow-up research measuring lymphedematous hands is needed, the present reference measurements provide a framework for this to move forward in both clinical and research settings.

**Title:** Correlation between abnormal pap smears and CD4 counts in women with HIV

**Author:** Jamie Bolduc, PGY-1, Elizabeth Phillipe, MD, Divy Mehra (M2 DO student), Nicole Cook, PhD
Family Medicine Residency Program, CHI

**Background:** Women with HIV are at a greater risk for precancerous/cancerous conditions and warrant more frequent screenings. For cervical cancer, the general screening age for pap smears starts at age 21 until 65, but women with HIV are recommended to continue screening throughout their lives. Due to the increased risk of cervical cancer among women with HIV, practice guidelines recommend that providers begin cervical cancer screening within one year of women with HIV initiating sexual activity, or within the first year of HIV diagnosis if already sexually active. If the cytology is normal, then the recommendations are to repeat the exam in one year, as opposed to the recommended three years in the average woman. If there are three consecutive normal pap smears, then providers can move to a three years cervical cancer screening interval. Women with negative cytology but positive HPV are treated as with the general population. Women with low-grade squamous intraepithelial lesions (L-SIL) or worse are referred for colposcopy. Those with atypical squamous cells of undetermined significance (ASC-US) and positive HPV are also referred for colposcopy. A repeat cytology should be done in 6-12 months. The guidelines for HPV vaccination in HIV patients in similar as in the general population. Although we know that women with HIV have increased risk for cervical cancer, there is no know association between the abnormal pap smears and CD4 counts in these patients.

**Objective:** The objective of this study is to examine the association between abnormal pap smears and CD4 counts in women with HIV to determine the degree to which the progression of HIV results in increased incidence of cervical cancer in these women.

**Methods:** This study was designed as a cross-sectional study and will use data from an electronic health record at a large Community Health Center in Miami serving underserved women. The study will include all women with a known HIV diagnosis and those that have had a Pap smear between the ages of 21 through 65. The inclusion criteria for this study will include 1) Women with HIV who had at least two encounters in the clinic in the past year. 2) Women with a recorded pap smear in the clinic in the past year. Only women who have a recorded CD4 count in the past year will be included. Descriptive data and inferential statistics (T-test) will be conducted to determine associations. Study results will be stratified by race and ethnicity to determine if the association is greater among some subgroups.

**Results:** There were 170 women between the ages of 21-60 who had at least two visits for care between August 1, 2018 to July 31, 2018. CD4 data for these women are currently being extrapolated from the electronic health record system and will be made available to the study team for analysis prior to the poster presentation on November 9, 2018.

**Conclusion:** The study will help reinforce current clinical guidelines among CHI providers and encourage aggressive cervical cancer screening in women living with HIV for early detection and management of cervical cancer.
Title: Assessing Knowledge of HIV Post Exposure Prophylaxis Protocol Among Healthcare Workers

Authors: Eric Copeli MD, Pavel Antonov MD, Tony Zitek MD, Antoinette Golden MD, Kendall Regional Medical Center Emergency Medicine Residency

Background: HIV Post Exposure Prophylaxis has guidelines set by the CDC regarding step-by-step approach to bodily fluid exposure in the hospital setting and how to treat such exposures. We wanted to assess knowledge of healthcare employees at Kendall Regional Medical Center (KRMC) regarding key steps in post-exposure treatment.

Objective: The objectives of this study were to assess baseline knowledge of KRMC healthcare works, to educate them on the current process in place, and to re-evaluate their knowledge after educational intervention.

Methods: A one page, six question survey was used for the pre- and post-intervention survey along with an infographic and several educational emails. The study population were onsite healthcare employees at KRMC and included Attending Physicians, Nurses, Nurse Practitioners, Physician Assistants, Residents, and Unit Assistants. During a one month time period, potential participants were approached by convenience sample throughout the hospital. Following, pre-intervention survey completion, a series of emails by the HR department regarding HIV PEP protocol were disseminated to hospital employees. Large infographic posters were placed in front of the cafeteria, all nursing stations, physician work rooms, and resident call rooms for three months. Employees were then administered post-intervention surveys during a one month period.

Results: There were statistically significant increase in mean scores for questions 1, 3, and 4 in the post-survey analysis. In extremes of experience, those with 0-3 years had a statistically significant increase in mean scores for questions 3 compared to those with more than 10 years of experience.

Conclusion: The results of this study suggest that interventions involving an infographic and email reminders may lead to an increased knowledge of HIV post-exposure prophylaxis among KRMC employees. Similar interventions in the future may lead to increased knowledge of newly implemented protocols in the hospital.

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Title: External Demands of Manual Wheelchair Propulsion

Author: Barbara Dominguez1, 2, Rachel Cowan3
1Dr. Kiran Patel College of Osteopathic Medicine, Nova Southeastern University, Davie, FL
2The Miami Project to Cure Paralysis, Miller School of Medicine, University of Miami, Miami, FL

Background: Manual wheelchairs have low mechanical efficiency, which increases the amount of power required from the user during propulsion. The increase in external demand during propulsion causes a physical strain on the upper extremities, which is linked to shoulder pain pathology, and ultimately impairs mobility and independence. The focus of this study is to determine what characteristics of the user and wheelchair interaction can be modified to improve external demands of manual wheelchair propulsion.

Objective: We aim to 1) define the nature of the relationship between velocity and external demand. 2) determine if this relationship changes when increasing surface rolling resistance and slope, 3) determine if manual wheelchair characteristics and/or user’s physical characteristics affect external demand and if this effect interacts with surface rolling resistance and surface slope. We hypothesized that 1) external demand will increase as propulsion velocity increases, 2) rolling resistance and slope will increase the external demand during manual wheelchair propulsion, and 3) weight of user and caster size will impact the external power output of manual wheelchair propulsion.

Methods: Nineteen adults with spinal cord injury and limited shoulder pain completed the protocol (4 tetraplegia and 15 paraplegia, Mean Age= 38 +/- 2, Mean years post injury= 14 +/- 3). We documented the following independent variables: user-wheelchair system total mass (kg), anterior mass (kg), posterior mass (kg), caster width (inches) and caster diameter (inches). The participant’s personal manual wheelchair was modified; the rear tires were replaced with a measurement wheel. Propulsion was tested on tile, carpet, and ramp (5% grade). Average power output and average velocity during propulsion on the three surfaces was extracted from the measurement wheel. The velocity-power output relationship on each surface was fitted with curve. Each of the 5 independent variable was split into two groups. For each variable, an ANCOVA assessed the main effect and surface interaction, controlling for velocity.

Results: The relationship between velocity and external power output is curvilinear on all three surfaces. At a speed of 1 m·s⁻¹ the external demand was 3.5W on tile, 10.4W on carpet, and 19.87W on 5% grade ramp. Controlling for velocity, the main effect for total weight, anterior weight, and posterior weight was not significant (all p>0.10). Main effects for caster diameter and width were significant (both p<0.05). External demand is lower with smaller diameters and narrower casters. The difference between small and large diameters (≤4 vs ≥4.5in) is 3W and narrow/wide (≤4 vs ≥4.5in) is 6W.

Conclusion: The effects of caster width and diameter are clinically relevant as a larger or narrow caster reduces external demand on surfaces with high rolling resistance, therefore reducing strain on upper extremity during propulsion and preventing shoulder pain pathology.

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Title: Anti-Tuberculosis Infection Treatment Using Direct Observed Therapy and Evaluation (ANTIDOTE) Project

Authors: Peter Edemekong MD, MPH, PGY-3; Manuel Lorenzo Hurtado, Ryan Burke MPH; Wanda Frazier MPH, Giselle Bedasse MSPH; Robert Parkes MD, MPH, Alina Alonso MD
**Background:** Treatment of Latent tuberculosis infection (LTBI) is critical to the control and elimination of tuberculosis disease in the United States. Prior to 2011, the standard therapy for LTBI was Isoniazid (INH) for 9 months or Rifampin (RIF) for 4 months. However, in 2011, the CDC recommended a short-course combination regimen of once-weekly INH and rifapentine (RPT) via Directly Observed Therapy (DOT) for 12 weeks. The Anti-Tuberculosis Infection Treatment Using Direct Observed Therapy and Evaluation (ANTIDOTE) Project assessed the percentages of completion of LTBI treatment by treatment regimen (INH, RIF and INH/RPT) and identified potential risk factors that influenced treatment completion for a high risk population of refugees and immigrants seen at the Florida Department of Health in Palm Beach County clinics.

**Methods:** A retrospective cohort study was conducted on all refugees and immigrants reported to Florida Department of Health in Palm Beach County via the Electronic Disease Notification (EDN) System having a B2 condition (Latent Tuberculosis Infection) from January 1, 2015 to June 30, 2018.

**Results:** 128 refugees and immigrants were included in the study. Using an intention-to-treat model, the completion percentages for each treatment regimen were: INH alone 23.53%, rifapentine alone 77.38%, INH/RPT 60.00%. Controlling for age, sex, race, and country of origin, study participants were 3.46 times more likely to complete rifapentine treatment when compared to INH (95% CI 1.92-6.23, p<0.001). Controlling for the same confounders, study participants were 2.52 times more likely to complete INH/RPT treatment when compared to INH (95% CI 1.13-5.62, p=0.0234).

**Conclusion:** Through the ANTIDOTE Project, the Florida Department of Health in Palm Beach County has initiated a shift in preferred LTBI treatment regimen from INH to INH/RPT. However, the findings suggest that RIF for 4 months may be just as likely for treatment completion as INH/RPT. The second phase of the ANTIDOTE project will require further analysis to determine which regimen, RIF for 4 months or INH/RPT for 12 doses, is more effective in preventing progression from LTBI to TB disease, in our patient population.

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**Title:** Physiological Effects of Eccrine Gland Activation on Skin Tissue Dielectric Constant

**Authors:** Benjamin Eisenman, OSM-II, College of Osteopathic Medicine
              Harvey N. Mayrovitz, PhD, College of Medical Sciences

**Background:** Skin TDC values are usually measured using the open-ended coaxial transmission line method. At the normally used frequency (300 MHz) the TDC value, which is in effect the real part of the complex permittivity, is mainly dependent on skin water (free and bound). TDC measurements are noninvasive and require simple touching of the skin with a suitable probe for a few seconds to obtain a measurement. This method has been used to assess skin properties and there change in variety of conditions including diabetes, edema and lymphedema. However, because this is a skin-related measurement that includes within its measurement volume eccrine glands it is important to have an estimate of the impact of eccrine gland activation on the measured TDC value. There is essentially no information on this issue. In fact, the effect of eccrine glands and their activation on TDC values is unknown.

**Objective:** To examine and clarify the potential role of eccrine gland activation on the tissue dielectric constant (TDC) measure on skin.

**Methods:** Major factors whereby eccrine glands may affect TDC values have been investigated and methods for experimental assessment of the likely dependency has been formulated.

**Results:** Whole body has approximately 4 X 10^6 eccrine sweat glands with the forehead containing 360 ± 50 /cm^2 and forearm 225 ± 25 /cm^2. Eccrine tube length and diameter are on average 5mm and 0.02-0.05mm respectively. Sweat is composed of 99.0-99.5% water with about 75 Mm Na+ and Cl- thus is likely to affect TDC values in a pore-density and activation state dependent manner. Pilot measurements on forehead and forearm suggest that heat-induced sweating can elevate TDC-measured estimates of tissue water by as much as 30% and possibly more. To relate such changes to pore-density a method to measure pore-density is needed and is being developed along with a mathematical model to assess the possible range of effects. The model being developed considers the eccrine glands as an added parallel inclusion within the tissue and calculates the effective dielectric constant as a function of simulated eccrine density. Such calculations are then to be compared with measured TDC values of skin that has had its eccrine glands activated via whole body heating.

**Conclusion:** The amount and content of activated eccrine glands appears to have the potential to impact TDC values. The significance of this fact lies in the way such activation may confound TDC measurements aimed at detecting and tracking edema or lymphedema or other conditions. Our future research focus is thus to fully develop both the analytical and experimental procedures to better characterize the impact range of such eccrine gland activation on measured TDC values.

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**Title:** Robotic Transhiatal Esophagectomy: THE only approach

**Authors:** Vladimir Faustin, OMS-II, MS; M.D. Gonzalez; Michelle Demory Beckler, PhD; A.S. Rosemurgy, M.D.

**Introduction:** As minimally invasive operations become increasingly prevalent, the advantages and possible risks of new operative techniques should be further investigated, especially those involving a robotic approach. This study was undertaken to examine our results with robotic transhiatal esophagectomy (THE) and to compare our results with those predicted by the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) online surgical database and the national averages reported by NSQIP.
**Methods:** Since the institution’s first robotic THE, patients were followed with IRB approval. Using NSQIP data for patients undergoing THE 2012-2018, we compared the operative data from our institution to the calculated predicted values and the national averages. For illustrative purposes, data are expressed as median, mean ± SD, where appropriate. Data are presented using 2 by 2 contingency tables, with significance being accepted at p<0.05.

**Results:** 45 patients underwent robotic-assisted THE 2012-2018, 62% of which occurred from 2015-2018. 6 (13%) patients had conversions to ‘open’ operations, commonly due to failure to progress (often due to morbid obesity or vascular involvement); 0% of the last 25 robotic operations were converted to ‘open’. Robotic operations took 330, 355±107 minutes; estimated blood loss was 200, 223±144 mL. Our institution had no patients return to the O.R., which was statistically better than the predicted and NSQIP outcomes (0% vs 13.6 vs 12.9%, p<0.05). There was, however, a statistically higher readmission rate in our institution when compared to the predicted outcomes. Only 1 (2.2%) patient died within 30 days of the operation, due to cardiac arrest.

**Conclusions:** Our patients undergoing robotic THE are comparable to patients reported by NSQIP. Predicted outcomes were consistent with NSQIP data, except in discharge to nursing or rehab (Table). Actual outcomes did not differ significantly from those predicted or reported by NSQIP (e.g., serious complications, any complications, pneumonia, cardiac complication, surgical site infection, UTI, venous thromboembolism, renal failure, length of stay, death, and discharge to nursing or rehab) (Table). While debate persists regarding robotic adequacy, we believe the robotic approach is the future of THE.

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**Title:** The Relationship between Cognitive Work Load and a Power Ratio of Frontal Theta over Parietal Alpha Brain Waves

**Author:** Alex Fleischhacker, M2; Tyler Seidman, M4; Raymond Ownby, MD, NSU Department of Psychiatry and Behavioral Medicine

**Background:** Cognitive effort is associated with the production of characteristic EEG frequencies in the brain. Subhani, Xia, and Malik (2012) suggested that an increasing power ratio of frontal theta over parietal alpha would be an effective tool for the measurement and prediction of cognitive work load. The aim of this study was to demonstrate a frontal theta over parietal alpha power ratio increase during a pursuit rotor visual-motor task and evaluate the performance of this diagnostic test using an ROC analysis.

**Objective:** The objective of this study is to determine the relationship between cognitive work load and a power ratio of frontal theta over parietal alpha brain waves.

**Methods:** Eight individuals’ EEGs were recorded in a resting state before as well as during the pursuit rotor task. Emotiv Epoc+ 14 was used to extract EEG data with absolute values in each frequency band (alpha=8-13 Hz; theta=4-8 Hz) over time. The frontal theta over parietal alpha power ratio was calculated in SPSS 24. This ratio’s ability to detect the difference between resting and visual motor task periods was evaluated through ROC analysis.

**Results:** A significant difference between resting and visual motor task EEG frequency spectra were detected for the frontal theta over parietal alpha ratio, frontal gamma, high beta, and theta waves. Area under the curve ROC values were .545, .57, .475, and .375 for these waves respectively.

**Conclusion:** The results suggest that power spectra can be used to discriminate cognitive states, however the quality of our measurement was modest. Future research should investigate higher quality measures of cognitive workload.

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**Title:** Skin Tissue Dielectric Constant of Women Participating in a Weight Loss Program

**Authors:** Jessica Forbes OMS-II, Adithi Venmuri OMS-II, Harvey Mayrovitz PhD, College of Medical Sciences, Department of Physiology

**Background:** Tissue dielectric constant (TDC) measurements at 300 MHz are used to assess skin water and edema in a variety of conditions. This includes detecting and tracking breast cancer related lymphedema. Because these women have weight changes over time it is unclear what effect weight changes have on TDC. Since fat has lower water content than dermal structures we hypothesize that weight loss will cause an increase in TDC values.

**Objectives:** (1) To test this hypothesis by measuring TDC values at standardized arm sites in women prior to and during a structured weight loss program and (2) to determine if TDC changes within arm tissue are generalizable to upper body skin such as the face. The present report goal is to document TDC baseline values assessed prior to program start.

**Methods:** Women (38.4±12.4 years) enrolled in the FitandTrim Medical dietary and vitamin therapy program for weight loss were evaluated after signing an NSU approved consent. To date 12 women have been evaluated. TDC measurements were made with subjects seated using the non-invasive open-ended coaxial transmission line method (MoistureMeterD) using probes measuring to effective depths of 0.5, 1.5- and 2.5-mm on the medial forearm and biceps bilaterally. Measurements to a depth of 1.5 mm was done on the neck and on the face at the jowl and submental areas. Each measurement takes about 7 seconds after touching the skin. All measurements were in triplicate and averaged. Body composition features included total body fat percentage (39.5 ± 8.5%), total body water percentage (44.3 ± 6.1%) and extracellular to total water ratio (0.375 ± 0.008).

**Results:** TDC values were symmetric with respect to dominant (DOM) and nondominant (NDOM) sides with no statistically significant differences between DOM and NDOM sides (Wilcoxon, p>0.3). Baseline average TDC values (mean ± SD) at 1.5 mm depth at forearm, biceps, neck, jowl and...
submental area were 29.5 ± 2.6, 25.5 ± 1.9, 30.3 ± 3.0, 31.9 ± 4.2, and 32.0 ± 2.2. TDC values measured to a depth of 2.5 mm depth were significantly greater (p<0.001) than measured to a depth of 2.5 mm on forearm (29.5 ± 2.6 vs. 25.2 ± 2.0) and also on biceps (25.5 ± 1.9 vs. 21.4 ± 1.8).

Conclusions: These initial baseline findings are the first to quantitatively characterize TDC-related skin properties of women with initially well-elevated total body fat percentages. This finding alone contributes to our understanding of the way in which this type of body composition may impact skin tissue water. Moreover, they provide a framework for the evaluation of weight-loss related changes as time-sequential measurements on these participants progresses.

Title: Transcutaneous Electrical Nerve Stimulation (TENS) for back pain in the ED

Authors: Daniel Gable a; Clay Ritchey, MD b; Jason Wilson, MD, MA, FAAEM b; University of South Florida a; Tampa General Hospital b

Background: Low back pain related disorders were the cause of over 2.5 million visits to emergency departments in 2006 and 61% of medications prescribed to these patients were opioids (1). The potential for opioid addiction and overdose is well documented (2), and in an effort to reduce opioid dependence as well as better manage patient pain it has been hypothesized that TENS units could be employed as a possible treatment for patients presenting to the ED with back pain. TENS units were introduced over 30 years ago and have since become commonplace as a non-invasive and low risk treatment for acute and chronic back pain. They work by generating pulsed electrical currents that provide pain relief by stimulating alpha beta sensory fibers causing segmental desensitization (frequencies of at least 100 Hz) and stimulating alpha delta fibers which activates the periaqueductal grey and induces the descending inhibitory pathway (frequencies around 5 Hz) (5).

Methods: To determine the efficacy of TENS for back pain and whether any research evaluating TENS for back pain in the ED exists literature reviews were conducted through PubMed and the Tampa General Hospital (TGH) medical library with the search terms “TENS and back pain” and “TENS and back pain and Emergency Department”.

Results: 30 results were found for “TENS and back pain” through the TGH medical library and 401 through PubMed. Of interest were two meta-analyses, one of which evaluated TENS vs. placebo for chronic low-back pain and the other which looked at TENS for acute pain. Common themes throughout both were high risks of bias due to small sample sizes, unsuccessful blinding of treatment, and inconsistent administration of TENS preventing the establishment of a treatment protocol (4,6). Another article concluded that maximum efficacy requires a TENS dosing that elicits paresthesia but not pain (7). Two results were found for “TENS and back pain and Emergency Department” through PubMed, but only one was a study and it evaluated TENS use during emergency transport rather than within the ED. The results, however, were promising as they showed a reduction in pain for patients with acute low back pain.

Conclusion: Further exploration into the efficacy of TENS use for back pain in an ED setting is warranted because there is currently a knowledge gap as no published research has addressed this topic. Current research primarily evaluates TENS use for back pain in outpatient settings and has failed to establish the efficacy of such treatment or an ideal treatment protocol. TENS units can be variably calibrated by adjusting their frequency and intensity so determining the ideal settings as well as how often and for how long treatment is administered will be important variables to account for in future trials.

Title: Barriers and Motivating Factors Associated with Volunteering at Local Free Clinics

Authors: Ronak Gandhi OMS-III, Vishal Patel OMS-III, Dr. Brian McDaniel, MD, Dr. Nancy Hardt, MD

Background: The Equal Access Clinic Network (EACN) is a network of four student-run free clinics that operate through Gainesville, FL. The network provides an estimated 1900 primary care patient visits per year to the medically underserved populations of Alachua County, as well as over 10,000 hours of hands-on clinical experience every year for medical, pharmacy, physician assistant, physical therapy, occupational therapy, and pre-med students. Studies performed on EACN show its impact on local hospitals and suggest that Equal Access prevents about 500 unnecessary ED visits per year. Each of the clinic sites handle their own provider scheduling. Due to the lack of synchrony between the sites, many providers often receive redundant emails from multiple locations, and are asked to provide an added workload, which promotes physician burnout. This problem has been further exacerbated by the addition of new clinic sites which increase the demand for physician volunteers.

Objective: The purpose of this study is to better understand physicians’ perspectives on volunteering through EACN, particularly of the factors that motivate them as well as the barriers that inhibit them from volunteering.

Methods: An anonymous seven question online survey was distributed through the UF Health clinical faculty e-mail listerv to address which factors served to motivate physician volunteers, which they identified as being important, as well as those that discussed possible volunteer barriers. In response to the surveys, personalized e-mails were sent out to physicians in multiple departments in the UF Health Network to help identify the concerns about our clinics. These e-mails were sent to previous volunteer physicians and physicians who have never volunteered, personally asking them to volunteer at any of the clinics or spread the word to their respective department.

Results: With respect to the survey, there was an 11.22% response rate from UF Health faculty physicians. It concluded that the key motivating factor was the opportunity to give back to the community, and the largest barrier was a lack of familiarity with the clinics. Due to this low response rate, e-mails were subsequently sent to identify concerns. The results from the e-mails were analyzed based on categorized responses. They offered very poor response rates, in which 7.84% of physicians responded and 2.99% served as successes, indicating physicians signed up to volunteer at a
Conclusion: Based on the results, it became evident that there is a dire need for physician volunteers. This study served as an opportunity to offer insight into a topic with very little available literature, and provided a means towards “actionable” results that could improve future recruitment efforts not only for EACN but other free-clinics as well. Moving forward, efforts to improve and streamline recruitment, including a website for proper scheduling, and advertising through presentations and distribution of flyers, should be more strongly utilized. In addition, expansion to PA and NP providers should be investigated, as well as moving outside of the UF Health Network.

**Title:** Relationship between Sleep quality and Pain in female patients with Myalgic Encephalomyelitis (ME)/Chronic Fatigue Syndrome (CFS)

**Authors:** George-Palop MD, Monica (1); Varona Berdia MD, Aurelio (1); Sanchez Artiles MD, Angel E (2); Fuentes MD, Sady (1); Ruiz-Conejo MD, Maricel (1).

(1) Palmetto General Hospital; (2)Florida Atlantic University Charles E. Schmidt College of Medicine

**Background:** Reduced sleep quality is a common complaint among patients with ME/CFS that suffer from pain. Research aimed at delineating the predictors of poor sleep has produced results describing pain severity as one of the most frequently encountered predictors. It has been suggested that sleep disturbance in patients with pain may increase pain sensitivity and create a self-perpetuating cycle of sleep disruption and increased pain.

**Objective:** To examine whether ME/CFS female patients suffering from pain differed from healthy control subjects who had no pain on subjective sleep quality measures.

Participants and Methods: This study is a retrospective longitudinal cohort type study that used 80 females (40 ME/CFS diagnosed patients with pain and 40 healthy control subjects without pain on the measure of sleep quality. Cases and controls did not differ by age or sex. The study population had a mean age of 47 years.

**Results:** ME/CFS patients with pain (measured using Multidimensional Fatigue Inventory - MFI) had higher scores than did healthy control subjects on the Pittsburgh Sleep Quality Index (PSQI) (r=0.42, p<.05). It was evident that pain intensity correlated significantly with poorer sleep quality.

**Conclusions:** ME/CFS female patients with pain suffer from poor sleep quality compared to Healthy Control females without pain. However, in order to draw a causal relation that would be more significant further studies should be conducted in larger cohorts to validate these findings of sleep disturbance in ME/CFS patients with pain.

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**Title:** Prevention of HIV and HCV Infection in Persons with Severe Mental Health Disorders

**Authors:** Sindhura Kompella, M.D (1); Clara Alvarez, M.D (1); Karl Goodkin, M.D (2); Steven Kendell M.D (2)

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**Background:** Non-traditional risk factors for blood-borne infections are of special concern in persons with severe mental health disorders. In particular, assessment of level of psychiatric symptomatology and the presence and severity of neurocognitive impairment is critical for efficacy of preventative interventions with this patient population. Yet, these population-specific factors have largely been neglected by the prevention research literature.

**Objective:** To determine whether severe mental disorders group shows a level of HIV and HCV infection well beyond that which can be explained by traditional risk factors alone.

**Methods:** This study is a review of the literature by a PubMed search in this area using the key words of “prevention”, “HIV” or “HCV”, and the “severely mentally ill”. Additionally, “use of LAI” “medication adherence” were studied alongside “adherence to other medications such as HIV and HCV.”

**Results:** The data from the review shows that the presence and severity of neurocognitive impairment and mental health symptom burden (particularly psychotic symptoms) have not been addressed by prevention interventions targeting this population group. These factors reduce the efficacy of interventions by limiting appropriate use of risk precautions for sexual activity and for injection substance use-related risks. The presence and severity of neurocognitive impairment and mental health symptom burden need to be addressed by interventions specifically tailored to the needs and characteristics of this patient population.

**Conclusions:** Measurement based care (MBC) instruments can be used to routinely assess presence and severity of neurocognitive impairment and mental health symptom burden among those with severe mental health disorders. Preliminary interventions may be needed in a sub-group of these patients aimed at improving the accurate assessment of risk to self and the development of feasible plans to reduce HIV and HCV risk in high-risk behavior settings. Following interventions to ensure treatment readiness, prevention interventions can then be appropriately employed. Future prevention research should aim to quantitatively assess the additional impact of readiness assessment and intervention as compared to traditional prevention interventions within this vulnerable population.
Normative Lower-to-Upper Limb Tissue Dielectric Constant Ratios with Possible Application to Lower Extremity Edema

Authors: Maria Labra, OMS II, Glenda Abreu, OMS III, Harvey N. Mayrovitz, Ph.D.
Nova Southeastern University, Dr. Kiran C. Patel College of Osteopathic Medicine,
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Background: Lower extremity edema occurs in many conditions including congestive heart failure, lymphedema, diabetes-related, kidney and liver disease, chronic venous insufficiency with venous hypertension. Clinical edema assessment methods are often subjective and variable. Our goals were to introduce a simple noninvasive measurement procedure potentially useful to characterize lower extremity edema by providing normative values from which edema thresholds might emerge. A non-invasive way to assess local skin water is by measuring skin tissue dielectric constant (TDC) since TDC depends strongly on skin-to-fat water content.

Objective: Our research goal was to determine and present such TDC normative ratios, initially for healthy young persons, as a first step in developing normative reference values and ranges to potentially aid in the early detection and tracking of lower extremity edema.

Methods: TDC measurements were made using a hand-held, commercially available device that records TDC values by touching skin for 5-7 seconds. For reference, the value for pure water at 32°C is 76. Measurements were done in triplicate, bilaterally at three lower limb sites and at two upper limb sites. Measurements were done in 22 women (24.9 ± 2.5 years) and 22 men (25.3 ± 1.8 years) after each signed an IRB approved consent form. Absolute TDC values for each site and gender were determined and lower limb / upper limb ratios (LL/UL) were determined for each site. All values are mean ± SD.

Results: TDC values did not significantly differ between dominant and non-dominant sides at any site for either gender. However, TDC values were greater for males at forearm (33.3 ± 3.2 vs. 27.5 ± 3.0, p<0.001) and foot dorsum (32.3 ± 4.9 vs. 28.1 ± 2.8, p<0.001). There were no gender related differences at the other measured sites with the largest TDC value measured at the hand (42.1 ± 7.9). The LL/UL ratios were normally distributed and varied depending on sites included in the ratio. However, the LL/UL ratio that had the least variance among subjects and also did not differ between genders, was the foot/forearm ratio. For measurements in 44 subjects (88 legs) the foot/forearm ratio was 1.003 ± 0.146 with a median value of 1.004.

Conclusion: Our current findings suggest that measurement of the foot/forearm and let/forearm TDC ratios provide useful assessment parameters for detecting early lower extremity edema when that ratio exceeds a specified threshold greater than determined in the present healthy group. At this time, the optimum threshold value is somewhat arbitrary but a reasonable selection would be a value that is greater than the currently determined mean value plus 2SD. This would define a threshold for edema as a foot/forearm ratio greater than 1.300 and a similar value for the leg/forearm ratio threshold.

Attachment style as a framework to understand osteopathic medical student’s confidence discussing weight management with patients

Authors: Farah Leclercq OMS III, Patrick Hardigan PhD, Isa Fernandez PhD
Dr. Kiran C Patel College of Osteopathic medicine

Background: Obesity is a public health crisis. Physicians and medical students must discuss diet and exercise with patients given the powerful influence of a doctor’s recommendation on patient behavior. Evidence suggests that securely attached physicians are better able to identify and address patients’ emotions and communicate more effectively over insecurely attached physicians. No prior studies have examined how a typical medical students’ attachment style could shape their future discussions with patients regarding diet and exercise.

Objective: To examine the association between attachment style and medical students’ perceived competence in counseling patients regarding diet and exercise.

Methods: For this cross-sectional study, approved by the Institutional Review Board, which consisted of 574 medical students at Dr. Kiran C Patel College of Osteopathic Medicine, consisted of 52% (298) males and 48% (275) females. Almost 43% (246) of participants self-identified as White; 31% (177) as Asian; 16% (91) as Hispanic; 3% (17) as Black; and 7% (40) as other. The students completed a 41 item survey measuring the following: a) demographic factors; b) attachment style; c) perceived competence in counseling patients regarding diet and exercise; and d) prescribing weight-loss medication. Bivariate analyses were conducted after computing BMI, attachment style, and a composite competence variable. Factors significant at P<0.05, were entered into a logistic regression.

Results: Of all the participants, the mean age was 25. The majority, 81% (464), were first and second year medical students. At the bivariate level, secure attachment style was significantly associated with gender (P=0.014), ethnicity (P=0.018) and competence that medical students have discussing diet and exercise with patients (P=0.024). The logistic regression demonstrated that participants with secure attachment style were more likely to be male (OR 0.591; 95% CI: 0.386-0.904) and more likely to feel competent discussing diet and exercise with patients (OR 0.945; 95% CI: 0.906-0.986) than those with insecure attachment styles.

Conclusion: Physicians can play an important role in addressing the obesity epidemic, but they need the appropriate training and skills. Medical
school provides a great opportunity to build skills in this area. Understanding student’s attachment style could help educators tailor their courses to assist in increasing a future physicians’ competency in counseling their future patients on diet and exercise.

Title: Get It Right the First Time, Measure Twice, or Third Time’s a Charm? Single vs. Multiple Tissue Dielectric Constant (TDC) Measurements

Authors: Alexander Mikulka, M.B.S., OMS-I, Dr. Kiran C. Patel College of Osteopathic Medicine
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          Harvey N. Mayrovitz, PhD, College of Medical Sciences

Background: Tissue dielectric constant (TDC) measurement devices transmit an electromagnetic wave through a coaxial line onto an open-ended probe that is placed in contact with skin and, while a major portion of the wave is absorbed by tissue water content, a remaining fraction is transmitted back into the line. The device can then calculate a dielectric constant that is proportional to skin tissue water. TDC measurements are used to estimate skin water content changes due to medical conditions such as breast cancer treatment-related lymphedema and lower extremity edema. Most prior studies have used triplicate TDC averages because the suitability of single measurements was unknown. If the accuracy of one measurement was found to be adequate, then some clinical measurement time could be saved.

Objective: The purpose of this study was to determine the differences in absolute and relative TDC values based on one measurement per anatomical site versus averaging duplicate or triplicate values.

Methods: This study was approved by the NSU institutional review board and all participating subjects signed an approved consent form. Measurements were done in a dedicated research room on the HPD campus. An equal number of female (n=25) and male (n=25) subjects with no history of upper or lower extremity edema or lymphedema were recruited for participation. The studied group’s average age (mean ± SD, N=50) was 30.6 ± 13.4 with a range of 18 to 70 years. Triplicate TDC measurements were made bilaterally at five anatomical sites representative of lymphedema development areas; anterior forearm, hand palm, lateral calf, medial calf and foot dorsum. TDC values obtained with single measurements were compared to duplicate and triplicate averages at each site (N=100). TDC dominant-to-nondominant side ratios (N =50) were also compared.

Results: The triplicate average TDC values for forearm, hand, lateral calf, medial calf and foot measurements were, respectively, 31.1 ± 4.4, 42.7 ± 8.2, 40.1 ± 6.7, 34.4 ± 5.3 and 31.6 ± 5.3. The average percentage difference between these triplicate values and those obtained with a single measurement was less than 0.75% at all sites with a maximum SD of 4.7% at the medial calf and a minimum of 2.2% at the forearm. Dominant-to-nondominant side TDC ratios using triplicate values were respectively 1.013 ± 0.090, 1.019 ± 0.112, 1.019 ± 0.163, 1.052 ± 0.134 and 1.029 ± 0.108. Ratios using single values differed by, at most, 1.5%.

Conclusion: The results of this study suggest that single TDC measurements or dominant-to-nondominant side ratios based on single TDC measurements can be utilized if a deviation from triplicate averages of ±5% or ±1.5% is acceptable, respectively. Thus, unless small changes are needing to be tracked, much clinical time can be saved by using single measurements.

Title: Stress reduction and coping strategies in relation to personality types among adolescents

Authors: Alokika Patel, M1; Eden Hebron; Todd Keitz; Nicole Cook, PhD, MPA

Background: Adolescents in America today often feel sad, hopeless or scared. According to Youth Risk Behavioral Surveillance, nearly more than 31% of adolescents have persistent feelings of sadness or hopelessness. Sadness or hopelessness, suggesting depression and/or anxiety, can result from numerous etiologies such as family history, personality, brain regulation of moods, medical illness, and other factors. Depression and anxiety can also be triggered by recent events, such as exposure to trauma. School shootings and school safety is one notable concern among adolescents. Given the number of students affected, there exists a need to understand, develop and disseminate coping strategies targeted to at-risk adolescents.

Objective: The objective of this ongoing study is to assess current knowledge regarding adolescent coping strategies by personality types and traits. The study will continue with development of an algorithm to suggest coping strategies by personality types and traits.

Methods: A literature review was conducted to review coping strategies among adolescent personality types and traits. The literature review included the utilization of Pubmed, Google Scholar, and American Psychological Association databases to search for pertinent articles and studies. The following key words were used: adolescents and coping, stress and coping amongst adolescents, personality traits and coping. Upon filtering the studies, five total pertinent studies and articles were read and analyzed.

In addition, a survey of students (8th grade through college) was conducted to identify stress levels and coping strategies currently used by adolescents and young adults. The survey was developed by the project team. The survey was administered via RedCap survey software to a non-probability, convenience sample of acquaintances of the high school student. Survey data were analyzed in Excel and SPSS (N. Cook and A. Patel.)

Results: The literature review suggested that extraversion and agreeableness are associated with coping strategies that involve sociability (i.e. reaching out to others to seek guidance.) Neuroticism in adolescents is associated with strategies that involve avoiding or creating distractions from the impending stress. Highly analytical or conscientious personality types involve an assertive and self-disciplined approach to tackling the stressor. Empathetic adolescents tend to use problem-focused coping techniques to directly eliminate the original stressor.

Among the 69 students who responded to the survey 55% were female. Regarding stress levels, 25% of students responded they experience stress
3-4 days a week and 38% responded they experience stress generally every day. The most common coping strategies were exercise, sports and gym (n=26), sleep (n=14), music (n=14) and slowing down/meditation/deep breathing (n=10). Other coping strategies included video games, being with friends, phone, Youtube, reading, writing and TV. We assessed the relationship between stress levels and personality traits (e.g. loves adventure, takes school work seriously) and there were no statistically significant relationships, though this could be due to small sample size. However, students who describe themselves as not taking school work seriously, who do not love sports, females and who are less social were at least 10% points more likely to be stressed 3 or more times a week.

Conclusions: There is a lack of information around coping strategies among adolescents. Considering that symptoms suggestion depression and anxiety is on the rise, there is a need to continue investigation into acceptable and appropriate coping strategies that can be offered to at-risk adolescents.

Title: An Overview of STD Rates in Broward County’s Geriatric Population

Authors: Milee Patel OMS-III, John Wang OMS-III, Naushira Pandya M.D., CMD, FACP

Background: Sexually transmitted diseases (STD), such as gonorrhea, chlamydia, and syphilis, have gradually been on the rise in Broward County, FL. While there is a greater focus on controlling STD rates in the younger generation, the geriatric population has become increasingly vulnerable to these diseases as well. Studies have shown that over 50% of adults over the age of 60 engage in some form of sexual activity at least once a month. However, healthcare professionals are less likely to discuss sexual health with their older patients. In Broward County, FL, rates of STDs in populations age 60 and plus(60+) would benefit from evaluation, and begin discussions on bettering physician-patient conversation on sexual health in elderly populations.

Objective: The objective of this study is to determine the trends of STDs in 60+ residents of Broward County, FL.

Methods: Chlamydia, Gonorrhea, Syphilis, and HIV incidences between 2007-2017 were obtained from Florida Department of Health. Pearson coefficients between time and STD incidence were computed for both 60+ patients for the past ten years. One Tail t-test was computed to compare the annual change in STD rate in 60+ patients of Broward County to 60+ patients in Florida for the past ten years.

Results: For 60+ patients in both Broward County and Florida, we found a positive correlation between time and incidence of Chlamydia, Gonorrhea, and Syphilis but a negative correlation for HIV. Only Chlamydia had a noticeable annual change in STD rate in the past 10 years compared to 60+ trend of the Florida population.

Conclusion: Our study shows that the incidence for those aged 60+ of Gonorrhea, Syphilis, and Chlamydia is on the rise in Florida. In Broward County, Chlamydia incidence is rising more quickly compared to Florida in 60+ patients. This could be due to a lack of sexual health education within geriatric clinics that leads to misconceptions patients may have about the importance of barrier protection. Geriatricians and physicians who treat older adults should be made aware of the rise of non-HIV STDs and educate their patients regarding safe sex. A follow-up study should be conducted to evaluate the cause of the rise and presence of non-HIV STDs in the elderly population. This type of study should be conducted within healthcare clinics during annual exams for all geriatric patients.

Title: Identified Single Nucleotide Polymorphisms (SNPs) Trends and the Associated Metabolic Pathways in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome Patients: A Pilot Study

Authors: Melanie Perez1, Rajeev Jaundoo2,3, Kelly Hilton, Pallavi Samudrala1, Mary Ann Fletcher1,3,4, Nancy G. Klimas1,3,4, Travis J.A. Craddock2,3, Lubov Nathanson1,3
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Background: Myalgic Encephalomyelitis or Chronic Fatigue Syndrome (ME/CFS) is a complex illness of unknown etiology with considerable social and economic impact to those affected. Disease presentation is multifactorial, and can include severe fatigue, disturbed sleep patterns, short-term memory, post-exertion malaise, metabolic disturbances, impaired concentration and flu-like symptoms. Previously most of the research in the ME/CFS field was not aimed at genomic studies, but there has recently been a push towards this direction. It is known that single nucleotide polymorphisms (SNPs) play an important role in gene expression changes that can manifest as phenotypic changes.

Objective: We have used this knowledge about SNPs and gene expression to identify trends in SNP frequencies in our cohort of 388 ME/CFS patients and compared the same SNPs and their frequency in a reference cohort known as kavier and identified significant differences between the two populations and the metabolic pathways in which these SNPs fall.

Methods: To avoid the complexity and limitations of a large-scale study of this magnitude and to circumvent the cost, 388 participants purchased their own genomic DNA test using two commercial companies: 23andMe and AncestryDNA. The uploaded de-identified genetic data acquired from RedCap, an online user friendly database used to manage the study, is modified to a suitable format for Seattle Sequence Annotation 138 using a Python 3 script. The annotated data is then filtered to include only non-synonymous and nonsense SNPs from protein coding regions (exons), microRNAs, and SNPs that are close to splice sites. Functional analysis was then performed to provide biological pathway information.
Results: Functional analysis of SNPs identified three main clusters of pathways as sharing at least 30% SNP related genes. The first cluster highlights a module of immune related SNPs. The second cluster highlights a modules of hormone related SNPs. The final cluster highlights a module of metabolism related SNPs.

Conclusion: Ongoing recruitment for submission of de-identified genetic data of ME/CFS patients leads to a constantly increasing sample size for continual application of the aforementioned methods. Which in turn leads to identifying new SNPs in our patients as well as potentially increasing the frequency of SNPs already identified. Additional investigation of the larger sample size will allow for further validation of our SNP trend significance. It is the intent of this study to further characterize subpopulations of ME/CFS patients based on their symptom trends in regards to their genomics for targeted therapeutic treatment.

Title: Usage of Florida’s Prescription Drug Monitoring Program by Behavioral Health Providers

Authors: James Pfeifer, D.O., Nicole Cook, PhD, MPA,

Background: New changes to Florida’s PDMP have been implemented which have both practical and legal implications for providers.

Objective: To assess current usage habits of behavioral health providers and identify barriers to usage.

Methods: Online survey sent to behavioral Health residents, attending physicians and nurse practitioners.

Results: Of 29 respondents, 75.9% had utilized PDMP. Barriers to registration and usage included time constraints as well as being unaware of PDMP. In users, over 80% reported usage for all new patients and 90% usage for patients with a history of substance abuse. Over 90% of users found they withheld controlled medication as a result of checking PDMP and over 80% found they counseled patients about drug interaction/overprescribing. Users were more like than non-users (84.6% v 57.1%) to believe that PDMP utilization was the standard of care. All non-users reported lack of PDMP training at work.

Conclusions: Prior to new mandatory usage law, the PDMP usage was well utilized by behavioral health providers, although some notable barriers to usage still exist.

Title: Understanding School Safety Concerns among Parents in Broward County, Florida

Authors: Shivanie Ramdin, OMS-I, M.P.H., Nicole Cook, Ph.D., M.P.A., Maria Montoya, Ph. D., M.P.H.
Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine, Department of Public Health

Background: From January 1 to May 25, 2018, there were more than 23 school shootings, many with mass casualties, including Parkland, Fl and Santa Fe, Tx. The Parkland, Fl massacre prompted large-scale discussions around school safety at the federal, national and local levels. In addition to shootings, school safety concerns include bullying, physical attacks, and other issues. Data from the 2017 Youth Risk Behavior Survey (YRBS) found that nationwide, 6.7% of high school students were absent at least one day in the past month because they did not feel safe. Percentages were highest among Black (9.5%), Hispanic (9.3%), and same-sex (11.4%) students. YRBS also found that 15.7% of students carried a weapon at least once within the past 30 days, and 19% of students were bullied on school property. Although the YRBS assesses school safety concerns at the national level, little data on school safety concerns exists locally.

Objective: The objective of this study was to assess school safety concerns among parents and children in Broward County, Florida, and to identify strategies for school safety improvement that are acceptable to parents.

Methods: A cross-sectional, anonymous, eight-question survey was created in English, and translated into Spanish, by both adapting questions from the YRBS and developing new questions deemed important by the study team to assess concerns about school safety and to identify areas for improvement. Public health and medical students distributed the paper surveys to a convenience sample of parents who attended two Nova Southeastern University Dr. Kiran C. Patel College of Osteopathic Medicine-sponsored community health fairs in August 2018 and who had children currently enrolled at a Broward County school (K-12). Collected surveys were entered in RedCap survey software system. Sixty-four surveys were analyzed using descriptive statistics and inferential statistics in Microsoft Excel and SPSS.

Results: Guns and shootings emerged as the most prominent school safety concern amid parents at 67.2% (n=43). In addition, 56.3% (n=36) of parents were concerned about cyber-bullying, and 54.7% (n=35) were concerned about physical bullying in school. Within the past six months, 12.5% (n=8) of parents kept their child home from school because they were afraid for their child’s safety in school, while 25% (n=16) of children told their parent that they were afraid to go to school. Of the parents whose children were afraid of going to school (n=16), the most common reason was being in a school shooting at 68.8% (n=11), followed by bullying at 43.8% (n=7). Only 33.1% (n=34) of parents indicated that schools are doing everything possible to keep students safe. Regarding parents’ ideas on improving school safety measures, 51.6% (n=33) said to limit students and visitors entering and leaving school, 46.9% (n=30) believe there should be more metal detectors in schools, and 46.9% (n=30) wanted more emergency alarm systems for teachers to activate.

Conclusion: The results of this study suggest that concerns about school safety are higher in Broward County than nationally, and that the most
common concern regarding school safety for parents and children is a school shooting, followed by bullying. Results also demonstrate that parents desire more interventions to address their children’s security while in school.

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**Title:** The Impact of Parents’ Nutritional Knowledge on Preschool Age Children’s BMI

**Authors:** Nicole E. Salach OMS IV, Julian J. Zorrilla DO, Kiara Jennings OMS IV, Lauren Olsen- Harirchi OMS III, & Patrick Hardigan PhD. 
Nova Southeastern University’s Dr. Kiran C. Patel College of Osteopathic Medicine

**Background:** There are a growing number of people who have obesity in the United States, including children as young as preschool age who depend on their parents for their food intake, and little is known about how parental nutritional knowledge affects the BMI of preschool age children.

**Objective:** To test the hypothesis that preschool age children with higher BMIs have parents with lower nutritional knowledge. In addition, to test how parental BMI is related to ethnicity, income, education, and nutritional knowledge.

**Methods:** A survey was completed by the parents of preschool children, which was approved by the IRB. Parent-child dyads were recruited from First Baptist Fort Lauderdale, the Mailman Segal Center for Human Development & the Jim and Jan Moran Family Center Village at Nova Southeastern University, and Children’s Medical Care Inc. during the summer of 2016 through the summer of 2017. One hundred twenty-five mothers or fathers of preschool aged children (2-5 years old) participated. The main outcome measures were the cumulative knowledge scores of each parent on the survey and the BMI of each child.

**Results:** Spearman’s Rank Correlation did not show any significant relationship between the nutritional knowledge of parents as assessed by their cumulative nutrition knowledge score and the BMI of their children with a p-value of approximately $R_s = -0.01, p = 0.269$. Our results revealed significant findings comparing sites by demographics.

**Conclusions:** There appears to be no relationship between the nutritional knowledge of parents and the BMI of preschool age children. Thus, it is important for healthcare practitioners, public health officials, and nutritionists/dieticians who may be conducting future nutrition education interventions for preschoolers to focus on other factors besides parental nutritional knowledge when designing and implementing interventions, such as how parents can, in practice, provide healthy food for their children and encourage them to exercise more. However, there was a link between lower-incomes, less education, and higher BMIs. Research regarding these trends should continue.

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**Title:** Analysis of How Common Opioids are Prescribed within the CHI Community of South Miami as First Line Therapy to Chronic Pain Patients.

**Authors:** Schisani, Holly D.O. PGY-2 CHI Family Medicine Residency/Jackson South Hospital. Lyon, Jacob D.O. PGY-2 CHI Family Medicine Residency/Jackson South Hospital. Redwood, Abiona M.D. Internal Medicine/Pediatrics Faulty CHI Family Medicine Program. Shaykut, Saad NOVA Southeastern University College of Osteopathic Medicine Medical Student Year 4.

**Background:** The opioid crisis most likely is the most profound public health crisis our nation has faced. In 2015 alone, 52,000 people died of drug overdoses, with over 30,000 of those people dying from opioid drugs. Chronic pain and opioid abuse have been associated with one another likely due to lack of knowledge from provider and ease of prescribing to patients with assumption patients will likely be satisfied with their pain and not return for a period of time. However it is quite evident through research and latest tools education today that opioids for chronic pain are not the solution to chronic pain. If providers especially PCPs become more educated and aware of what guidance is available in pain management, the opioid epidemic would likely be less of a crisis in the United States. Florida’s new opioid drug laws which went into effect July 1, 2018 limits prescriptions for Schedule II opioids to treat acute pain to three days. The three-day limit may only be increased to seven days if determined to be medically necessary with proper documentation. These changes were aimed at controlling and limiting the use of opioids for first-line pain management.

**Objective:** The objective of this study is determine how many primary care providers use opioids as first line therapy to chronic pain patients within our family medicine community with guidelines and policies that are placed within our community.

**Methods:** First, a retrospective data review of Community Health of South Florida Inc.’s (CHI) electronic health record was conducted to understand opioid prescribing practices of CHI providers. Information was obtained from all CHI patient encounters within a six month period, December 1, 2017 through May 31, 2018. Inclusion criteria included primary care encounters (CPT 99211-99215) for all patient’s aged 18-65 years old who had 1)a current problem listed in their problem list with any of the following ICD-10 codes: neck pain (M54.2), back pain (M54.9, M54.5), and/or chronic pain (G89.4), and/or 2)one or more prescribed opioid medications for fentanyl, hydromorphone, hydromorphone/acetaminophen, hydromorphone, meperidine, meperidine, morphine, oxycodone, oxycodone/acetaminophen, and oxycodone/naloxone from June 1, 2017 to May 31, 2018. A total of 968 patients were seen during that time who met the inclusion criteria. Second, we will review each patient chart to determine the patients to exclude: those who had opioids prescribed for documented acute trauma, recent surgery, hospice care, and cancer management. We will also review a sample of charts (n=30) to assess data quality assurance.

**Results:** Of the 968 patients, only 14 (1.4%) patients received one or more prescriptions for the above mentioned opioids. Data were analyzed using
descriptive statistics to assess the total number of opioid prescriptions written, length of the prescriptions, number of refills and associated diagnostic problem. Only one of these patients received multiple opioid prescriptions during this time. Of the 14 patients prescribed opioids, only 4 received prescriptions which exceeded the 3-day limit implemented by Florida’s new drug law designed to make it more difficult for people to take opioids long enough to become dependent. Ongoing analysis and data quality assurance will confirm the validity of these results.

**Conclusion:** The results of this investigation suggests that the providers at CHI are compliant with the new opioid drug laws and current recommendations aimed at reducing the use of opioid medications as first line for chronic pain management. Therefore, a quality improvement initiative is not warranted at the current time. However, limitations to data quality may exist and will be verified to determine the validity of these results. In the midst of a national opioid epidemic, this study warrants further evaluation on how such compliance was achieved amongst providers and how practices can be disseminated to others in healthcare.

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**Title:** Hip Range of Motion: Which plane of motion is more predictive of Lower Extremity injury in Elite Soccer Players? A Prospective Study

**Authors:** Aalok S. Shah, OMS III; Sarav S. Shah, MD; Edward J. Testa, BS; Isaac Gammal, MD; Joseph Sullivan, PT, OCS; Roger W. Gerland, MSPT, ATC; Jeffrey Goldstein, MD; Brian Sheridan, PT; Michael Mashura, MD; Andrew Goodwillie, MD; Randy M. Cohn, MD

Background: It has been recommended that preseason screening of flexibility in soccer players should be conducted to identify players at risk for injury, but the clinical question remains as to which plane of motion is more predictive of LE injury.

Objective: To determine which plane of hip motion (rotational or sagittal) is more predictive of lower extremity (LE) injury in elite soccer players.

Methods: This Institutional Review Board approved study was conducted among one collegiate and one professional men’s soccer team over the course of the 2016 competitive season. Demographic data including age, weight, and history of previous injury were documented. A history of previous injury was defined as any prior reported LE muscle strain or ACL injury. Modified TT and hip ROM measurements were taken during preseason physical examinations, according to a standardized protocol prior to any warm-up. A total of 138 extremities (86 professional and 52 collegiate) were examined in 69 athletes with a mean age of 22.6 years. Inclusion criteria included any athlete participating in preseason training for the collegiate and professional teams under study. All players were then prospectively followed for injury. A LE injury was defined as either a game or practice. There were a total of 11,244 athlete exposures. Exclusion criteria included athletes with existing hip or groin pain at the time of preseason evaluation of which there were none. As similar to prior studies, injury was defined as any LE injury caused by soccer participation that kept a player out of practice or a game. Although recorded separately, extremities with multiple injuries were treated as a single injury for statistical analyses.

Results - Using binary logistic regression analysis, extremities with IR <28° were 2.81 times more likely to sustain an ipsilateral LE injury (95% CI 1.03, 6.84; p=0.042). Hips with flexion ≥119° p=0.056) or history of previous injury (p=0.090) did not demonstrate a statistically significant association with LE injury (Table V). GEE, used to simultaneously control for bilateral hips per subject as well as address multiple injuries to the same extremity, confirmed the association of decreased IR with increased incidence of LE injuries (p=0.018, 95% CI, -0.026, -0.0024). Flexion and history of previous injury (p=0.072 and p=0.27, respectively) were not significantly associated with increased incidence of LE injuries. The overall linear model was statistically significant (Pr > chisquared = 0.0099, Wald chisquare = 11.36).

Conclusion - It has been previously recommended that preseason flexibility screening be performed for soccer players to help identify players at increased risk for injury. The authors of the current investigation recommend athletes without a clinical diagnosis of Femoroacetabular impingement syndrome (FAIS) or radiological FAI warrant special attention from clinicians to devise methods aimed at identifying an amount of motion necessary to allow safe activity in the rotational plane, including a lateral rotator flexibility program and soft tissue mobilization. There has been some success in improving injury prevention with sport-specific warm-up protocols; we recommend clinicians take notice of the results of this study and formulate a plan to incorporate a focus on muscle tightness in the rotational plane for those athletes without FAIS or radiological FAI. Further research demonstrating the impact of a regimen designed to increase rotational motion in soccer players is needed to determine if increasing IR may help prevent LE injuries in this at-risk population. Additionally, research utilizing larger cohorts would be interesting to compare collegiate with professional soccer players and further delineate a difference in flexibility and injury rates based upon competition level.

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**Title:** Check. Change. Control. Cholesterol Initiative in Order to Improve Patient Outcomes.

**Authors:** Michael B. Taylor, PGY-3, Community Health of South Florida, American Heart Association

Background: Currently more than 600,000 Americans die annually as a result of heart disease and stroke, the first and fifth most common causes of mortality in the U.S., respectively. To address this crisis, American Heart Association (AHA) developed the *Check. Change. Control. Cholesterol.* program. The program incorporates consistent atherosclerotic cardiovascular disease (ASCVD) risk assessment to reduce morbidity/mortality through appropriate management of groups that would benefit from statin therapy.
Community Health of South Florida (CHI), a large Community Health Center in Miami, initiated a study to determine the extent of appropriate statin use and to assess if interventions to improve appropriate statin use would be beneficial.

Objective: The aims of this quality improvement initiative are twofold: 1) To determine the percentage of patients being appropriately treated on statin therapy as determined by the ASCVD risk algorithm and, 2) achieve Gold Achievement standards by reaching control rates of 70% or higher, within the adult population served at the CHC.

Methods: This study was designed by reviewing three groups of active patients that should have been prescribed statin therapy during the measurement period 1/1/2017 – 12/31/2017. The first group included active patients ages >21 years at the beginning of the measurement period with a clinical ASCVD diagnosis; the second group included patients aged >21 years at the beginning of the measurement period who had ever had a fasting or direct laboratory result of LDL-C >190 mg/dl or are previously diagnosed with, or currently have, an active diagnosis of familial or pure hypercholesterolemia; and, the third group included patients aged 40–75 years at the beginning of the measurement period with Type 1 or Type 2 diabetes and with an LDL-C result of 70-189 mg/dl recorded as the highest fasting or direct laboratory test result in the measurement year or during the 10 years prior to the beginning of the measurement period. A retrospective chart review was conducted to determine the percentage of patients prescribed, or currently on, statin therapy in the three groups.

Results: Using the data gathered, we were able to ascertain that 90.9% (n=329) of the adult population that met criteria across the groups were appropriate treated with statins. These results demonstrate compliance with ASCVD assessment by physicians and the care teams at CHI.

Conclusion: On September 13th, 2018 CHI the American Heart Association’s Check. Change. Control. Cholesterol.TM Gold award for accurately treating patients with the designated criteria at a percentage greater than that of 70%. CHI maintains an ongoing commitment to the community and the population they serve in improving and controlling cholesterol.

Title: Children’s Wellness Program: Enhancing Educational Attainment through Improved School Health

Authors: Gabriela Teixeira, OMS-III, Danielle Gilbert, BA2, Christina Baxter, OMS-IV1, Marie Florent-Carre, DO, MPH1, Nicole Cook, PhD2

1 Nova Southeastern University Kiran C. Patel College of Osteopathic Medicine, 2 Haiti Partners

Background: Healthcare in Haiti, a country which holds some of the worst health indicators in the world, is fragmented and inadequate to meet the needs of its people, especially children. This weak health system can have serious implications for children’s health, leading to decreased attendance in school. Chronic absenteeism means students get less education and are at risk of poorer education outcomes. Since education has the power to change generational cycles of poverty and change life for children who might otherwise be exposed to child labor, gangs, or trafficking, programs to improve school attendance are critical.

Objective: The goal of this study is to determine if implementing preventative and interventional health measures in a primary school setting in Haiti will increase student contact with health care para-professionals and improve school attendance.

Methods: This quasi-experimental pilot study addresses the impact of implementing a wellness program run by lay school health workers to enhance education and wellness outcomes. This study was approved for an IRB Category 4 exemption. The program is being conducted at the Children’s Wellness Program office, on the campus of The Children’s Academy in Baocia, Haiti. Five lay health care workers were trained to oversee classrooms, make home visits for absentees, provide basic wound care, treat common illnesses, and administer over the counter medications. All encounters and patient complaints are being documented in an Excel spreadsheet by complaint category. All encounters are also being recorded in a paper file and children are being referred to Haiti Clinic if further care is needed. Absentee rates were measured at baseline (April to September, 2017) and during a follow-up period (April to September 2018) at the start of the program using school records.

Results: The absentee rates decreased for the months of April, May and June from 1.57% (n=552) in 2017 to 0.87% (n=375), which yielded a statically significant relationship with a two-tailed p value equal to .01. Documentation outlining complaints to the Children’s Wellness Program office show 590 complaints, the most common complaint being “flu-like symptoms”, or the presence of cough, chills, nasal discharge, usually in the absence of fever unless otherwise noted.

Conclusion: The initial decrease in absentee rates may indicate that access to health care providers at a primary level facilitates early treatment and prevention of common childhood acute illnesses; and decreases absences potentially related to such illnesses. The number of complaints addressed by health care workers indicates that children participating in the study had increased access to health care providers after the implementation of the pilot program. The findings of this pilot study may provide insight for implementing care in low health care access areas across the world. The implications of this program may also provide suggestions for a new hierarchy of care within the school system, in order to increase access to education via decreasing absentee rates and increasing the treatment of common ailments.

Title: Development of an Innovative Population Based Pediatric Cancer Registry in Rwanda

Author: Jenny Tran, OMS II, Cyril Blavo, DO, MPH & TM, Fidel Rubagumya, MD, Samantha Spencer, B.S.

Background: International Health Initiatives, through its Rwanda Health Initiative Needs and Outreach (RHINO) project and nation-wide needs assessment of healthcare personnel, has illustrated the importance of education and telemedicine in enhancing pediatric cancer care in Rwanda.
Approximately 90% of healthcare providers (physicians and nurses) in Rwanda lack training in pediatric cancer. Since 86% of the Rwanda population has internet access and utility, this is an effective method to provide information to healthcare professionals. Cancer registries are instrumental in fighting cancer worldwide, since it provides data on incidence and mortality rates among a variety of population groups. Registries include about 96% of the US population and more than 1.6 million new cancer diagnosis annually. Cancer control programs utilize cancer registries to evaluate and determine plans on the resources required and the effectivenss of the programs. Through the Rwanda Children's Cancer Relief's (RCCR) website, establishing a population-based children's cancer registry increase the availability and sharing of real-time data, epidemiological patterns, and treatment outcomes among healthcare providers in Rwanda.

**Objectives:** The objective of this initiative is to determine the necessary steps required to develop a pediatric cancer registry on prevalent childhood cancer types in Rwanda.

**Methods:** An extensive literature-based research was conducted to study best practices in cancer-based registries worldwide, particularly for an underserved population as in Rwanda. A major criterion for this population based data is that it describes the characteristics of pediatric cancers prevalent in a specific population of Rwanda, and standardized across other registries. It will provide information on cancer in different gender, age, and ethnicity groups. Creating a children's cancer registry requires inclusion of cancer origin, incidence, diagnostic features, effective treatment, and survival rates. The data will then be published on the RCCR website.

**Results:** The strategic plan for implementation of the Pediatric Cancer Registry (PCR) is as follows: 1) RCCR will establish a collaboration with the Ministry of Health (MOH) to manage the nation-wide Rwanda PCR. 2) CanReg5, developed by the International Association of Cancer Registries (IACR), is a software that will be installed on the RCCR website and allow input and analysis of data. 3) A grant will be obtained to support the installation of the Cancer Registry. 4) A Cancer registry director will be recruited and appointed. 5) Volunteers (including medical students) in Rwanda will be trained on collection and input of pediatric cancer data on an annual basis. 6) Advocacy for a MOH regulation to require healthcare professionals to enter diagnosis of pediatric cancer into the RCCR database. 7) Through the RCCR website, physicians and nurses will have access to the database that allows them to enter and interpret data. 8) RCCR and MOH will publish an annual report on the status of children's cancer in Rwanda.

**Conclusion:** The utilization of a children's cancer registry for Rwanda will help educate physicians on pediatric cancer. This data, which consists of cancer incidence, characteristics for diagnosis, and effective treatment plans, will also improve prevention methods and cancer control and, by design, reduce the mortality rates of pediatric cancers in Rwanda.

**Title:** I-Angiotensin 1-7 Protection From Enzymatic Degradation in Mas Receptor Binding Assays.

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**Background:** The renin–angiotensin system (RAS) is well known to play a critical role in blood pressure regulation and electrolyte balance. Angiotensin (Ang) II is among the most well-known peptides of the RAS, but other Ang peptides also hold physiologic significance, such as Ang-(1-7). Ang-(1-7) has become a peptide of interest due to its cardiovascular and baroreflex effects (Santos et al., 2003 PNAS 100: 8258-63). Specifically, Ang-(1-7) acts as an endogenous antagonist of Ang II when the RAS is activated (Burgelova et al. 2005 J Hypertens. 27: 1998-2000). Recent studies suggest that Ang-(1-7) acts as a specific receptor, Mas (Santos et al., 2003 PNAS 100: 8258-63). Unfortunately, proteolytic metabolism rapidly degrades Ang-(1-7) and other Ang peptides, making it difficult to characterize their receptors, specifically with Mas (Handa et al., 2000 J Am Soc Nephrol 11:1377-86). To overcome this obstacle, it is necessary to utilize peptidase inhibitors in 125I-Ang 1-7 binding assays to prevent radioligand degradation during tissue membrane incubation.

**Objective:** The objective of this study was to investigate a variety of peptidase to develop a cocktail that effectively prevents enzymatic degradation of Ang-1-7 to better understand its interaction with the Mas receptor.

**Methods:** Rat and mouse kidney and liver membranes were prepared by homogenization and centrifugation. Various peptidase inhibitor cocktails of different proteolytic enzyme inhibitors were added to membrane preparations along with Ang 1-7. Experimental samples of Ang 1-7 and tissue were incubated at room temperature with protease inhibitor cocktails for one hour. Enzymatic processes were concluded with trifluoroacetic acid and placement on ice. Ang 1-7 protection was then evaluated by quantitative High-Pressure Liquid Chromatography, which assessed the proportion of intact Ang 1-7 post-tissue incubation.

**Results:** To date, more than 8 different peptidase inhibitors were assessed, with results highlighting moderate success in protecting Ang-(1-7) from metabolic degradation. However, considerable Ang-(1-7) metabolism remains, and further investigation is ongoing to improve Ang-(1-7) protection to at least 80% protection.

**Conclusion:** Preliminary results suggest that Ang 1-7 protection is difficult, but certainly possible. It is evident that maximizing metabolic protection is critical to understanding the Ang 1-7, Mas receptor interaction. Once a reliable inhibitor cocktail is developed, studies comparing expression of Mas in different tissues and various disease models can be assessed.
Where Comfort and Confidence Diverge: Missed Opportunities for Sexual and Gender Minority Competency in Osteopathic Education


Background: Recent studies looking at medical student competency in sexual and gender minority persons (SGM) care reflect a lack of knowledge and understanding in treating patients of SGM.1-6 To address growing health disparities among SGM patients, the Association of American Medical Colleges (AAMC) recommends that medical schools incorporate sexual health competencies into their curriculum.7,8 The Commission on Osteopathic College Accreditation (COCA) accreditation standards lack recommendations for the inclusion of SGM related healthcare competency in Osteopathic curriculum.9-10 At NSU-KPCOM, students care for patients in Florida’s Miami-Dade and Broward Counties, which outrank entire states in incidences of new HIV infections among SGM patients including those who identify as Men who have Sex with Men (MSM).11 A study conducted at the University of Denver concluded Safe Zone trainings can improve psychology student’s knowledge and understanding of SGM communities.12 This study investigated the efficacy of such training to improve SGM health competency of medical students residing within Miami-Dade and Broward Counties.

Objective(s): If research shows medical students lack sexual health competency, can an optional training improve their knowledge base, and if so, how would such training affect their understanding of patients who identify as sexual and gender minorities.

Methods:

- **Objective**
  - Design - Participants were consented and asked to complete an IRB approved pre-training and post-training surveys. Surveys measured competency and understanding using Likert scale questions related to SGM patient care.
  - Setting - Participants for the study were sought out at Nova Southeastern Kiran C. Patel College of Osteopathic Medicine thorough various social media applications as well as email. The event itself took place in a lecture hall on campus.
  - Patients (or other participants) - Participants eligible for the survey had to be over the age of 18, be enrolled in Nova’s Osteopathic medicine program, plan on attending the training, and be willing to fill out the pre and post training surveys.
  - Interventions - The main intervention of the study was the Safe Zone Training thrown by the school’s Gay and Lesbian Medical Association. The Safe Zone training was planned using the guidelines created by the Safe Zone Training Facilitator Guide made by The Safe Zone Project.
  - Main Outcome Measure(s) - The study aimed to look at the differences between the surveys before and after the Safe Zone Training event to see if knowledge or understanding improved as a result of the training.

Results: Results found differences in the before and after training surveys in both domains of knowledge and understanding. Overall, there were improvements in how students identified SGM communities as well as how many resources students could identify for SGM communities. While these differences were not statistically significant, (need to put in P values) further development in knowledge and understanding of SGM populations could be accomplished with further implementation of SGM healthcare into traditional curriculum. Lastly, over 80% of participants expressed that the training is relevant enough to be incorporated into their required curriculum, identifying a desire to learn more about the health disparities of SGM communities.

Assessing Prevalence of Vitamin B 12 Testing Among Patients on Chronic Metformin

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Background: Vitamin B12 is an essential nutrient required for red blood cell formation, neurological function, and DNA synthesis. There is an association between chronic use of metformin prescribed to manage diabetes mellitus type 2 and patient deficiency of Vitamin B12. There is also an association between Vitamin B12 deficiency and peripheral neuropathy. Randomized clinical trials have shown that just a few months of Vitamin B12 therapy can lower Vitamin B12 levels. The percentage of reduction ranged from 17.8% to 26.8% in cross-sectional studies and 6.3% to 18.7% in clinical trials (6-16 wk durations).

Objective: Family practice residents applied the Plan Do Check Act (PDSA) model of quality improvement to improve screening for Vitamin B12 among patients who are prescribed metformin.

Methods: Community Health Center of South Florida, Inc. in Miami, Florida provides care to more than 75,000 patients each year. During the quality improvement initiative Plan phase, retrospective data from the electronic health record (EHR) system was analyzed to determine vitamin B12 testing among patients with an active problem of Diabetes and prescribed metformin, who had a primary care visit from 9/1/2016 and 8/31/2017. Data was stratified by the number of total days supplied metformin and proportions were calculated for the per

Results: A total of 698 patients met the inclusion criteria during the Plan phase. Overall, 4% of patients had a Vitamin B12 test during the analysis year. Among patients who were prescribed metformin for 181 days or more (n=256,) only 2% (n=4) had a documented Vitamin B12 test indicated in their electronic health record. Twenty providers attended the education program in July 2018 where B12 deficiency screening guidelines were discussed in light of our data. During the Check phase, 17% of the total number of patients who met the inclusion criteria (n=314) had a Vitamin B12 test. Among those prescribed metformin for 181 days or more, the screening rate was 11% (n = 12), demonstrating an increase of 7% from the Plan
to the Check phase. In terms of unique providers, there were 13 of 23 providers (56.5%) who wrote Vitamin B12 tests for patients on metformin during the Plan phase and 19 of 42 providers (45%) who wrote Vitamin B12 tests during the Check phase.

**Conclusions:** While Vitamin B12 testing among patients on metformin for more than 181 days increased from 2% before the education to 11% after the education, opportunities to educate providers about the importance of Vitamin B12 level monitoring among patients on metformin exists. As PDSA is ongoing, Family practice residents are currently developing further educational programs to deliver to prescribing providers at upcoming Grand Rounds. In addition, we are assessing the role of targeted reinforcement with individual providers who have low Vitamin B12 rates. Data will be reassessed within three months of completing further trainings to understand trends in Vitamin B12 testing and continue to identify further opportunities for improvement.