The Office of Academic Affairs and
Hackensack Meridian *Health* Research Institute present

2023 RESIDENT/ FELLOW RESEARCH DAY MAY 23, 2023

Hackensack
Meridian *Health*

Resident & Fellow Research Day 2023 – Tuesday, May 23, 2023
Agenda

8:00 AM – 8:20 AM **Virtual Sign On**

8:20 AM – 8:30 AM **Opening Remarks and Introductions**
David S. Kountz, MD, MBA, MACP, Chief Academic Officer
Chair, Resident and Fellow Research Day Steering Committee
Ihor Sawczuk, MD, FACS President Academics, Research, and Innovation

8:30 AM – 8:45 AM ***Abstract 55: Minimally Invasive Surgery for Excision of Endometriosis Improves Perception of Lower Urinary Tract Symptoms.*** Tamar Yacoel, MD [1]; Kelly L. Budge, MRes [2]; Khashayar Shakiba, MD [1]. [1] Department of Obstetrics and Gynecology, Hackensack University Medical Center, Hackensack NJ; [2] Hackensack Meridian School of Medicine, Nutley NJ

8:45 AM – 9:00 AM ***Abstract 20: Disparities in Hospitalization Rates by Age for Ambulatory Care Sensitive Conditions among the New Jersey Population in 2019.*** Liliana Cruz, MD [1]; Srividya Naganathan, MD [1,2]; Jamie Pinto, MD [1,2]. [1] Jersey Shore University Medical Center/ K. Hovnanian Children's Hospital. Pediatrics Department Neptune NJ; [2] Hackensack Meridian School of Medicine, Nutley NJ

9:00 AM – 9:15 AM ***Abstract 116: Incisional Complications of Single Port Robot-Assisted Procedures: Does Incisional Location Matter?*** Sarah Brink [2]; Katherine Kim [2]; Jennifer Nguyen [2]; Teona Iarajuli [1]; Fahad Sheckley [2]; Meghana Singh [1]; Angela Cadiente [1]; Andre Ho [1]; Ruchir Chaturvedi [2]; Catherine Implicito [1]; Gregory Lovallo [2]; Muthar Ahmed [1,2]; Michael Stifelman [1,2]. [1] Department of Urology, Hackensack Meridian School of Medicine, Nutley NJ; [2] Department of Urology, Hackensack University Medical Center, Hackensack NJ

9:15 AM – 9:30 AM ***Abstract 172: Blood Loss Matters: Reliability of Quantitative vs. Estimated Blood Loss on Anticipated Hemoglobin Decrease in Vaginal Deliveries.*** Deborah Winograd, DO [1]; Tesia McKenzie, MD [2]; Jonathan Baum, MD [1]. [1] Jersey Shore University Medical Center, Department of Obstetrics and Gynecology,Neptune NJ; [2] University of California, San Francisco, Department of Breast Surgical Oncology, San Francisco CA

9:30 AM – 9:45 AM ***Abstract 174: Impact of Frailty on Transjugular Intrahepatic Portosystemic Shunt (TIPS) Outcomes in Alcohol- Related Cirrhosis.*** Sobaan Taj, MD [1]; Harshvardhan Sanekommu, MD [1]; Viraaj Pannu, MD [1]; Ndausung Udongwo, MD [1]; Joseph Heaton, MD [1]; Daryl Ramai, MD [2]; Arman Mushtaq, MD [1]. [1] Jersey Shore University Medical Center, Department of Medicine, Neptune NJ; [2] The University of Utah Hospital, Division of Gastroenterology and Hepatology, Salt Lake City UT

9:45 AM – 10:00 AM ***Abstract 230: A Post- Resuscitative Care Protocol is Associated with Improved Detection of Complications in the Well Baby Nursery.*** Andy J. Reyes Santos, MD [1]; Caroline Basta, MD [1]; Kristen- Allyson Ramones, MD [1]; Tara Lozy, MS [1]; Nicole Spillane, MD [1,2]. [1] Hackensack University Medical Center, Joseph M. Sanzari Children's Hospital, Hackensack NJ; [2] Hackensack Meridian School of Medicine, Nutley NJ

10:00 AM – 11:20 AM **Poster Session – Author Poster Presentations and Poster Review by Judges**

11:30 AM – 12:30 PM **KEYNOTE SPEAKER:**

"Research with a Purpose: The Impact of Community Participation"

Lisa Carter-Bawa, PhD, APRN, ANP-C, FAAN
Director of Cancer Prevention Precision Control Institute,
Center for Discovery and Innovation, Member Hackensack Meridian Health

12:30 PM – 1:00 PM **Presentation of Awards and Closing Remarks**
David S. Kountz, MD, MBA, MACP

2023 Hackensack Meridian Health Network
Resident & Fellow Research Day
Steering Committee Members

David S. Kountz, MD, MBA, MACP	Chair, Resident & Fellow Research Day Steering Committee Chief Academic Officer Hackensack Meridian Health
Nasim Ahmed, MD, FACS	Medical Director of Surgical Critical Care Department of Surgery, Chief of Trauma Jersey Shore University Medical Center
Aswine K. Bal, MD, MPH	Chief of Pediatric Infectious Disease, K. Hovnanian Children's Hospital at Jersey Shore University Medical Center
Liliana Cruz, MD	Pediatric Hospital Medicine Fellow (PGY-5) K. Hovnanian Children's Hospital Jersey Shore University Medical Center
Jennifer Coppola	Director, Academic Affairs Associate Designated Institutional Official Hackensack Meridian *Health*
Pramil Cheriyath, MD, MS, FACP	Program Director Internal Medicine Residency Program Ocean University Medical Center
Anne DeToro, RN, BS, CCRC	Cardiovascular Clinical Research Coordinator HMHN Research Institute Hackensack Meridian *Health*
Stacy Doumas, MD, MBA	Chief, Division of Child & Adolescent Psychiatry, Psychiatry Residency Program Director, & Vice Chair of Education Jersey Shore University Medical Center
Mary Ellen Fett	Executive Assistant, Academic Affairs Hackensack Meridian *Health*
Tamara Friedman, PhD	Manager, Research Communications and Education HMHN Research Institute Hackensack Meridian *Health*
Krystina Forbes, BA	Regulatory Specialist HMHN Research Institute Hackensack Meridian *Health*
Elli Gourna Paleoudis, MS, PhD	Director, Investigator Initiated Research Program and Support Services HMHN Research Institute Hackensack Meridian *Health* Assistant Professor | Medical Sciences Department Hackensack Meridian School of Medicine

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Mary Grove, PhD, APN, LSSBB	Senior Manager Institute for Evidence-Based Care Hackensack Meridian *Health*
Michelle Kohute, PharmD, BCCCP	Pharmacy Residency Program Director Clinical Pharmacy Specialist, Critical Care Jersey Shore University Medical Center
Yen-Hong Kuo, PhD	Manager, Biostatistics Core HMHN Research Institute Hackensack Meridian *Health*
Avrohom Levy, DO, MPH	PGY-1 Resident K. Hovnanian Children's Hospital Jersey Shore University Medical Center
Antonia Francis Oladipo, MD, MSCI, FACOG	Maternal-Fetal Medicine Physician Assistant Professor of Obstetrics and Gynecology Director of Resident Research Course Co-Director, "The Developing Human" Hackensack Meridian School of Medicine Hackensack University Medical Center
Caitlin Pancarician	Regulatory Specialist HMHN Research Institute Hackensack Meridian *Health*
Sally Jo Placa, DMD, MPA	Program Director Department of Dentistry Jersey Shore University Medical Center
Jean Primavera, RDH, MEd, DMH	Director, Network Professional Development and Continuing Education Hackensack Meridian *Health* Office of Academic Affairs
Sandra Richard MS, SHRM-SCP, PHR	Senior HR Generalist Hackensack University Medical Center
Shuvendu Sen, MD, MS, FACP	Vice-Chair, Research/Faculty Internal Medicine Jersey Shore University Medical Center
Emily Tonti, MBS	Research Assistant II Care Pathway Team Lead for Cardiovascular and Neuroscience CTS Hackensack Meridian *Health*
Karyna Valerio	GME Specialist, Academic Affairs Hackensack University Medical Center

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Kelli VanNosdall	GME Specialist, Academic Affairs Jersey Shore University Medical Center
Robin O. Winter, MD, MMM	Professor and Founding Chair, Department of Family Medicine Hackensack Meridian School of Medicine DIO, HMH Central Region Director, Family Medicine Residency Program JFK University Medical Center
Teri Wurmser, PhD, MPH, RN	Director Ann May Center for Nursing and Allied Health

ACKNOWLEDGEMENTS

The Hackensack Meridian Health Network 2023 Resident & Fellow Research Day Steering Committee would like to acknowledge and recognize the following individuals for their contributions to Resident and Fellow Research Day 2023 as listed below.

- **Hackensack Meridian *Health* Leadership and Ihor Sawczuk, MD, FACS** for their support and commitment to the continued growth and expansion of research throughout our hospital system.

- **David S. Kountz, MD, MBA, MACP** for his continued leadership and oversight of this event.

- **Jean Primavera, RDH, MEd, DMH and Jennifer Coppola** for their skillful coordination of Resident and Fellow Research Day and participation in the RFRD sub-committee.

- The **2023 Research Day Judges** (as indicated on the following pages) for their time commitment and enthusiasm in critically evaluating the research oral and virtual poster presentations.

- The **Research Day Steering Committee members** (as indicated on the previous pages) for their dedication and commitment to making this event the success it has become year after year.

- **Elli Gourna-Paleoudis, PhD** for her significant contributions to the continued development of an automated process for abstract submission, tracking, and notification. Poster session development, coordination, REDCap Administration, and participation in the RFRD sub-committee.

- **Tamara Friedman, PhD** for website production, keeping team members informed about Research Day information and events. Poster session development, coordination, and participation in the RFRD sub-committee.

- **Anne Detoro, RN, BS, CCRC** for creating the agenda, compiling the abstract book and for her oversight and contribution to the abstract submission, tracking and notification process and participation in the RFRD sub-committee.

- **Yen-Hong Kuo, PhD** for his oversight and contribution to the abstract submission, tracking and notification process and all intranet/internet content on Research Day.

- **Krystina Forbes** for compiling the abstract book and for her oversight and contribution to the abstract submission, tracking and notification process.

- **Mary Grove PhD, APN, ACNP-BC, LSSBB** for her audio-visual assistance and development of the event slide decks, contribution to judging formats, and participation in the RFRD sub-committee.

- **Michelle Kohute, PharmD, BCCCP** for her expertise and guidance in Research processes, contribution to judging formats and participation in the RFRD sub-committee.

- **Emily Tonti** for recording the Steering Committee minutes and compiling the abstracts for the eBook.

ACKNOWLEDGEMENTS

- **Jennifer Coppola, Mary Ellen Fett, Jennifer Johnson, Rebecca Segal, Catherine Sheridan, Denise Spina, Marina Stojanov, Karyna Valerio, Kelli VanNosdall, & Marilyn Williams** for moderating the poster sessions.

- **Darlene Robertelli and the Booker Library Team** for assisting all researchers in explaining medical literature and obtaining needed medical research materials.

2023 Hackensack Meridian *Health* Network Resident & Fellow Research Day Judges

ORAL PRESENTATION

Judy Aschner, MD
Marvin Gottlieb MD, PhD Chair of Pediatrics
Hackensack University Medical Center
Professor of Pediatrics, Hackensack Meridian School of Medicine
Physician-in-Chief, Joseph M. Sanzari Children's Hospital
Physician-in-Chief, Hackensack Meridian Children's Health

Harpreet Pall, MD, MBA, CPE
Academic Chair and Professor, Department of Pediatrics
Hackensack Meridian School of Medicine
Chair, Department of Pediatrics
Hackensack Meridian K. Hovnanian Children's Hospital
Regional Chair, Pediatrics
Southern Market at Hackensack Meridian Health

Scott Smilen, MD
Professor, Hackensack Meridian School of Medicine
Regional Chair, Obstetrics and Gynecology
HMH Southern Regional Hospitals
Jersey Shore University Medical Center

ORIGINAL RESEARCH POSTER

Sameh Elias, MD
Program Director, Internal Medicine
Palisades Medical Center

Michelle Kohute, PharmD, BCCCP
Pharmacy Residency Program Director
Clinical Pharmacy Specialist, Critical Care
Jersey Shore University Medical Center

Sabrina Malik, MD, FAAP
Division of Neonatology
Assistant Professor of Pediatrics
Hackensack Meridian School of Medicine
Neonatal Perinatal Medicine Fellowship Program Director

CASE REPORT

Shuvendu Sen, MD, MS, FACP
Vice-Chair, Research/Faculty Internal Medicine
Jersey Shore University Medical Center

Burton Surick, MD, FACS
Program Director Surgical Residency
Hackensack University Medical Center
Professor in the Department of General Surgery
Hackensack Meridian School of Medicine

Robin O. Winter, MD, MMM
Professor and Founding Chair, Department of Family Medicine
Hackensack Meridian School of Medicine
DIO, HMH Central Region
Director, JFK Family Medicine Residency Program

Hackensack Meridian *Health*

HMH Network Resident & Fellow Research Day 2023

HACKENSACK MERIDIAN *HEALTH* NETWORK RESIDENT & FELLOW RESEARCH DAY 2023

HMH Network Resident & Fellow Research Day 2023 is sponsored by the Office of Academic Affairs and the Hackensack Meridian *Health* Research Institute (HMHRI). The HMHRI brings together all aspects of research conduct throughout Hackensack Meridian *Health* Network.

HMH Network Resident & Fellow Research Day is an annual event providing opportunities for health care professionals affiliated with Hackensack Meridian *Health* to present original research studies and vignettes to the academic and professional communities. It is conducted to enable health care professionals to maintain proficiency in evaluating critical scientific data, and to promote and present examples of practice-based learning.

We are proud to present 178 original research and case study abstracts on the following pages. These research efforts are a compilation of the scholarly work conducted throughout the HMH Network by Hackensack Meridian *Health* healthcare professionals.

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ORIGINAL RESEARCH

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SECOND-LINE CANNABIS THERAPY IN PATIENTS WITH EPILEPSY

Erica Braun MD [1], Francesca M. Gualano BS [2], Prabha Siddarth PhD [3], and Eric Segal MD [1,4]

1 Hackensack University Medical Center, Hackensack, New Jersey 07601 2 Hackensack Meridian School of Medicine, Nutley, New Jersey 07110 3 Semel Institute for Neuroscience and Human Behavior, School of Medicine, University of California Los Angeles, Los Angeles, California 90024 4 Northeast Regional Epilepsy Group, Hackensack University Medical Center, Hackensack, New Jersey 07601

Background: Marijuana-based therapies (MBTs) have been shown to reduce seizure frequency in patients with severe and drug-resistant epilepsy (DRE). Pharmaceutical-grade CBD (Epidiolex ®) was approved by the FDA in 2018 for the treatments of Dravet Syndrome (DS) and Lennox-Gastaut Syndrome (LGS) and subsequently in 2020 for tuberous sclerosis complex (TSC). It is unclear what the utility would be in prescribing one type of MBT if a previous, alternative type failed. We conducted a retrospective study with the objective to determine if an alternative formulation of MBT reduces seizure frequency if the patient has not had a meaningful response from an initial MBT. We also investigated the clinical impact that a second MBT has on side effect profile.

Methods: We reviewed the charts of patients with DRE who were at least 2 years old and who took at least 2 different formulations of MBT, including a pharmacologic formulation of CBD (Epidiolex ®), artisanal marijuana, and/or a hemp-based formulation. We reviewed medical records in patients 2 years of age and older; however, subjects' historical data, such as age of first seizure onset, may be prior to the age of 2 years. We extracted data on demographics, type of epilepsy, history of epilepsy, medication history, seizure count, and drug side effects. Seizure frequency, side effect profiles, and predictors of responder status were evaluated.

Results: Thirty patients were identified as taking more than 1 type of MBT. Our findings suggest that seizure frequencies do not change significantly from baseline to after the first MBT and to after the second MBT ($p = 0.4$). However, we did find that patients with greater baseline seizure frequency were significantly more likely to respond to treatment after the second MBT ($p = .03$). To our second endpoint of side effect profile, we found that patients who experienced side effects after a second MBT had significantly greater seizure frequency compared to those who did not ($p = .04$).

Conclusion: We found no significant seizure frequency reduction from baseline to after a second MBT in patients who tried at least 2 different formulations of MBT. This suggests a low probability of seizure frequency reduction with a second MBT therapy in patients with epilepsy who tried at least two different MBTs. While these findings need to be replicated in a larger sample, they suggest that clinicians should not delay care by trying alternative MBT formulations after a patient has already tried one. Instead, it may be more prudent to attempt an alternative class of therapy.

DISPARITIES IN HOSPITALIZATION RATES BY AGE FOR AMBULATORY CARE SENSITIVE CONDITIONS AMONG THE NEW JERSEY POPULATION IN 2019

Liliana Cruz, MD [1]; Srividya Naganathan, MD [1,2]; Jamie Pinto, MD [1,2]

[1] Jersey Shore University Medical Center/K. Hovnanian Children's Hospital. Pediatrics Department. [2] Hackensack-Meridian School of Medicine

Background: Ambulatory care-sensitive conditions (ACSCs) are conditions for which high-quality outpatient care can potentially prevent the need for hospitalization. Studies have consistently demonstrated a link between increased hospitalization rates due to ACSC and minority or low socioeconomic status. Neighborhood-level opportunities, described by the Child Opportunity Index (COI), have been previously used to explore the association of ACSC and other social determinants of health in the pediatric population, but have not explored the associations in pediatric and adult populations. Our objective is to determine the association between hospitalization rates for ACSC and neighborhood-based conditions utilizing the COI by age groups (0-17,18-24, 25-64, and 65 and above).

Design/Methods: Retrospective database analysis of the New Jersey (NJ) population during 2019. The exposure was the ZIP code-level COI, and the outcome was the hospitalization rate per 10,000 residents for ACSC. The COI uses 29 weighted indicators across three domains to describe the level of opportunity within a tract, from very low to very high. Demographics for the study population were established using census data from the American Community Survey. Hospitalizations for ACSC were extracted from the New Jersey state Inpatient Database (SID). We used Poisson regression models to compare hospitalization rates for ACSC across levels of COI.

Results: 7,349,317 people were included, the majority of which were white (53%). 29% of people living in very low COI areas were Black, and 39% were Hispanic, compared to 15% who were White. The rate of hospitalization by each ACSC diagnosis varied by age. The three most common ACSC for children (0-17) were asthma, seizure, and bacterial pneumonia; for young adults (18-24) were seizure, diabetes, and depression. In adults (25-64) were diabetes, cellulitis, and chronic obstructive pulmonary disease (COPD); for the elderly group (65 years old and above) were cardiac heart failure, COPD, and bacterial pneumonia. We observed higher hospitalization rates for ACSC in the 0-17 (0.71 95% Confidence Interval [CI] 0.69-0.74), 18-24 (0.57 95%CI 0.54-0.61) and 25-64 (1.11 95%CI 1.09-1.13) age groups living in neighborhoods of very low COI ($p < .001$). ACSC hospitalization rates decreased as COI tract increased across all age groups ($p < .001$).

Conclusion: Hospitalization rates for ACSC in NJ were associated with COI, suggesting that inequities are closely tied to health outcomes regardless of age. Findings support the use of COI to provide targeted interventions to reduce the rate of ACSC hospitalizations.

SILENT NIGHT, NO BREATH IN SIGHT "A STUDY TO VALIDATE A SCREENING QUESTIONNAIRE FOR CENTRAL SLEEP APNEA IN PATIENTS UNDERGOING OVERNIGHT DIAGNOSTIC POLYSOMNOGRAPHY (PSG)".

Bianca Dubovan, MD[1]; Divya Gupta, MD[2]

[1]HMH JFK University Medical Center Neuroscience Sleep Center [2]HMH JFK University Medical Center Neuroscience Sleep Center

Background: We seek to validate a bedside screening questionnaire in English and in Spanish, that will help clinicians screen high risk populations for CSA and refer them for further testing by diagnostic PSG in-lab. CSA is a treatable condition and its testing and treatment would help to improve cardiovascular outcomes and quality of life for the patients.

Methods: The general design is a prospective observational study. The protocol is survey-based. The questionnaire we designed is named, SCOUTS-BAG-HARMS. It was formulated by a panel of subject matter experts at JFKUMC by reviewing the literature for symptoms, demographics and co-morbidities associated with CSA. Thereafter psychometric validation of the questionnaire was done in the sleep lab by administering a post-questionnaire survey to patients undergoing a diagnostic polysomnogram to ensure that patients are able to understand the questions clearly and easily. Over the next 12 months, we anticipate screening for CSA in 200 consecutive patients (≥ 21 years of age), who are referred for overnight diagnostic PSG to the JFK Sleep Lab. The questionnaire will be available in English and Spanish. Currently there is no screening tool for CSA. Therefore, we seek to validate our bedside questionnaire as a screening tool to assess the risk of having CSA. We hypothesize that a score of >6 out of 20 on this questionnaire will correlate with a central apnea index (CAI) >5/hr on that patient's diagnostic PSG. Subset analysis will include risk stratification. For example, a score of 11 is more likely to be associated with CSA on a diagnostic PSG than a score of 6

Results: There are 30 patients that have completed this questionnaire since the study went live on 01/17/2023 at JFK University Medical Center Sleep lab. Data analysis to correlate their screening questionnaire score to their Central apnea index (CAI) score on the sleep test is underway.

Conclusion: We are planning to study 200 records to adequately power this study to achieve statistical significance as advised by HMH biostatistician Dr. Mani Paliwal. We will submit the data available so far.

INTEGRATION OF PALLIATIVE CARE IN AMBULATORY ONCOLOGY IN OLDER ADULTS FOR BETTER ACCESS TO END OF LIFE CARE

Zaid Shakir, MD [1], Manisha Parulekar, MD [1], Arunima Sarkar, MD [1]; Michelle Secic [1]

[1] Internal Medicine-Geriatrics, Hackensack University Medical Center, NJ

Background: Hospice is essential in care for patients with advanced malignancy. The purpose of this study is to establish whether there is a benefit in incorporating palliative care for older adults with primary malignant lung or colorectal cancer in outpatient settings to facilitate appropriate hospice referral for end of life care.

Methods: Data was collected from patients with primary malignancy lung or colorectal cancers in ambulatory clinics at John Theurer Cancer Center, Hackensack Meridian Health between 2017 and 2022. Palliative care was added to the standard of care in the outpatient oncology setting in 2019. We compared data from patients pre (Control group {CG} 2017-2019) and post (Intervention group {IG} 2020-2022) integration of palliative care. Data was collected for demographics (age, race, ethnicity, gender and religion) and primary outcomes were hospice referrals and length of stay on hospice.

Results: This retrospective study included 7,024 patients in the IG and 3,244 patients in the CG. Out of all participants, the majority were white (74.8% CG, 78.8% IG), not Spanish/Hispanic/Latino (87.1% CG, 86% IG) and of Christian faith (77.4% CG, 79.2% IG). IG had a statistically significant higher hospice referral rate (1,325/7,024 = 18.9%) than those in the CG (62/3,244 = 1.9%), chi-square test p-value <0.0001. Those in the IG had a statistically significantly shorter length of stay (median=6 days) compared to those in the CG (median = 8 days), Wilcoxon rank sum test p-value =0.0413. Patients with lung cancer had higher referral rates in the IG than patients with colon cancer (941/1,325 = 71% compared to 363/3,244 = 27.4%).

Conclusion: Our study indicates that introducing palliative care in the ambulatory oncology setting for older adults improved hospice referral. Furthermore, this study helped showcase implementing standardized hospice referral protocol for advanced cancer stages noted to increase referral rates when comparing lung and colorectal cancers. No improvement was noted in length of stay when comparing intervention and control groups. Having easy access to palliative and hospice care in ambulatory oncology settings and adopting standardized protocols for hospice referrals may improve provision of timely end of life care.

RESTLESS LEG SYNDROME AND VITAMIN D DEFICIENCY

Roza Sabri, MD [1] Divya Gupta, MD [2]

[1] JFK University Medical center - Sleep center [2] JFK University Medical center - Sleep center

Background: The aim of this project is to determine if improvement of 25-hydroxy Vitamin D level above 30 ng/ml in RLS patients with low levels of Vitamin D, will also improve the symptoms of restless legs syndrome (RLS) by one grade on the International Restless Legs Syndrome Study Group (IRLSSG) severity scale.

Methods: Patients from JFK sleep clinic RLS symptoms and vitamin D deficiency (25OH Vit D level <30) were included in the study in the time period of December 2019 to current. Patients with Severe RLS (iRLS score ≥ 31) who may need immediate intervention or who are currently on treatment for RLS or on vitamin D supplementation are excluded. The study design is controlling for confounding factors (OSA and Iron deficiency anemia). Subjects will be randomly divided into two groups of "treatment" vs "control". Each group will receive either vitamin D 50000 IU weekly or placebo for 6 weeks and will be crossed over into the other group at week 7. Both the patient and the investigator will be blinded to the nature of substance A and substance B. The computerized randomization of substance A or B to be the active agent or the control substance will be done by JFK hospital pharmacy who will dispense the substances to the patient. Subjects are required to complete the iRLS questionnaire along with vitamin D levels at baseline (week zero), middle of the study (week 7) and at the end of the study (week 14). In addition to the subjective iRLS questionnaire, study instruments include Actigraphy for objective data of leg movements that patients will wear on their ankle at week 0, week 7 and week 14 to monitor their leg activity index.

Results: To this date, there have been 4 subjects recruited from JFK sleep clinic. One subject did not complete the study, one dropped out after starting taking vitamin D supplement outside of study protocol, one who successfully completed the study and one who is currently participating. Data will be included in the presentation.

Conclusion: We are planning on studying a sample size of 50 patients for improvement in their RLS symptoms after completing treatment with vitamin D 50000 IU weekly for 6 weeks by subjective questionnaire and objective monitoring of their leg activity index at night. We hope to assess whether vitamin D supplementation in deficient patients could be a treatable form of RLS.

FLUID DYNAMICS OF ONABOTULINUMTOXINA INJECTION AS VISUALIZED UNDER ULTRASOUND GUIDANCE

Kristen Harris, MD [1] ; Stacey Jou, MD [1] ; Lee Beauchamp [2] ; Steven Escaldi, DO [1]

[1] Department of Physical Medicine and Rehabilitation, Johnson Rehabilitation Institute [2] Hackensack Meridian School of Medicine

Background: Botulinum toxin injections are routinely used for spasticity management, with the most common side effect being local muscle weakness. While some toxin spread is expected, local spread beyond the muscle fascicle or distant toxin effect may impair patients' function. There has not been investigation as to clinical factors that may impact risk of toxin spread beyond the intended muscle. In this study, we examine the associations between clinical factors and observed muscle leak during injections in flexor carpi radialis (FCR) muscle in the upper extremity.

Methods: This study was performed at the HMH Johnson Rehabilitation Institute outpatient spasticity clinic. Patients scheduled for botulinum toxin injections for management of upper extremity spasticity were invited to participate in the study if physical examination demonstrated involvement of the FCR warranting injection. If patients were eligible and agreed to participate, informed consent was obtained. During the patient's visit, a 5-15MHz linear array ultrasound transducer was used to visualize botulinum toxin injection into the flexor carpi radialis. Still and video images were saved for later review. Baseline demographic and clinical information was obtained from the chart including age, sex, diagnosis, BMI, time since neurologic diagnosis, number of prior injections and Modified Ashworth Score at the wrist. Images were reviewed by two of the study authors with experience in ultrasound-guided spasticity management. Baseline characteristics including pre-injection AP diameter, Modified Heckmatt Score, and whether toxin leak could be visualized beyond the intended muscle belly were documented.

Results: Twenty patients were enrolled between January and March 2023. Mean age was 53.65 and 75% of the patients were male. Diagnoses included ischemic stroke (55%), hemorrhagic stroke (30%), cerebral palsy (5%), and unspecified spastic quadriplegia (10%). Median number of units injected were 30, ranging between 20 and 50 units. 65% of patients had received >10 prior botulinum toxin injections. Median Modified Heckmatt Score was 3 and mean AP diameter of the FCR muscle was 8.324. Leak of botulinum toxin injection was visualized in three of twenty patients and could not be determined for two patients. For 2/3 with visualized leak, needle entry point was noted to be lateral of midline. Statistical associations between toxin leak and clinical factors are still being determined and will be available prior to HMH Resident/Fellow Research Day.

Conclusion: Leak beyond the intended muscle fascicle may occur when following prescribing information of onabotulinumtoxinA for spasticity. Care should be taken to minimize risk of leak and unintended weakness in the surrounding muscles.

DEVELOPMENTAL MILESTONES SURVEILLANCE USING SMART PHRASE FEATURE IN EPIC

Kadakia, Sangati MD [1], Gulla, Christina DO [1], Rizvi, Mohammad MD [1], Scott, Nigel MD [1], Magharious, Jessica MD [1], Kim, Jane S. MD [1], Al-Jadiri, Aseel MD [2]

[1] Department of General Pediatrics; [2] Institute for Child Development at Hackensack University Medical Center

Background: The goal of this initiative was to improve surveillance and documentation of developmental milestones by pediatric residents during well child visits.

Methods: Using the smart phrase function of Epic, the electronic medical record used at the Pediatric Academic Practice at Hackensack University Medical Center, age-specific checklists of developmental milestones were created using the CDC's updated milestones for each well visit with additional questions for autism surveillance specifically at 18, 24, and 30 months. A pre-implementation survey was completed by all pediatric residents to gauge their comfort level reviewing developmental milestones without standardized checklists. Residents were reminded and encouraged to use the smart phrases at each well visit. After three months of using the checklists, post-implementation surveys were distributed to assess if the checklists impacted resident education. As a secondary measure, well child visits for patients ages 0-5 years were reviewed from January to March and May to July of 2022 to determine if there were differences in how residents documented surveillance before and after the checklists were implemented.

Results: Improvements were seen in overall resident comfort level, efficiency, and documentation when comparing pre and post survey results and chart review. Using the smart phrases during each well visit resulted in more uniform identification of developmental delays. Residents endorsed feeling more comfortable with assessing for developmental milestones and escalating care when needed using the aforementioned checklists as a guide.

Conclusion: Use of uniformed methods in reviewing developmental milestones during a well visit improves comfort level, documentation, and efficiency of pediatric residents. In addition, it is more likely to raise concerns or pick up on any developmental delays, which is key for a pediatric academic practice.

SHORT TERM OUTCOMES OF INFANTS WITH ACIDOTIC CORD GAS WITH BENIGN NEUROLOGICAL EXAM AT BIRTH

Alvarez-Pagan, A, MD [1], Motiani, J, MD [2] Hahn, C, MD [3] Lozy, T, [4] Sherbany. A, MD [5] Chhabra. R, MD [6] Khalil. M, MD [7]

Hackensack University Medical Center

Background: Recent studies have shown an increased risk of mortality, brain injury, seizures and NDI in infants with mild HIE. In early hours after a significant hypoxic ischemic event, the majority of newborns do not demonstrate clear signs of brain compromise yet these abnormalities may develop in the ensuing hours to days after birth. Objective: Identify the gap in our current clinical practice by investigating short term outcomes among newborns >35 weeks born with significant metabolic acidosis but did not meet therapeutic hypothermia (TH) criteria.

Methods: Single center retrospective chart review of newborns from Jan.2018 to Mar.2021 with cord gas pH <7.0 and/or base excess ≥12 mmol/L born at HUMC. Those with birth anomalies, birth weight <1800g, or met TH criteria were excluded. Summary statistics include mean with standard deviation and counts with associated frequencies. Group comparisons were performed using Student t-test, with a significance threshold at 0.05.

Results: Initial sample size was 184. 18 received TH. Final n= 166. 28% had initial pH < 7 and BE ≥ 12. 24% had initial pH < 7 (Mean7.07, SD 0.10). 89% had a BE ≥ 12 (Mean 14.2, SD 2.1).48% (79) delivered vaginally, 52%(87) via C Section. Those born via C Section had a significantly lower pH than those delivered vaginally(7.04 vs 7.1,p=0.0008).Total of 42 infants had a sentinel event (Cat III tracing, shoulder dystocia, placental abruption, uterine rupture or cord prolapse). Having a sentinel event was not associated with a lower pH 7.05 vs. 7.08 (p= 0.1315). There was no association between having low Apgar scores and having a low pH. 60% (99) were admitted to the NICU and 40% (67) to the WBN. 80/99 (81%) of admissions to the NICU were due to respiratory distress, of which 2/80 developed seizures at 9 and 14 hours of life. 6% (6/99) for possible sepsis, 13% (13/99) for closer monitoring. 16% (11/67) of patients in WBN were transferred to NICU. 8/11 (72%) had hypoglycemia, one associated with AKI on admission.1/11 (9%) had respiratory distress, 1/11 (9%) had temperature instability, and 1/11 (9%) had bloody stools.

Conclusion: Infants retrospectively identified with severe acidosis at birth who didn't meet TH criteria on admission, were at higher risk for admission or transfer to NICU. Findings during admission included hypoglycemia, respiratory distress, temperature instability, AKI, and seizures. These outcomes may represent the effects of possible perinatal hypoxia-ischemia. Therefore, this population may benefit from close monitoring in NICU settings to further detect possibly missed mild HIE cases. Larger scale studies are required to confirm these findings.

MINIMALLY INVASIVE SURGERY FOR EXCISION OF ENDOMETRIOSIS IMPROVES PERCEPTION OF LOWER URINARY TRACT SYMPTOMS

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Background: Lower urinary tract symptoms (LUTS) including urinary urgency, frequency, and nocturia are highly prevalent and recent studies have shown an increased prevalence of LUTS in patients with endometriosis. While these symptoms are traditionally treated either medically or with behavioral modifications, surgical excision is the gold standard for the management of suspected endometriosis. It remains unclear if surgical intervention for endometriosis provides LUTS relief. Our objective was to determine if surgical excision of suspected endometriosis is correlated with perceived improvement of voiding dysfunction.

Methods: This retrospective cohort study assessed 71 women (18-59 years old) who underwent a robotic-assisted laparoscopic excision of suspected endometriosis with a single provider at an academic institution between 2020-2021. A post-operative survey evaluated the perceived change in the severity of voiding dysfunction, specifically urinary urgency, frequency, and nocturia, a mean of 9.42±6.99 months after surgery. This study was approved by the institutional review board and all patients provided informed consent.

Results: Of the 71 women assessed, pathology-confirmed endometriosis was noted in 49 patients (69.01%). Of those with concomitant hysterectomies, half (n=13) had confirmed adenomyosis (total n=58 for endometriosis and/or adenomyosis positive). 73.6% (n=53) of all patients were noted to have gross peritoneal inflammation. Rates of perceived LUTS were significantly decreased when comparing pre and post-operative: urinary urgency (52.9% vs 26.1%, $p<0.0001$), urinary frequency (60.0% vs 31.9%, $p<0.0001$), nocturia (mean voids per night 1.83 to 0.87, $p<0.0001$), difficulty emptying bladder (37.1% vs 14.5%, $p=0.0001$), and frequent UTI (22.9% vs 5.8%, $p=0.009$). When stratified by pathology consistent with or negative for endometriosis and/or adenomyosis, both groups showed a significant improvement in nocturia. Similarly, there was no significant difference in the rate of LUTS improvement between patients who did (n=26) versus did not (n=45) have a hysterectomy at time of surgery. There was no significant difference in the percent changes of LUTS before and after surgical intervention for patient follow-up greater than (range=7-22 months) versus less than 6 months.

Conclusion: Excision of suspected endometriosis overlying pelvic sidewall by minimally invasive surgical intervention was reported to provide significant relief of LUTS in patients with inflammatory disease. Rates of symptom improvement were preserved with increased time intervals following surgery, regardless of pathology findings. These findings highlight the increasing clinical importance of surgical management in improving LUTS for women with endometriosis.

SEVERITY OF DISEASE AND TIME TO DIAGNOSIS OF HOSPITALIZED PEDIATRIC PATIENTS WITH NEW-ONSET INFLAMMATORY BOWEL DISEASE DURING THE COVID-19 PANDEMIC

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Introduction: Children presenting with symptoms of inflammatory bowel disease (IBD) commonly require multidisciplinary care, and we suspected that medical care barriers due to the COVID-19 pandemic led to diagnosis delays and increased complications of IBD. Our objective was to assess impacts of the COVID-19 pandemic on the time to diagnosis and severity of pediatric inflammatory bowel disease.

Methods: We performed a retrospective cohort study comparing children diagnosed with IBD at our center two years before the start of the COVID-19 pandemic to those diagnosed two years after the pandemic. Data collected included demographics, diagnosis subtype, time to diagnosis, and complications of disease. Summary statistics include mean with standard deviation and counts with associated frequencies. Group comparisons were performed using Student t-test or Wilcoxon, as appropriate, with 0.05 for significance.

Results: We assessed 110 pediatric patients aged 3-20 years with newly diagnosed IBD, including 42 pre-pandemic and 68 during the pandemic. There was no significant difference in demographics or subtype of IBD between the two groups. There was no significant difference in the number of patients who presented to the ED in the pre-pandemic vs. pandemic groups (p-value = 0.17); however, 100% of children who presented during the pandemic were admitted to the PHM service compared to 50% of patients who presented pre-pandemic. Additionally, those admitted during the pandemic had significantly faster time to endoscopy (8 vs. 15 days, p-value = <0.01), presented with more abscesses (0% vs. 18.2%), and required more surgery (0% vs. 9.1%), but received a similar number of packed red blood cell (PRBC) transfusions (30% vs. 36%).

Discussion/Conclusion: Children diagnosed with IBD at our center during the COVID-19 pandemic were more likely to require admission to the PHM service and have significantly faster time to endoscopy, which was a surprising result given the lack of resources at the beginning of the pandemic. This raises the possibility that children presenting with IBD during the pandemic had more severe disease to prompt admission and more rapid endoscopy. This is also supported by the trend of increased complications at diagnosis, including abscess formation and increased surgical intervention. However, this study was limited by a small sample size and retrospective design, and larger studies are needed to assess the full impacts of the pandemic.

TRENDS IN MESENCHYMAL STEM CELL CLINICAL TRIALS 2004-2022

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Background: A leading cause of disease and death for all age groups are syndromes characterized by widespread uncontrollable inflammation. Severe trauma induces pro-inflammatory responses, increasing the risk of complications. Mesenchymal Stem Cells (MSCs) have the remarkable ability of altering the immune response by emitting soluble anti-inflammatory factors, which rebalance the immune system and thereby may prevent additional damage and promote recovery. Efficacy of MSCs in the clinic has been demonstrated in multiple conditions including Graft vs Host Disease and anal fistulas in Crohn's disease. We conducted this study to generate a current database of clinical trials and results reported, and to analyze the routes of administration and the doses used for MSCs.

Methods: To analyze trends and characteristics of MSC clinical trials, we created a novel database using data derived from Clinical.Trial.gov, including data on disease targets, sources of cells, doses being delivered and routes of administration. We analyzed 1440 MSC trials reported from 2004-2022. We downloaded directly from ClinicalTrials.gov information that included the NCT number (identifier for each trial), title of the trial, recruitment status, sponsor, clinical phase, country of origin, and registration date. Additional data that could not be downloaded, including the sources of MSC, disease, route of administration and dose, were extracted from individual trial records.

Results: Here we show the number of clinical trials using mesenchymal stem cells (MSCs) has increased since 2008, but then increased precipitously in 2020 due to the COVID-19 pandemic. Bone marrow aspirates from the pelvis has been and continues to be the most frequently used source of MSC for clinical trials. Our analysis shows Intravenous (IV) injection is the most common, least invasive and most reproducible method, accounting for 47% of all trials. The median dose for IV delivery is 100 million MSCs/patient/dose. MSC doses were reported in only 57% of trials. Many trials indicate doses of <70 million MSCs/patient, which may be below the threshold for efficacy.

Conclusion: Major factors that make comparisons among different trials difficult and may slow translation of MSCs to the clinic include heterogeneity among MSCs from different sources and use of different cell preparation protocols. Improved trial designs are needed because heterogeneity in many trial parameters makes systematic analysis difficult. Increased reporting of clinical trial results, especially negative results, which are rarely published, will help avoid potentially non-effective doses and reduce unnecessary duplication of clinical trials.

COMPARING THE PREVALENCE OF THREE PSYCHIATRIC DISORDERS AMONG WHITE, BLACK, HISPANIC AND A/PI MEDICARE RECIPIENTS ON NATIONAL, STATE (NJ), COUNTY (OCEAN AND MONMOUTH COUNTY, NJ) AND CLINIC LEVELS.

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Background: Compared to their younger counterparts, older adults have been found to use mental health services at lower rates (Karlin & Norris, 2006). This disparity is more pronounced among racial and ethnic minorities in the United States and continues to persist despite efforts to decrease barriers to care. Addressing them requires an understanding of the unique characteristics of older patients along with factors associated with mental health services utilization. Project Objectives: Compare prevalence rates of specific disorders among Medicare recipients Compare CMS rates to prevalence rates from epidemiological studies Identify divergent trends Explore and clarify the origin of such trends

Methods: We reviewed the U.S. Census Bureau data (USCB) and extracted demographic data from the Center for Medicare and Medicaid Services (CMS) using the mapping Medicare disparities population tool (MMD) Data extraction criteria: Location: United States National, New Jersey, Ocean County, and Monmouth County Data was limited to the year 2018 Basic demographic data collected included: Age 65+, All races, White, Black, Hispanic, Asian /PI CMS data were further stratified by diagnosis including Alzheimer's disease, Schizophrenia, Depression Analysis: All parameters were reported as prevalence rates

Results: The national prevalence of Alzheimer's Disease was respectively 10%, 10%, 8%, and 7% among white, black, hispanic and AP/I Medicare recipients; highest prevalence among the black population in Monmouth County (12%) despite the county having lower proportions of aged (USCB) population compared to their white counterparts The national prevalence for depression was 15%, 10%, 8%, and 6% among white, black, hispanic and AP/I among Medicare recipients The schizophrenia prevalence rates of 1% are strikingly uniform across national, state, county, race / ethnic groups in the Medicare population without any divergent trends

Conclusion: Our findings, consistent with other studies, and with the national data, suggest that black New Jersey Medicare recipients, and Ocean and Monmouth County Medicare recipients in particular show a specific pattern suggesting that potentially 30% of cases of dementia among the black Medicare recipients do not get diagnosed or treated This disparity in the diagnosis between races appears to be specific to dementia and does not appear in the reported schizophrenia or depression prevalence rates. Further research should seek to understand the factors driving the underdiagnosis and undertreatment of dementia in the black communities of our counties

REPURPOSING ORAL B-LACTAMS FOR THE TREATMENT OF LUNG DISEASE CAUSED BY NON-TUBERCULOUS MYCOBACTERIA (NTM)

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Lung disease caused by Non-Tuberculous Mycobacteria (NTM) is increasingly prevalent and poses a threat to public health. Current treatment options involve prolonged courses of multiple antibiotics, including injectables, with poor outcomes. Novel more efficacious and oral treatments are urgently needed. In this study, we aimed to repurpose clinically approved or in-development oral β-lactams for the treatment of NTM pulmonary disease. We performed a screen of oral β-lactams with or without oral β-lactamase inhibitors. Growth inhibition against reference strains and clinical isolates was measured in Middlebrook 7H9 broth. Several β-lactams were identified as actives. Pairwise combination of active β-lactams revealed synergistic couples. These findings suggest that the identified β-lactams and their combinations have the potential to be repurposed for treating NTM lung disease. The repurposing of clinically approved or in-development oral β-lactams could expedite the development of new, more efficacious and oral regimes .

EVALUATION OF 30 DAY READMISSION RATES AFTER THE IMPLEMENTATION OF A UNIT BASED HEART FAILURE COUNSELING INITIATIVE

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Background: Despite increasing efforts, heart failure readmission rates within 30 days after hospitalization remains a challenge. Ocean University Medical Center (OUMC) heart failure (HF) 30-day year to date (YTD) readmission is 14.63% as of May 2022. It has been documented that a follow-up within 7 days after discharge from a heart failure hospitalization is associated with lower 30-day readmission. Studies have shown that pharmacist involvement in admission and discharge medication review, as well as discharge counseling, demonstrated an absolute risk reduction in readmissions for HF patients. OUMC has initiated a pharmacy unit-based initiative to counsel patients and find opportunities to optimize guideline recommended therapy. Another key component of the pharmacy initiative is a telephone follow up 7 days after discharge. The primary purpose of the study is to evaluate the pharmacy HF unit-based initiative impact on 30-day heart failure readmissions at OUMC

Methods: his study is a retrospective chart review of patients that received a diagnosis of heart failure or heart failure exacerbation at OUMC between April 1, 2022 and December 31, 2022. Data was collected from business intelligence reports and manual chart review in Epic. Information was collected to assess rates of readmission within 30 days of discharge. Data was also collected to determine what pharmacy interventions were most common. All patients admitted with a new diagnosis or exacerbation of heart failure were included in the study. Patients were excluded from the study if: they were admitted from or discharged to facilities such as hospital transfers, long term care facilities, and subacute/acute rehab facilities, had expired during care, or were discharged to hospice care.

Results: A total of 182 patients met the inclusion criteria. The primary end point of readmission after pharmacy counseling was 12.8% vs 23.1% of patients readmitted without counseling. There were 1.6% less overall readmissions in patients after the implementation of the counseling initiative compared to before it was implemented, however this was not statistically significant ($p = 0.074$). Patients with HFrEF were statistically significantly less likely to be readmitted within 30 days when they were discharged with additional heart failure medications (95%CI, -1.34 to -0.126).

Conclusion: There have been numerous studies on pharmacist inclusive heart failure management published that have resulted in decreased readmission rates and higher rates of optimized therapy. The results of this study provide more support on the benefits of pharmacist involvement on the quality of care and reduction of readmission in patients with heart failure.

EFFICACY AND SAFETY OF 4-FACTOR PROTHROMBIN COMPLEX CONCENTRATE (4F-PCC) VS. ANDEXANET ALFA FOR THE REVERSAL OF APIXABAN AND RIVAROXABAN-RELATED INTRACRANIAL HEMORRHAGE

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Background: Andexanet alfa is the FDA-approved agent for the reversal of apixaban and rivaroxaban, but recent studies show 4F-PCC may possess similar efficacy for this indication. The purpose of this study is to compare the efficacy and safety of 4F-PCC vs. andexanet alfa for the reversal of intracranial hemorrhage (ICH) associated with apixaban and rivaroxaban.

Methods: A retrospective chart review was performed on 418 patients from four New Jersey hospitals over a 3 year period. The primary endpoint was hemostatic efficacy, defined as stability on CT head scan at 24 hours [18-30 hours] following administration of 4F-PCC or andexanet alfa. Secondary endpoints were incidence of in-hospital thrombotic events and in-hospital mortality. Inclusion criteria were patients ≥18 years old, use of apixaban or rivaroxaban within 18 hours of hospital presentation, presence of ICH confirmed on CT head scan, and administration of 4F-PCC or andexanet alfa for ICH reversal. Patients with non-ICH bleeding or patients who did not have a follow-up CT scan within the 18-30 hours time window following administration of 4F-PCC or andexanet alfa were excluded.

Results: Of the 418 patient charts reviewed, 59 patients met inclusion criteria [4F-PCC: 29 (49.2%); andexanet alfa: 30 (50.8%)]. There was no statistical difference in CT stability at 24 hours for 4F-PCC vs. andexanet alfa [23(79.3%) vs. 26(86.7%)]. Additionally, there was no difference between 4F-PCC vs. andexanet alfa in the incidence of in-hospital thrombotic events [1(3.4%) vs. 0(0%)] or in-hospital morality (6(20.7%) vs. 9(30%)].

Conclusion: This retrospective comparison suggests that there is no difference in efficacy or safety between 4F-PCC and andexanet alfa for the reversal of ICH related to apixaban and rivaroxaban use. A major limitation is that this study is likely underpowered due to small sample size. Prospective, head-to-head trials comparing 4F-PCC vs. andexanet alfa are still needed to more effectively compare their efficacy and safety in this patient population.

ENHANCING THE SURVIVAL AND PATENCY OF SAPHENOUS VEIN GRAFTS USING A REVERSE-XENOGRAFT MODEL

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Purpose: The saphenous vein graft (SVG) has been the conduit of choice for over 50 years, but its lack of availability makes its superior utility unreliable. Because of the paucity of autologous vein grafts and poor results of alternative bypass conduits, we hypothesized vein allografts can be used for patients with limb-threatening ischemia who do not have adequate vein conduit for restorative bypass surgery. Despite substantial improvements in outcomes in the past decade, graft patency and conduit availability remain the 'Achilles' heel' of this procedure. Remodeling processes of the vein graft start within days after harvesting and grafting, leading to the formation of intimal hyperplasia; the primary cause of intermediate-phase vein graft stenosis and occlusion. Even autologous saphenous vein grafts are affected, leading to poor long-term patency, with handling and preimplantation treatment having an impact on mean time to failure.

Materials and Methods: To study the question of how to treat vessels for implantation such that they are less "visible" to the immune system, we have developed an IRB/IACUC-approved model in which human saphenous vein segments are grafted into rats via infra-renal inter-positional aorta grafts, after subjecting the veins to various treatments intended to extend patency. This reverse xenograft model accelerates the rate of failure due to the extreme difference in species biomarkers. We have performed SVGs on 47 Sprague-Dawley rats, using either no pretreatment, or one of several pretreatment cocktails including various fixatives, decellularizing agents, nucleases, proteases and alcohols, at varying concentrations for periods of time from 1 to 9 months.

Results: Preliminary data from our lab shows a strong immune reaction to the implantation of human SVG, as expected. Control rats (SVGs with no pretreatment), show serious degradation as early as 2 weeks after grafting. All the pretreated vessels appeared superior to controls, with some demonstrating minimal intimal hyperplasia out to the longest time points tested. •

Conclusions: We have successfully tested the hypothesis that human saphenous vein segments can be subjected to pre-treatment such that when they are implanted into rats, they will retain greater patency and have improved histological and physiological performance at 3, 6 and 9 months compared to controls. This research has significant implications for graft patency and retention in clinical applications.

COMPARISON OF HIGH- AND LOW- DOSE OF FOUR-FACTOR PROTHROMBIN COMPLEX CONCENTRATE (4F-PCC) FOR FACTOR XA INHIBITOR-ASSOCIATED INTRACRANIAL HEMORRHAGE

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The purpose of this study was to evaluate outcomes of a P&T (pharmacy and therapeutics) approved dosing protocol implementing a low-dose (25 units/kg) of 4F-PCC compared to high-dose (50 units/kg) for factor Xa inhibitor-associated intracranial hemorrhage. A retrospective chart review was conducted for a six month period pre-implementation of the P&T approved 25 units/kg dosing for 4F-PCC and for a six month period post-implementation of the protocol. Patients 18 years and older were included if they received 4F-PCC for reversal of factor Xa inhibitor-associated intracranial hemorrhage, and major exclusion criteria included epidural hematoma (EDH), administration of andexanet alfa, and pregnancy. The primary outcome assessed was hemostatic efficacy at 24 hours between patients receiving 50 units/kg versus 25 units/kg, and safety was assessed by evaluating the presence of thrombotic events (stroke, DVT, and PE) between the groups. Descriptive statistics was used to evaluate the data. A total of 18 patients were included, with 9 patients in each group. The median 4F-PCC dose in the pre-protocol group was 48.7 units/kg (median total dose was 3738 units) compared to 26 units/kg (median dose 1599 units) in the post-protocol group. There was 1 patient in the post-protocol group who received desmopressin, while no other reversal agents or blood products were given in either group. The percentage of patients who achieved good or excellent hemostasis at 24 hours from baseline was similar between the two groups (pre-protocol: 6 patients [75%]; post-protocol: 8 patients [89%]). Safety outcomes were also similar, with only 1 patient in each group experiencing a DVT post-administration of 4F-PCC. The implementation of a P&T approved dosing protocol utilizing a lower dose of 25 units/kg of 4F-PCC for factor Xa inhibitor-associated intracranial hemorrhage seems to be as safe and effective as higher doses of 50 units/kg. Similar outcomes were seen in hemostatic efficacy at 24 hours as well as in the incidence of thrombotic events between both groups. This study is limited by its small sample size, and larger studies are needed to confirm the efficacy and safety of this dosing strategy.

OUTCOMES OF ELDERLY PATIENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA: TRENDS OF SURVIVAL IN THE LAST TWO DECADES

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Background: In the last few decades, there have been substantial improvements in outcomes of younger patients with Acute Lymphoblastic Leukemia (ALL). Similar results were not seen in the elderly due to varied genetic makeup and lesser tolerance to aggressive pediatric-based treatment regimens. Lately, with newer developments like Tyrosine Kinase Inhibitors (TKIs), Inotuzumab ozogamicin, Blinatumomab, CAR-T, improvements in survival have been noted. Our objective was to describe survival trends among elderly diagnosed with ALL. We also described survival outcomes based on demographics and genetic features.

Methods: We identified patients with ALL aged ≥ 65 years from Surveillance, Epidemiology and End Results database for 2000-2018 using WHO ICD-O-3 codes. Gender, age, race, immunophenotype, genetics, prior malignancy status, year of diagnosis, survival months, vital status, until the study cutoff (December 31, 2019) were collected. Years of diagnosis were divided into three study time periods (TP) [2000-2006 (TP1), 2007-2011(TP2), 2012-2018 (TP3)]. Survival analysis was done using a Cox-proportional hazard regression model. Gender and immunophenotypic groups were not significant on univariate analysis and were not included in the multivariate analysis. Survival curves were plotted for each TPs by Kaplan-Meier method and were compared using log-rank test. Survival estimate were further compared for each TP for each subgroup of race, gender, immunophenotype and age group with the posthoc comparison between each TP. The posthoc adjusted p value are calculated by bonferroni correction.

Results: Total of 26801 patients with ALL were identified. 10.02% (n=2986) were ≥65 years. After excluding cases with incomplete information (n=50), 2936 patients were included. 50.44% (n=1481) were female. 69.17% (n=2089) patients were Non-Hispanic Whites (NHW). ALL presented as secondary malignancy in 27.45% (n=806) patients. 90.63% (n=2661) patients had B-Lymphoblastic leukemia. In terms of genetic mutations (data available only after 2010), t(9;22) positive diseases were 8.25% (n=139). In the survival analysis, superior outcomes were seen in patients with t(9;22) [HR 0.68 (95%CI 0.55-0.84)] with reference to B-Lymphoblastic Leukemia, NOS. Inferior outcomes were seen when ALL was diagnosed as secondary malignancy [HR 1.16 (95% CI 1.07 - 1.27)] and for Non-Hispanic Black (NHB) [HR 1.29 (95% CI(1.09-1.52)] with reference to NHW. Survival trends improved over the study TPs 2000-2006 (Ref), 2007-2011 [HR 0.75 (95% CI 0.68-0.83)], 2012-2018 [HR 0.65 (95% CI 0.58-0.71)].

Conclusion: Prognosis for elderly diagnosed with ALL has improved in last two decades. Notable improvements are seen in patients with t(9;22), owing to TKIs. Study outlines racial disparity. There are unmet needs of improvement in age >75 years and patients with T-cell immunophenotype.

COMPARISON OF COVID-19 OUTCOMES BETWEEN PATIENTS WITH OPIATE USE DISORDER (OUD) AND PATIENTS WITHOUT OUD DURING THE HEIGHT OF THE PANDEMIC BETWEEN MARCH 2020 AND MARCH 2023

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Background: Overdoses are an avoidable source of injury-related cause of death in the United States which appear to have accelerated during the COVID-19 pandemic. Opioid use disorder (OUD) is a medical condition impacting everyone from all walks of life having no discrimination of income level, race, social class, or gender. OUD is an unprecedented medical and public health crisis in New Jersey, as well as the United States with numbers from the Centers for Disease Control Estimating 2.7 million people ages 12 or older, reported having OUD in the United States in 2020. The percentage of those reported using opioids has significantly increased in the last decade. To combat this epidemic medications and treatment modalities have been implemented throughout New Jersey including: Medication Assisted treatment programs, Office Based Addiction treatment programs, and other treatment modalities. Deaths from drug overdose continue to significantly contribute to mortality in New Jersey as well as in the United States. The National Vital Statistics System (NVSS) tracks trends in drug overdose deaths for all drugs and for specific drugs and drug types and identifies changes in rates by state. A recent report noted that from 2017 to 2018 the drug overdose death rate was higher in 2018 than in 2017 for only 5 states including California, Delaware, Missouri, New Jersey, and South Carolina. The age-adjusted rate of drug overdose deaths involving synthetic opioids other than methadone, which include drugs such as fentanyl, fentanyl analogs, and tramadol, increased from 0.3 per 100,000 standard population in 1999 to 1.0 in 2013, 1.8 in 2014, 3.1 in 2015, 6.2 in 2016, 9.0 in 2017, and 9.9 in 2018. Additionally, the national 12 Month-ending Provisional Counts of Drug Overdose Deaths sourced by the National Center for Health Statistics reported for March 2019 at 67727 deaths, comparatively to March 2020 the reported number of 74679 and in March 2022 that number was at a staggering 107560.

Results: Patients with OUD who contracted COVID-19 fared worse than their COPD, DM suffering counterparts, Disease outcomes which were determined to be the duration of hospitalization and mortality rate.

Methods: Data sourced from our hospital EMR (EPIC) and surveyed hospital admissions that span from mid-March 2020 until mid-March 2023 focusing on COVID-19 admissions in patients with OUD and those without. Two groups examined focusing on mortality rate and duration of hospitalization.

Conclusion: Given the recent pandemic, it would be prudent to regard OUD patients as a vulnerable population, which would require specialized care in both inpatient and outpatient settings in order to mitigate the poor outcomes that were seen in our survey, thereby lessening the disease burden on both patients and the medical system.

RACIAL/ETHNIC AND SOCIOECONOMIC DIFFERENCES IN COLON CANCER SURGERY PERFORMED AND DELAYED SURGICAL TREATMENT IN PATIENTS 45 YEARS AND OLDER DIAGNOSED BETWEEN 2007-2017.

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Background: Several studies on the associations between socioeconomic status (SES), race/ethnicity, and surgical type/delays with colon cancer-specific and all-cause mortality abound, though with contrasting reports. This study sought to examine and expand on previous findings. Also, we quantified the extent to which these differences, especially the surgery type performed, explained the racial/ethnic disparities in colon cancer mortality.

Methods: We studied 111,789 adult patients ≥45 years old with a histological diagnosis of colon cancer between 2010 and 2017, identified from the Surveillance, Epidemiology, and End Results (SEER) database. To examine the association of SES and race/ethnicity with surgical treatment type and delays, we performed logistic regression models. We also performed mediation analysis models to quantify the extent to which mortality differences were mediated by sociodemographic, treatment, and clinicopathologic factors. The SEER database is a publicly available dataset for which the need for IRB approval was waived.

Results: Non-Hispanic (NH) Blacks [Adjusted odds ratio (AOR) =1.19, 95% CI:1.13-1.25] were significantly more likely to undergo subtotal colectomy and to experience treatment delays [Adjusted odds ratio (AOR) = 1.39, 95% CI: 1.31-1.48] compared to NH Whites. Hispanics [Adjusted odds ratio (AOR) = 1.59, 95% CI: 1.49-1.69], like NHB, were also more likely to experience treatment delays than were NHWs. Patients in the highest SES quintile were more likely to undergo partial colectomy and this was found to be protective by ensuring lower colon cancer specific mortality (CCSM) and All-cause mortality (AcM) rates for this group in comparison to those in the lowest SES quintile who majorly underwent subtotal colectomy.

Conclusion: To ensure access to adequate and timely healthcare services for all towards reducing the disproportionate burden of colon cancer on men, minority races and the poor, we would need a multidisciplinary approach that addresses several treatment and social factors that perpetuate these differences.

RENAL PARAMETERS OUTPERFORM PULMONARY PARAMETERS AS MORTALITY PREDICTORS IN HOSPITALIZED PATIENTS WITH COVID-19

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Background: The project was initiated due to the limited research on the optimal combination of admission day parameters for predicting mortality in COVID-19 hospitalized patients. With the established association between renal parameters and COVID-19 mortality, the study aimed to compare the predictive ability of pulmonary and renal parameters and identify the most effective combination of parameters for accurate COVID-19 mortality prediction.

Methods: In this retrospective study, all patients admitted to a tertiary hospital "FNKV" between September 1st, 2020 and December 31st, 2020, who were clinically symptomatic and tested positive for COVID-19, were included. We gathered extensive data on patient admissions, including laboratory results, comorbidities, chest X-rays (CXR) images, and SpO2 levels, to determine their role in predicting mortality. Experienced radiologists evaluated the CXR images and assigned a score from 0 to 18 based on the severity of COVID-19 pneumonia. Further, we categorized patients into two independent groups based on their renal function using the RIFLE and KDIGO criteria to define the AKI and CKD groups. The first group ("AKI&CKD") was subdivided into six sub-groups: normal renal function (A); CKD Grade 2+3a (B); AKI-DROP-Cr (C); CKD Grade 3b (D); AKI-RISE-Cr (E); and Grade 4+5 CKD (F). The second group was based only on eGFR at the admission and thus it was divided into four grades: Grade 1, Grade 2+3a, Grade 3b, and Grade 4+5.

Results: The cohort comprised 619 patients. Patients who died during hospitalization had a significantly higher mean radiological score (8.6) compared to those who survived (7.1), with a P-value < 0.01. Moreover, we observed that the risk for mortality was significantly increased as renal function deteriorated, as evidenced by the AKI&CKD and eGFR groups. In the "AKI&CKD" group the mortality was as follows: Group A (231 patients) 7.8%, group B (138 patients) 19.6%, group C (112 patients) 22.3%, group D (31 patients) 41.9%, group E (78 patients) 55.1%, and group F (29 patients) 69.0% (P<0.01). The mortality in the eGFR group was the following: Group 1 (147 patients) 7.5%, group 2 (324 patients) 21.0%, group 3 (67 patients) 37.3%, and group 4 (81 patient) 51.9% (p<0.01). Regarding mortality prediction, the area under the curve (AUC) for renal parameters (AKI&CKD group, eGFR group, and age) was found to be superior to that of pulmonary parameters (age, radiological score, SpO2, CRP, and D-dimer) with an AUC of 0.8068 versus 0.7667. However, when renal and pulmonary parameters were combined, the AUC increased to 0.8813.

Conclusions: Our study demonstrated that selected renal parameters are superior to pulmonary parameters in predicting COVID-19 mortality for patients requiring hospitalization. When combining both renal and pulmonary factors, the predictive ability of mortality significantly improved.

HOW DOES THE INCIDENCE OF PARTIAL NEPHRECTOMY CHANGE WITH AGE: IS THERE AGE BIAS AND IS IT JUSTIFIED?

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Purpose: We aim to evaluate the utilization of partial nephrectomy (PN) and radical nephrectomy (RN). In addition, we examined the differences in outcomes for patients ≥75 years undergoing PN vs RN.

Materials and Methods: We utilized a prospectively, maintained multi-institutional database of patients that underwent PN or RN between 2006 and 2022. Baseline characteristics, perioperative, and postoperative outcomes were analyzed using the $\chi 2$ test, Fisher's exact test, Mood's median test, Mann Whitney U test, Kruskal Wallis test, and student's t-test.

Results: Of 4,035 patients, 3,464 (85.85%) underwent PN and 571 (14.15%) RN. There is decreased utilization of PN in those ≥75yr (80.72%, <0.001). Patients ≥75yr have increased comorbidities such as hypertension (<0.001), diabetes (<0.001), and lower baseline eGFR (p=0.0001) relative to their younger cohort. In this same cohort, with PN, there is no increase in surgical margins or complication rates but does demonstrate a significant benefit in terms of GFR and ΔGFR -6.71 vs. -19.35 (p= < 0.001).

Conclusion: There is decreased utilization of PN among the elderly (≥75yr) despite the need for PN given their comorbid indications that affect kidney function. In addition, PN is safe and feasible for select elderly patients. Our data suggests there is an age bias against performing PN in the elderly with no improvement in surgical outcomes compared to RN but does lead to a decrease in GFR and delta GFR for patients that do not undergo PN. Advanced age alone should not deter the use of PN in appropriately selected patients.

INCISIONAL COMPLICATIONS OF SINGLE PORT ROBOT-ASSISTED PROCEDURES: DOES INCISIONAL LOCATION MATTER?

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Background: The Single Port (SP) robot is a new technology utilized in the treatment of many urologic conditions. Extrapolating from prior single-site laparoscopy data, there has been concern regarding increased incisional complications due to the size of the incision. This study seeks to evaluate SP incisional complications for renal, genitourinary reconstruction, bladder, and prostate surgeries.

Methods: IRB-approved prospective databases were queried to identify patients who underwent SP robotic surgery between 2019 and 2022. All patients included had documentation of incision location and a minimum of 3-month follow-up. Postoperative outcomes included evidence of incisional hernia, wound infection, and/or wound dehiscence. Subgroup analysis was performed by incision location.

Results: 295 patients were analyzed. There were only 6 incisional complications (6/295, 2.0%), with 4 hernias, 2 wound infections, and 0 wound dehiscence. Among the 4 hernias, the highest incidence occurred via umbilical transperitoneal incision (3.4%, 2/58), followed by lower quadrant (LQ) incision (3.3%, 1/30), and finally by infraumbilical extraperitoneal incision (0.6%, 1/180). There were no hernias via mid-axillary or Pfannenstiel incisions. The transperitoneal (1/84, 1.2%) and extraperitoneal (1/211, 0.5%) groups had 1 wound infection each. Overall, transperitoneal incisions accounted for a 4.8% (4/84) incidence of wound complication versus extraperitoneal incisions, which accounted for 0.9% (2/211).

Conclusions: To our knowledge, this represents the first descriptive study of SP incisional complications. Incisions that utilize an extraperitoneal approach have very low risk of complication. When using a transperitoneal approach, both the umbilical and LQ incisions have low risk of hernia. Larger numbers and comparison data to multiport robotic surgery will help to better elucidate this significance.

QUALITY OF LIFE IMPACT OF DIAPHRAGM PLICATION IN PATIENTS WITH DIAPHRAGMATIC PARALYSIS: A RETROSPECTIVE STUDY

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Background: While the overall incidence and prevalence of diaphragmatic paralysis are unknown due to a wide variety of underlying causes, symptomatic patients experience a marked decline in their quality of life. The goal of this study was to measure the impact of diaphragm plication surgery on the quality of life in patients who were diagnosed with diaphragmatic paralysis.

Methods: A retrospective review of the medical records of 46 patients who underwent diaphragmatic plication surgery was performed. The review included patients who experienced unilateral and bilateral diaphragmatic paralysis. Patients who underwent repeat diaphragm plication surgery were also included. Patients from the retrospective cohort were then contacted by telephone to answer the Dyspnea-12 (D-12) Questionnaire.. Patients were asked to recall the severity of their symptoms and quality of life pre-plication, 1-month post-plication, and 6-months post-plication. Severity of symptoms was ranked as either none, mild, moderate, or severe. Values were then assigned to each rank as follows: none = 0, mild =1, moderate =2, severe = 3. Relative change and statistical significance were calculated with pre-plication measurements used as the baseline. Scores between pre-plication versus 1-month post-plication and 6-months post-plication were then compared by Student's paired t-test. All tests were two-sided and statistical significance was set at $p < 0.05$.

Results: 46 patients were included in the study, from which 21 answered the Dyspnea-12 Questionnaire. Average scores from each component of the D-12 Questionnaire showed improvement in the severity of symptoms from pre-plication to 1-month post plication. The latter period was then followed by continued improvement in all areas when symptoms 6-months post plication were assessed.

Conclusion: In patients with diaphragmatic paralysis, diaphragm plication was effective in reducing patients' symptoms while improving overall quality of life.

THE IMPACT OF THE COVID-19 PANDEMIC ON JUVENILE DERMATOMYOSITIS IN A SINGLE CENTER COHORT

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Background: Juvenile Dermatomyositis (JDM) is theorized to occur in a genetically susceptible individual as a response to an environmental trigger, and several viruses have been linked to the underlying pathophysiology of JDM, including reports of SARS-CoV-2 infection associated with both initial episodes and flares of JDM around the world. Our objective was to investigate the impact of the COVID-19 pandemic on our population of JDM patients and evaluate the number of new JDM diagnoses and JDM flares during the pandemic, as compared to 5 years pre-pandemic.

Methods: Patients 21 years and younger diagnosed with JDM between June 2015 and December 2022 were identified using the ICD-10 code M33. Data were collected retrospectively comparing manifestations of JDM patients' initial presentations and flares pre-pandemic (6/1/15-2/28/20) as well as during the pandemic (3/1/20-12/30/22). Information about known COVID-19 exposures and infections preceding a flare or initial diagnosis was assessed. Flare episodes were characterized by clinical symptoms, physical exam findings, pertinent labs, and medications at the time of flare. Exploratory data analysis was used to explore potential relationships between flares occurring before and during the pandemic using summary statistics, univariate and bivariate analysis.

Results: Seventeen patients diagnosed with JDM were identified; 8 pre-pandemic and 9 during the pandemic. Fifteen flares were captured from 12 patients, of which 87% (13/15) occurred during the pandemic. Of those JDM patients diagnosed pre-pandemic, 78% of their flares occurred during the pandemic. Of the 12 patients who experienced flares, 80% of these patients experienced at least one flare, while 25% experienced more than one flare during the pandemic. Fifteen percent of patients who experienced flare had a medication (Methotrexate) held for COVID-19 vaccination; 55% of our patients were vaccinated. Two patients had documented COVID-19 infections preceding flare. The majority of flares occurred during the time period when Omicron variants of COVID-19 were predominant (12/1/21 to 12/30/2022).

Conclusion: The majority of flares in this study period occurred during the pandemic. Although a minority of patients had documented COVID-19 infection preceding flare, most flares occurred during the time when Omicron variants were predominant; therefore, these patients may have had undocumented or asymptomatic COVID-19 infections that potentially triggered flares. Holding immunomodulating medications to optimize immune response to COVID-19 vaccination may have also potentially contributed to flares. An increase in telehealth visits during the pandemic may have also led to suboptimal monitoring and disease control in JDM potentially modulating the number of JDM flares during the pandemic. Future investigation of COVID-19's impact in larger cohorts would elucidate correlations between the pandemic, COVID-19 infections, and vaccinations with JDM flares.

PATHWAY DEVELOPMENT FOR FUTURE STUDY OF ORAL MUCOSAL BIOMARKERS IN PFAPA (PERIODIC FEVER, APHTHOUS STOMATITIS, PHARYNGITIS AND CERVICAL ADENITIS)

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Background: PFAPA, a disease of immune dysregulation affecting oral mucosa/lymphoid tissue, is the most common recurrent fever syndrome in childhood with frequent delays in diagnosis due to limited understanding of its pathogenesis. The objective of this study is to identify the optimal method of oral sample collection that would allow the characterization of cellular and molecular immune profiling in oral mucosa and in blood for future oral mucosal biomarker development to elucidate PFAPA's pathogenesis.

Methods: Passive drool, active spit, and buccal swabbing collection methods were assessed to determine which would result in the highest yield of protein, RNA (extracted using TRIzol reagent), and/or live cells. After establishing the collection method with the highest yield of live cells, immune cell subsets detected via flow cytometry were compared in this collection method versus in blood. Major myeloid and lymphoid subsets were characterized using antibodies targeting CD3, CD4, CD8, CD14, CD15, CD19, CD56, and HLA-DR.

Results: The Buccal Swab collection kit resulted in the highest cell yield (~5 x 105 cells/mL), while Salimetrics Passive Drool, SALIVABIO Children's Swab, and Buccal Swab collection kits produced the highest RNA yield (~400 ng/μL). The Children's Swab collection kit resulted in the highest protein yield. A Buccal Swab and blood sample from a healthy control were compared via flow cytometry, and, similar to blood, cell subtypes including B cells, NK cells, T cell subsets, neutrophils, eosinophils, and monocytes in buccal specimens were differentiated.

Conclusion: These pilot experiments demonstrate that salivary protein production is sufficiently robust to determine if saliva can be a surrogate to blood in cytokine analysis in future PFAPA studies. While there is insufficient cell yield from saliva, buccal sampling did have an ample cell yield to perform flow cytometry. The ease of oral mucosal sample collection in pediatric patients may serve as a paradigm for future translational science research.

IDENTIFYING OBGYN COUNSELING TRENDS AND BARRIERS TOWARD COVID-19 VACCINATION IN PREGNANCY: A NATIONAL SURVEY

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Background: COVID-19 infection in pregnancy has significant effects on maternal morbidity and mortality. In July 2021, ACOG formally recommended vaccination against COVID-19 for pregnant patients, and encouraged OBGYN providers to document vaccination status in patients' electronic medical records. Resident compliance with ACOG's novel guideline regarding vaccination in pregnancy against COVID-19 has yet to be studied. Our national survey sought to assess OBGYN resident counseling trends and barriers towards COVID-19 vaccination in pregnancy.

Methods: In April 2022, a national survey was sent to all ACGME accredited OBGYN residency programs in the United States. Responses were obtained and descriptive analysis was performed.

Results: The majority of OBGYN residents supported COVID-19 vaccination in pregnancy (96.1%, n=73). In the clinic setting, most residents counseled pregnant patients about COVID-19 vaccination at least 50% of the time (97.4%, n=74). Of that subgroup, 78% (n=58) counseled patients 100% of the time for vaccination. Amongst the residents who reported times during which counseling was not performed (17%, n=13), the most frequent reason identified was insufficient time during prenatal visits (84%, n=11). Over half of residents cited that the COVID-19 vaccine was unavailable in their resident clinic (52.6%, n=40).

Conclusion: Outpatient clinics are ideal locations for vaccination counseling. While residency clinics see high volumes of pregnant patients, a resident perceived barrier to standardization of counseling includes inadequate prenatal visit time as well as lack of in-office COVID-19 vaccine availability. Overall trends are reassuring, with over 95% reported adherence to ACOG recommended counseling guidelines.

OUTLOOKS ON DIVERSITY EQUITY AND INCLUSION COMMITTEES: FROM THE LENS OF THE UNDERREPRESENTED IN MEDICINE OBGYN RESIDENCY APPLICANT

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Background: There is well documented evidence on the negative impacts systemic racism has on healthcare outcomes. In 2019, the Accreditation Council for Graduate Medical Education (ACGME) has spearheaded an initiative to improve diversity and inclusion in residency training programs. Shortly thereafter, major national healthcare networks across the United States have established Diversity Equity and Inclusion (DEI) committees. The impact of residency DEI committees on applicant ranking has yet to be studied. Our qualitative short survey aimed to assess the perceived level of importance of DEI committees for underrepresented in medicine (URiM) OBGYN residency applicants.

Methods: Our OBGYN residency program hosted a webinar for URiM applicants. A post-webinar survey was administered after the rank submission deadline, asking to self-report the extent to which the presence of a DEI committee influenced the applicants' ranking of programs. Responses were measured using a five-point Likert scale.

Results: Thirty URiM residency applicants attended the webinar. Half of survey respondents reported the presence of a diversity, equity and inclusion committee (DEI) as being not influential in their rank preference (50%, n=6).

Conclusion: While DEI committees have recently become a metric for URiM support, it is plausible that their existence is more so viewed as a marker of performative activism, rather than that of genuine support. The limitations of our data include that of a small sample size; however, the implications of the preliminary results can drive further qualitative assessments of hospital-based DEI committees.

IMPROVISED OXYGEN TANK FROM ANESTHESIA BAG AKA POOR MAN'S OXYGEN TANK: HOW-TO CREATE YOUR OWN PORTABLE OXYGEN SUPPLY FOR POST-OP SETTING WHEN O2 TANKS ARE UNAVAILABLE

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Background: Oxygen tanks aren't always available in the immediate post operative period of surgery which patients may require for safe transport to PACU. The objective was to determine flow rate and duration of an improvised oxygen tank using equipment from an anesthesia machine.

Methods: inflating 3 Liter Anesthesia Reservoir bags, 2 bags were inflated to 40 liters, 2 bags were inflated to 50 liter, 2 liter 60 liters. each bag was then connected to a nasal cannula with flow rate measure via Wright respirometer and stop watch.

Results: All improvised oxygen bags demonstrated a nasal cannula flow rate of 4 liters per minutes or greater for 10 minutes. 40 Liter bags had flow rates only measurable up to 10 minutes. 50 liter bags were able to provide flow rates >4 lpm up to 12 minutes; thereafter, flow rate dropped off significantly. 60 liter bags were able to provide >5 lpm for 15 minutes

Conclusion: In the transfer period from OR to PACU, this method would be an alternative to an oxygen tank, provided only low flow O2 is desired. This will help facilitate OR turnover as it uses equipment readily available with no additional cost. The setup is quick and easy to prepare; if no more than low flow nasal cannula is required, when oxygen tanks are not available, this is a reasonable substitution.

VBAC OUTCOMES FROM A SINGLE PROVIDER GROUP AT A LARGE ACADEMIC INSTITUTION

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Background: Vaginal birth after cesarean (VBAC) is associated with fewer maternal complications than elective repeat cesarean delivery with a varying success rate of 65-83.3%, but a failed TOLAC is associated with increased maternal and fetal risks. The aim of this study was to determine the VBAC success rate of a single provider group at a large academic institution, as well as the patient characteristics associated with successful VBAC deliveries.

Method: This IRB-approved retrospective chart review assessed 318 pregnant patients, with 304 meeting the inclusion criteria. All patients had elected for a TOLAC with a single provider group at one large academic institution between 2002 to 2014. Charts were reviewed and the data was analyzed in order to determine the factors influencing the success of VBAC

Results: Of the 304 patients, the VBAC success rate was 87.5% and correlated with a significantly lower BMI (earliest recorded $p=0.0075$; at delivery $p=0.0009$), which did not correspond with EFW or neonatal weight differences. Previous successful vaginal and VBAC deliveries, gestational diabetes, induction, and cervical dilation at induction did not correlate with failed TOLAC. Demographic and clinical characteristics of our study population were predominantly caucasian (87.17%), non-Hispanic (97.04%), Jewish (85.2%), and insured (82.8%) with a mean age at delivery of 30.59±4.81. A failed VBAC was associated with a higher EBL ($p<0.0001$) and a lower 1-minute Apgar score ($p=0.0002$).

Conclusion: The VBAC success rate of a predominantly caucasian, non-Hispanic, Jewish, and insurance population was 87.5%. VBAC success correlated with a significantly lower BMI. Understanding the factors that impact VBAC outcomes as well as individual patient desires is necessary to appropriately counsel patients and engage in shared decision making regarding their delivery plan following a cesarean section.

DOES FLAME RETARDANT EXPOSURE INCREASE THE RISK OF MAJOR DEPRESSIVE DISORDER

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Major Depressive Disorder is one of the most commonly diagnosed mental health disorders. Although numerous studies have looked at genetic predispositions to the condition, in recent years, there has been an increased interest on the impact of environmental factors (eg. food, pollution, media use and climate change) on risk of depression. Flame retardants are one of the "dirty dozen" pollutants that are especially prevalent in the environment and have structural similarity to thyroid hormones whose dysfunction is also associated with depression. High levels of Polybrominated Diphenyl Ether-47, a flame retardant that is detectible in ~100% of people, has recently been found to increase the risk of postpartum depression, however, its effects on other mental disorders is less clear. Therefore, we examined how plasma levels of PBDE-47 may correlate with increased risk of depression. Data from the 2003-2004 National Health and Nutrition Examination Survey was used for this study and consisted of a nationally representative subsample of 691 adults ages 20 - 39 years, that had PBDE-47 levels measured from blood by isotope dilution gas chromatography high-resolution mass spectrometry. Survey respondents also completed the Composite International Diagnostic Interview Version 2.1 that was used to identify cases of depression. PBDE concentrations were ranked into quartiles and their association with risk of depression was evaluated via logistic regression. We found that PBDE-47 levels in the 3rd quartile were at significantly increased risk for CIDI scores that are suggestive of depression (OR: 16.68, 95%, CI: 1.29, 216.86; P = 0.034). This study suggests that higher levels of PBDE exposure may increase the risk of depression, however, the association was non-monotonic and is likely inverse U-shaped. Our findings are limited by the small sample size and the inability to adjust for confounding variables such as sex, race-ethnicity and poverty that are also associated with depression. Therefore, a study of a larger cohort of patients with more details regarding depression level, medications consumed and other confounding variables is warranted.

RETROSPECTIVE SAFETY ANALYSIS BETWEEN REDUCED DOSING VERSUS STANDARD DOSING OF ENOXAPARIN FOR VENOUS THROMBOEMBOLISM PROPHYLAXIS AMONG UNDERWEIGHT PATIENTS IN A COMMUNITY HOSPITAL

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Enoxaparin dosing for venous thromboembolism (VTE) prophylaxis in underweight patients lacks sufficient evidence. Relevant anticoagulation guidelines currently do not have concrete guidance regarding underweight dosing of prophylactic enoxaparin. On the contrary, patients who are morbidly obese are recommended to be given higher doses due to a higher volume of distribution. Thus, it is hypothesized that underweight patients have a lower volume of distribution which correlates to a higher serum enoxaparin concentration increasing the risk of bleeding. The purpose of this study is to evaluate the incidence of bleeding and thrombosis among underweight patients who received low-dose versus standard-dose of prophylactic enoxaparin. This is a retrospective, single-center, IRB-exempt cohort study conducted in a 231-bed community hospital. Patients were identified via chart review using the hospital's electronic medical record system. Inclusion criteria consist of adults 18 years and older with a reported body mass index of less than 18.5 kg/m2 or a total body weight of less than 45 kilograms. Patients were excluded if enoxaparin was given for less than 48 hours, had an active bleed prior to administration of enoxaparin, were contraindicated to pharmacologic VTE prophylaxis, or were receiving hemodialysis. The intervention group received low dose or 30 mg of enoxaparin daily while the control group received standard dose or 40 mg enoxaparin daily. The primary outcomes include a composite endpoint of thrombosis and bleeding, and stratified endpoints on the incidence of thrombosis alone or bleeding alone. Secondary outcomes in this study include mortality during admission and the average length of stay. An additional outcome assessed the association between bleeding incidence and renal impairment. Of the 251 patients included in the study, 172 (68.5%) were female, and the median age was 80 years. There were 114 (45.4%) patients who received low-dose while 137 (54.6%) received standard-dose enoxaparin. For the composite outcome, 30 (26.31%) patients in the intervention group and 30 (21.9%) patients in the control group experienced either thrombosis or bleeding [$X2(1, n = 251) = 0.668$, $p = .41$]. For the stratified outcomes, 26 (22.8%) patients in the intervention group and 28 (20.4%) patients in the control group experienced bleeding alone [$X2(1, n=251) = 0.21$, $p = .65$]. Meanwhile, 6 (5.3%) patients in the intervention group and 2 (1.5%) patients in the control group experienced thrombosis alone [$X2(1, n=251) = 2.92$, $p = .08$]. Mortality during admission was significantly higher in the intervention group. Other secondary outcomes were deemed non-significant. In this cohort study of underweight adults receiving venous thromboembolism prophylaxis, the incidence of bleeding, thrombosis, or both bleeding and thrombosis did not yield any significant difference between low-dose prophylactic enoxaparin as compared to standard-dose prophylactic enoxaparin.

BLOOD LOSS MATTERS: RELIABILITY OF QUANTITATIVE VERSUS ESTIMATED BLOOD LOSS ON ANTICIPATED HEMOGLOBIN DECREASE IN VAGINAL DELIVERIES

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Background: The American College of Obstetrics and Gynecology (ACOG) states that 11% of maternal deaths are due to postpartum hemorrhage (PPH) making it the leading cause of maternal mortality worldwide. The objective of this project was to compare quantitative blood loss and estimated blood loss values during vaginal deliveries with calculated blood loss determined by maternal hematocrit before and after delivery.

Methods: This retrospective cohort study included all term, spontaneous vaginal deliveries of singleton infants to patients 18 years or older who delivered at a single community-based tertiary center between August 2019 and December 2020. Estimated blood loss (EBL) or quantitative blood loss (QBL) were obtained from delivery summary notes. Charts were excluded if there was no predelivery or postdelivery blood work or if maternal height or weight were not documented. Data was abstracted from Epic electronic medical records. Calculated blood loss (cEBL) was determined using the formula derived by Stafford et. al. in 2008: cEBL) = Calculated Pregnancy Blood Volume x Percent of Blood Volume Lost Calculated Pregnancy Volume = (0.75 ([Maternal Ht (in) x 50] + [Maternal Wt (lbs) x 25]) % Blood Loss = (Predelivery Hematocrit - Postdelivery Hematocrit) / Predelivery HCT The associations between EBL and cEBL and between QBL and cEBL were evaluated by using linear regression analysis.

Results: One thousand, six hundred and sixty seven charts met inclusion criteria. Of these 1667, 670 had a documented QBL (40.2%) and 997 had a documented EBL (60.9%). The association between cEBL and QBL using simple linear regression was a poor fit with an R-square of 0.206. EBL and cEBL also had a poor association using linear regression with an R-square of 0.0941. By using R-square, QBL can predict better than EBL, however both are poor predictors of blood loss calculated from predelivery and postdelivery hematocrit.

Conclusion: ACOG defines PPH as a blood loss measuring 1000mL for both vaginal deliveries and cesarean sections. As many as 54-93% of these deaths are reported to be preventable. These statistics have led to an agenda to improve maternal morbidity and mortality due to hemorrhage. EBL has been the standard when determining blood loss, however studies have found that providers often underestimate larger blood losses and over estimate lower blood losses. Gravimetric tools have been developed to obtain a more objective QBL. Many studies hypothesize that quantitative calculations of blood loss as being more accurate compared to the widely used estimated blood loss. No studies have directly compared the accuracy of QBL versus EBL in determining the expected decrease in hematocrit. This study aims to show that QBL is more useful in accessing the decrease in a patient's hematocrit, which may decrease patient morbidity and mortality, however both QBL and EBL showed a poor association with calculated blood loss measures.

IMPACT OF FRAILTY ON TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) OUTCOMES IN ALCOHOL-RELATED CIRRHOSIS

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Background: Transjugular Intrahepatic Portosystemic Shunt(TIPS) is a procedure employed in cirrhotic patients in the management of portal hypertension refractory to medical management. The impact of frailty on the use of TIPS and its outcomes is not well studied. Frailty is a clinical syndrome representing a decreased physiologic reserve to handle stressors and is a significant risk factor for adverse outcomes in hospitalized patients. This study aimed to investigate the impact of frailty on TIPS utilization, inpatient mortality, and the rate of 30-day readmission in patients with alcohol-related cirrhosis.

Methods: A retrospective cohort study using the Nationwide Readmission Database from 2016-2019 was conducted, using International Classification of Diseases 10th code (ICD-10) to identify patients admitted with alcohol-related cirrhosis. Patients were classified as frail and non-frail using the Gilbert Frailty Index. The impact of frailty on TIPS utilization, inpatient mortality, and 30-day readmission was analyzed using descriptive statistics and multivariate regression models.

Results: Between 2016 and 2019, 139,699 individuals were admitted for alcohol-related cirrhosis. Among these, 2,725 (1.95%) underwent a TIPS procedure, of which 57.61% (n=1,570) were classified as frail. No significant difference was found between 30-day readmission rates among frail vs. non-frail patients (10.10% vs. 7.68%; p=0.33). Regression modeling indicated that frail patients neither had higher odds of readmission (OR 1.08; 95% CI 0.74-1.58, p=0.681) nor an increased risk of inpatient mortality (adjusted HR 1.51, 95% CI 0.81-2.82, p=0.197) when compared to non-frail patients.

Conclusion: Our study showed that frailty was not associated with increased rates of 30-day readmissions or risk of inpatient mortality, suggesting that frail patients may not necessarily be excluded from minimally invasive procedures such as TIPS. Nevertheless, additional prospective studies are necessary to confirm these findings.

"A NATIONAL RETROSPECTIVE COHORT STUDY: TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT REDUCES 30-DAY READMISSIONS IN PATIENTS WITH ALCOHOL RELATED CIRRHOSIS"

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Background: Alcohol-associated cirrhosis (AC) is a major cause of liver failure. Transjugular Intrahepatic Portosystemic Shunt (TIPS) has been shown to improve liver transplantation-free survival in cirrhotic patients with recurrent ascites. Aims: We aimed to evaluate the impact of our TIPS on 30-day readmissions, inpatient mortality, and length of stay in AC patients with ascites.

Methods: The National Readmission Database was examined from 2016 to 2019 to identify patients diagnosed with AC and ascites who underwent TIPS treatment or medical management. Linear, logistic, and Cox regression analyses were used to assess the outcomes.

Results: 139,699 patients met the inclusion criteria, of which 1.95% (n=2,725) underwent TIPS. The average patient was a male (68.33%) with a mean age of 55.16 years (SD 10.53). Readmissions within 30 days were lower in patients who received TIPS compared to medical management(17.79% vs 22.40%, p-value = 0.002); Cox regression analysis revealed an 18% reduction in hazard (HR 0.82, 95% CI 0.71-0.96, p-value =0.011). Inpatient mortality was higher in the TIPS group (10.60% vs. 5.34%, p-value <0.001); however, Cox regression showed no statistically significant difference in hazard ratios (p=0.854). Length of stay was longer in the TIPS group (11.88 days vs. 6.60 days, p-value < 0.001).

Conclusion: The study concludes that TIPS insertion is associated with a significantly lower risk of 30-day readmission compared to medical management in AC patients with ascites, although inpatient mortality rates and length of stay differ between the two groups.

MAXIMIZING THE CLINICAL VALUE OF PERIPHERAL BLOOD SMEAR REVIEWS

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A Complete Blood Count (CBC), the number one most common medical test, quantifies the cells in a patient's blood. It is used to monitor a patient's current health status or can be used to help aid in diagnosis of new pathologies. The traditional routine manual assay method has been largely replaced by the automated hematology analyzer. These automated hematology analyzers can generate reliable results when appropriately calibrated. Manual differential evaluation of a peripheral smear by an expert permits assessment of blood cell morphology on a broad level. It may also be helpful in evaluating genetic, inflammatory, nutritional, and metabolic abnormalities including hemolysis, blood borne parasites, and neoplasia. Although a manual differential can be routinely done, it is usually reserved when further investigation is necessary. Our goal is to describe the blood smear ordering practices, review the currently available standard set of criteria for peripheral smear review, and emphasize the importance of evaluating and establishing appropriate screening criteria for manual blood smear reviews to improve the performance in a hematology laboratory and quality of patient care. We analyzed and compared 4 different blood smear review criteria: 1) International Consensus Group for Hematology Review (ICGHR), 2) Hackensack University Meridian Medical Center 2) Dahl Chase Criteria, 4) Comar Wide Limit Cut-off Criteria. We show when developing screening criteria for peripheral smear review, two important principles should be followed: 1) reduction in the rate of false-negative values in order to ensure patient safety 2) reduction in the rate of smear review to an acceptable value to ensure laboratory efficiency as high rates overload professionals and can delay the release of results. Laboratory productivity inversely correlates to the number of smear reviews. The recommended blood smear review rate is described as 30%, however it is dependent on each institution. Due to each institution's laboratory facility equipment, workload, patient epidemiology, training, financial considerations, institutional regulatory policies, and teaching/educational considerations, a universal set of blood smear review criteria is nearly impossible. To improve the efficiency and clinical value of the blood smear review, the institution, clinicians, pathologists, and laboratory staff should participate in the discussion to create a set of criteria for manual smear review. With advances in health care services such as launching new analyzers with greater accuracy and precision, it is important that labs take efforts to minimize manual peripheral smear review to improve productivity, efficiency, clinical value, and patient care. Therefore, the ICGHR criteria should be adjusted to meet the needs of each specific context.

INFLAMMATORY BOWEL DISEASE INCREASES THE RISK OF DKA RELATED HOSPITALIZATIONS: A NATIONWIDE RETROSPECTIVE ANALYSIS

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INTRODUCTION: Corticosteroids have previously been associated with hyperglycemia and immune system weakening, and thus are a natural culprit of increasing the risk of DKA. Hence, patients with IBD, whom are immunocompromised either due to their disease state or pharmacologic agents-especially in the era of biologics-renders them more susceptible to infection. We hypothesize that patients with IBD, given either the nature of their illness or the pharmacologic therapy they tend to be on, are at an increased risk of DKA. We hope to provide data on risk stratification and the consequent need for specific management altercations-for this special population, based upon their risk of DKA.

METHODS: This is a retrospective cross-sectional analysis of adult patients hospitalized with a primary diagnosis of DKA, with and without a previous diagnosis of IBD. This study was performed in adherence with the STROBE statement. The patient sample was selected from the National Inpatient Sample database for the years 2016-2019. The ethnic, epidemiologic, and racial backgrounds of patients with IBD admitted for DKA were analyzed. The primary outcome was the prevalence of DKA amongst patients with IBD, secondary outcomes included the effect long-term corticosteroids had on DKA prevalence. Analysis was done using Revman statistical software.

RESULTS: During the years of 2016-2019 in the dataset, 607,541 patients were hospitalized for DKA, of which 2,650 (0.44%) had a concomitant diagnosis of IBD. As compared to the general population, Patients with IBD had an 11% increased risk of admission for DKA (OR: 1.11, CI:1.03-1.54, $p<0.05$). Patients hospitalized for DKA whom had concomitant IBD, had a 23% increased risk of admission for DKA if they were on long-term corticosteroids (OR: 1.23, CI:1.14-1.68, $p<0.05$). Race/ethnicity (African Americans vs. Hispanic vs. White) or gender did not appear to have an effect on hospital admission for DKA. Upon Subgroup analysis of IBD-subtype, having either CD or UC did not appear to have a role in DKA admission risk.

DISCUSSION: The study demonstrates the increased risk of DKA in persons with IBD and hence the need for a more focused approach to avoid complications in this subset of patients. Corticosteroids used in medical therapy for IBD may also play a role in the increased risk of the development of DKA. Current literature studies have described the impact of IBD on mortality in patients with DKA and the association of onset of diabetes in patients receiving. Our abstract clarifies and quantifies the risk of developing DKA in patients with IBD and in those receiving long-term corticosteroids. Despite these, some limitations must be acknowledged. The lack of granularity on other immunomodulatory medications can introduce bias to our study. As seen herein, the need to develop effective clinical guidelines for monitoring and management of diabetic patients with IBD-especially those on steroids is immanent to reduce hospitalization.

SYSTEMATIC REVIEW AND META-ANALYSIS: COMPARING ARGON PLASMA COAGULATION VS. ENDOSCOPIC SURVEILLANCE FOR TREATING LOW-GRADE BARRETT'S ESOPHAGUS.

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Background: Despite the emergence of new eradication tools and techniques, there are few head-to-head comparisons among ablation modalities. Argon plasma coagulation (APC) is a well-established and relatively less expensive treatment for dysplastic Barrett's esophagus (BE). In contrast, endoscopic surveillance is performed primarily to prevent low-grade dysplasia (LGD) progression to invasive malignancy for BE in patients whose gastroesophageal reflux has been controlled by surgery or proton pump inhibitors. We compare the efficacy of APC versus endoscopic surveillance in treating LGD BE.

Methods: We reviewed the literature across major databases, including PubMed/MEDLINE, Embase, and Google Scholar, from inception till November 2022. Eligible studies included patients who had undergone APC and/or endoscopic surveillance. Patients with no baseline LGD or with only LGD were evaluated. Outcomes such as length of Barrett's esophagus, stricture formation, complete regression, and progression to dysplasia were assessed. We performed a statistical analysis on Raveman 4.3. The pooled estimate and mean difference were used for outcome estimation with a 95% confidence interval.

Results: Five studies were included in our meta-analysis with a total of 347 patients. Pooled analysis showed that the odds of complete regression in patients undergoing APC were greater than endoscopic surveillance (OR 8.40 95% CI 2.93 to 24.07, P=<0.0001, I2 = 35%) (Forest plot 3). Similarly, the odds of Barrett's esophagus length reduction (OR -3.11 95% CI -4.88 to -1.34, P= 0.0006, I2 = 0%) and stricture formation (OR 6.70 95% CI 1.14 to 39.41, P= 0.04, I = 0%) were more significant in the APC treatment group. (Forest plot 1 and 2). However, no statistically significant difference was observed in the progression to high-grade dysplasia in both the groups 2 (OR 0.57 95% CI 0.14 to 2.39, P= 0.44, I2 = 9%) (Forest plot 4).

Conclusion: APC was found superior to endoscopic surveillance in terms of better complete regression, and reduction of BE length. However, stricture formation was higher with APC. There was no difference in terms of lowering the progression of dysplasia in both modalities. Further randomized controlled trials are needed to validate the findings, including treatment with APC.

SINGLE-PORT VS. MULTIPORT PARTIAL NEPHRECTOMY: 6-MONTH INTERMEDIATE OUTCOMES

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Background: This study aims to compare intermediate outcomes in patients following single port (SP) and multiport (MP) robotic-assisted partial nephrectomy (RAPN).

Methods: This prospective, single-center study involved patients who underwent SP or MP RAPN (based on surgeon preference), performed by two surgeons between 2017 and 2022, with at least 6 months of follow-up. Linear and logistic regression analyses were performed to estimate the difference in outcomes between SP and MP, adjusting for the operating surgeon.

Results: Overall, 48 patients underwent SP and 185 MP RAPN (20.6% vs. 79.4%) with minimum 6 month follow up. Table 1 summarizes demographics between the SP and MP cohorts and confirms no differences except for more females in the SP group. Table 2 summarizes the intermediate outcomes at 6 month follow up. There was no difference in disease recurrence or hernia incidence. There were significant differences in preservation of GFR (10.5, $p = 0.004$) despite similar changes in creatinine in the SP group.

Conclusion: Based on our analyses, SP partial nephrectomy is an effective treatment with similar recurrence rates and hernia incidence at 6 months post surgery compared to MP . We did note an improvement in post op 6 month GFR for the SP group. The clinical significance of this is unclear as the change in creatinine was no different between the SP and MP groups. Larger multi-institutional studies are underway to evaluate if SP may have a protective effect on renal function.

TAMING THE CYTOKINE STORM: BARICITINIB VERSUS TOCILIZUMAB FOR COVID-19 HYPERINFLAMMATION

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Background: Tocilizumab and baricitinib are both recommended as treatments for patients with severe or critical COVID-19 in the NIH COVID-19 treatment guidelines, however, there have been few studies to-date comparing outcomes between these two agents. The objective of this study will be to compare the outcomes of patients with COVID-19 who were treated with tocilizumab or baricitinib in addition to systemic corticosteroids.

Methods: This will be a single-center, retrospective chart review of adult patients with COVID-19 who received systemic corticosteroids and received either tocilizumab or baricitinib between January 2021 and October 2022. Patients will be excluded if they never received corticosteroids, were under 18 years of age, or received both baricitinib and tocilizumab. Data collection will include patient demographics, Charlson Comorbidity Index score, COVID-19 vaccination status, and the dominant SARS-CoV-2 variant circulating at the time of admission. The primary outcome will be the percentage of patients with clinical improvement at day 14 after immunomodulator administration. Clinical improvement will be defined as two points improvement on a six-point ordinal scale or discharge from hospital. Secondary outcomes will include in-hospital mortality, clinical improvement at days 7 and 28, incidence of venous thromboembolism (VTE) during hospitalization, and duration of hospitalization.

Results: Data collection is still ongoing, and statistical analysis is still pending. Data has been collected on 228 patients to-date, and the final results will include roughly 350 patients. Out of the 228 patients collected, 86 received baricitinib and 142 received tocilizumab. The primary outcome of clinical improvement at day 14 was reached in 33 patients (38.4%) in the baricitinib arm and 49 patients (34.5%) in the tocilizumab arm. Clinical improvement at day 7 occurred in 15 patients (17.4%) in the baricitinib arm and 17 patients (12.0%) in the tocilizumab arm. Clinical improvement at day 28 occurred in 47 patients (54.7%) in the baricitinib arm and 64 patients (45.1%) in the tocilizumab arm. Death during hospitalization occurred in 33 patients (38.4%) in the baricitinib arm and 66 patients (46.5%) in the tocilizumab arm. VTE during hospitalization occurred in 22 patients (25.6%) in the baricitinib arm and 31 patients (21.8%) in the tocilizumab arm. The average duration of hospitalization was 19.1 days in the baricitinib arm and 22.3 days in the tocilizumab arm.

Conclusion: Patients treated with baricitinib for severe COVID-19 appear more likely to have clinical improvement at days 7, 14, and 28. Baricitinib-treated patients also appeared to have shorter durations of hospitalization and lower in-hospital mortality than patients treated with tocilizumab. However, patients treated with baricitinib also appeared more likely to experience in-hospital VTE than patients treated with tocilizumab. Statistical analysis of these results is still pending.

EVALUATING THE FEASIBILITY OF A NOVEL PHARMACIST-DRIVEN BOWEL REGIMEN PROTOCOL IN CRITICALLY ILL PATIENTS

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Background: The concept of a bowel regimen protocol was introduced due to inconsistent prescribing practices of bowel regimens in intensive care unit (ICU) patients. The purpose of this study is to evaluate the feasibility of a novel pharmacist-driven bowel regimen protocol in critically ill patients with the goal of preventing constipation and its related complications.

Methods: A pharmacist-driven bowel regimen protocol was approved by the pharmacy and therapeutics (P&T) committee with the goal of improving bowel regimen prescribing practices for critically ill patients. A retrospective chart review was conducted two months prior to implementation of the protocol to establish baseline practices and six months after to assess its feasibility. Inclusion criteria consisted of patients admitted to the ICU on a continuous opioid infusion for at least 24 hours and major exclusions were hospice or comfort care patients, patients with an active gastrointestinal bleed, presence of diarrhea within the past 24 hours and those admitted for abdominal surgery or showing evidence of bowel obstruction/perforation. The primary outcome used to assess feasibility was whether the patient had a bowel movement within 72 hours from the start of the opioid infusion. Safety outcomes included incidence of diarrhea and ileus.

Results: A total of 56 patients were included, with 28 patients in each group. Descriptive statistics were used to analyze the results. The average fentanyl equivalent daily requirement was less in the pre-protocol group at 2020 mcg/day and 2539 mcg/day in the post-protocol group. The number of patients who had a bowel movement within 72 hours was 6 patients [21%] in the pre-protocol group and 5 patients [18%] in the post-protocol group. In the pre-protocol group there were 6 patients (21%) never started on a bowel regimen compared to 0 patients (0%) in post-protocol group. For safety outcomes there were 15 patients (54%) who experienced diarrhea in the pre-protocol group and 9 patients (32%) in the post-protocol group and no incidence of ileus in either group.

Conclusion: The implementation of a P&T approved pharmacist-driven bowel regimen protocol seems to be a feasible option to prevent constipation and its related complications in critically ill patients. Clinical pharmacists were able to identify 28 patients in need of a bowel regimen. No major adverse outcomes were observed in the pharmacist-driven bowel regimen protocol group. This study is limited by the small sample size but shows a feasible option to implement at other institutions that may have inconsistent prescribing practices of bowel regimens in critically ill patients.

FRACTIONAL EXHALED NITRIC OXIDE TESTING: CHANGE IN CLINICAL MANAGEMENT OF ASTHMA, OR CHRONIC OBSTRUCTIVE PULMONARY

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Background: Asthma and chronic obstructive pulmonary disease (COPD) can present as unique conditions or as a combination known as asthma-chronic obstructive pulmonary disease overlap syndrome (ACOS). Patients with ACOS carry a higher mortality rate. Fractional exhaled nitric oxide (FeNO) is a breath test that measures nitric oxide levels and endogenous gaseous molecules. It highlights steroid responders; predictability is more consistent than the typical tests. The purpose of this study was to determine if FeNO levels can lead to a change (addition, discontinuing, or change) in the pharmacologic management of patients with asthma, COPD, and ACOS. For the purposes of this study, our management focused on inhaled corticosteroids (ICS), Inhaled corticosteroids - long-acting beta-agonists (ICS-LABA), anticholinergics (AC) monotherapy, or combination therapy.

Methods: We included 93 patients and following metrics were recorded. Medications, FeNO levels, along with their pre and post diagnoses, patients on mono/combination therapy were noted. The number of patients without medication(s) of interest, their collective mean and range of FeNO (ppb) levels, number of patients whose therapeutic management changed based on FeNO (ppb) levels.

Results: A total of 93 patients were included in this study. Before FeNO testing, 8, 13, and 8 patients were prescribed ICS, ICS-LABA, and AC, respectively. The mean FeNO (ppb) level in patients on ICS, ICS-LABA, and AC were 62.2 (ppb), 39.5 (ppb), and 24.5 (ppb), respectively. In addition to monotherapy, combination therapy usage was noted along with relative FeNO levels (ppb). Our analysis revealed that 42 patients were not on mono or combination therapy, and their mean FeNO levels were recorded as 19.7 (ppb). After FeNO testing, 16 patients were prescribed ICS, 22 patients prescribed ICS-LABA, and five on AC, respectively. The mean FeNO (ppb) levels in patients on ICS, ICS-LABA, and AC were 44.3 (ppb), 23.4 (ppb), and 10.8 (ppb), respectively. There were a total of 42 patients who had not been prescribed any medications prior to the FeNO test; however, 24 of the 42 patients were prescribed medication(s) after the testing, and 18 were not prescribed any medication after the FeNO test. It is important to note that 24 patients were prescribed medication, six were prescribed ICS, and 11 were added to the combination regimen. Patients whose post FeNO management included change of pharmacologic agent to ICS (n=14) were diagnosed with asthma only (n=6, mean FeNO 52.1 ppb), COPD only (n=1 mean FeNO 25 ppb), ACOS (n=7, mean FeNO 42.2 ppb). Patients with a change in management following the FeNO test (no ICS no ICS-LABA to ICS or ICS-LABA) carried the diagnosis of asthma only (n=5, mean FeNO 21.8 ppb), COPD only (n=1, mean FeNO 25 ppb), and ACOS (n=2, mean FeNO 34.5 ppb).

Conclusion: FeNO testing is an affordable tool which assists in tailoring mediation regimen and in some cases eliminating the need of unnecessary medications.

RETROSPECTIVE COMPARISON OF THERAPEUTIC RESPONSE OF DILTIAZEM USING WEIGHT-BASED VS FIXED DOSE IN PATIENTS WITH ATRIAL FIBRILLATION WITH RAPID VENTRICULAR RESPONSE

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According to the most recent atrial fibrillation (AF) guidelines, the recommended dosing for diltiazem is a weight-based dose of 0.25 mg/kg intravenously, followed by 5-15 mg per hour as a continuous infusion. However, a fixed dose of 10 mg diltiazem IV is commonly given in the emergency department (ED). The primary aim of this study is to compare the therapeutic response between patients who presented with AF with rapid ventricular response (RVR) and received either weight-based or fixed dose diltiazem in the ED. This is a retrospective, single-center chart review study that included patients who presented with AF with RVR and received intravenous diltiazem in the ED between Jun 1, 2021, and Jul 31, 2022. Eligible patients were 18 years and older who received intravenous diltiazem in the ED. Patients were excluded if they received other rate control medications other than diltiazem, presented in acute decompensated heart failure, received cardioversion, or did not receive IV diltiazem bolus dose. The primary outcome is a composite therapeutic response heart rate < 100 beats per minute (bpm), and reduction in heart rate of 20% or greater. Secondary outcome measures include adverse events (hypotension, bradycardia, cardiac arrest, and respiratory failure), time to hospital discharge, death during admission and A.fib readmission. 204 patients who presented to the ED with A.fib with RVR from Jun 2021 to Jul 2022 were reviewed for inclusion, of which 62 patients were excluded. 56 patients received diltiazem weight-based dose vs 86 patients received diltiazem fixed dose. Baseline characteristics were comparable between treatment groups, except for initial diltiazem bolus dose. In the weight-based group, 54 patients (96%) received IV diltiazem bolus dose from > 10 mg to 30 mg compared to 68 patients (79%) received 10 mg IV diltiazem bolus dose in the fixed dose group. 10 patients in the weight-based group were redosed within 1 hour compared to 17 patients in the fixed dose group (p value: 0.81). The study population had a mean age of 72.6 years, 44% identified as women, and the mean body mass index was 29.2, calculated as weight in kilograms divided by height in meters squared. For the primary outcomes, heart rate <100 bpm and heart rate reduction ≥ 20% within 4 hrs occurred in 38 and 49, respectively in the weight-based group compared to 58 and 74 in the fixed group (p value: 0.98 and 0.15, respectively). There was no statistically significant difference in the adverse events, time to hospital discharge, death during admission, and readmission rate between the two groups. Among patients who presented to the ED with A.fib with RVR, treatment with weight based IV diltiazem bolus compared to fixed dose did not result in a difference in composite therapeutic response or in secondary outcomes.

A PILOT STUDY IN RECRUITING AND MATCHING UNDERREPRESENTED IN MEDICINE APPLICANTS TO A UNIVERSITY HOSPITAL OBGYN RESIDENCY PROGRAM

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Purpose: To identify trends in how underrepresented in medicine (URiM) applicants evaluate for compatibility with potential residency programs.

Background: Racial disparities pertaining to pregnancy related morbidity and mortality have been well documented. The gap in these disparities is reduced with patient-provider racial and ethnic concordance. Increasing the pipeline of URiM medical trainees into residency programs is a means to help mitigate the larger existing healthcare disparities.

Methods: Our institution hosted a webinar for URiM applicants featuring our URiM faculty and residents. A post-webinar survey was administered after the rank submission deadline, asking to self-report the extent to which various factors influenced the applicants' ranking of programs.

Results: Fourteen URiM applicants attended the webinar. Most strongly desired their future OBGYN residency to have more than one identifiable URiM faculty mentor and more than one identifiable URiM coresident (58.3%, n=7). While the majority of survey respondents reported having URiM mentors in medical school (66.7%, n=8), few reported feeling supported as URiM students at their home institution (16.7%, n=2). Of the attendees who also interviewed at our program, the majority reported that the webinar impacted their ranking of our program (66.7%, n=4).

Conclusion: A paucity of respondents felt supported as URiM students, which may have contributed to a majority of respondents actively seeking programs with both coresident and faculty URiM representation. While attendance at our webinar was limited, the preliminary data indicates the URiM webinar had a positive impact on rank choice. Other institutions may consider implementation of similar initiatives to increase the national URiM resident physician workforce.

DID THE INITIATION OF ACOG SURGICAL CURRICULUM IMPACT ACCURACY OF VIDEOS PUBLISHED ON YOUTUBE FOR OB/GYN RESIDENT EDUCATION?

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Background: The purpose of this study was to assess the accuracy of open access online OB/GYN procedural videos to the ACOG surgical curriculum (SCOG) and its educational value. YouTube is commonly used as an easily accessible resource for education and surgical preparation. There is no current research that evaluates instructional videos for educational usefulness across multiple obstetric and gynecologic procedures. Given the rigorous workload of residents and the fact that they are already relying on these videos, despite the lack of known quality control, this study was designed to develop an efficient way to determine whether any given video can deliver quality information that is useful for building surgical skills.

Methods: SCOG topics were entered into YouTube search queries. The resulting videos were screened with strict exclusion criteria. The percent accuracy of each video was calculated as compared to the SCOG checklist for the corresponding procedure.

Results: 306 videos were analyzed and categorized into 6 groups: private practice/independent physicians (n=127), academic institutions (n=70), commercial companies (n=50), non-academic institutions (n=32), international healthcare organizations (n=20), and other (n=7). Using the SCOG checklist, videos produced by international organizations had the highest percent accuracy at 50.6% followed by academic institutions at 45.8%.

Conclusions/Implications: Using the SCOG checklist there is a significant variance in the accuracy of educational videos depending on the associated publishing organization. OB/GYN residents should be mindful of publishing organizations on YouTube videos to ensure they are learning from accurate content in line with SCOG.

THORACENTESIS: COMPARISON OF DIFFERENT TECHNIQUES: A LITERATURE REVIEW

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Background: Thoracentesis is a diagnostic and /or therapeutic procedure performed by aspiration of fluid from the pleural space. The procedure is performed by one of four methods: gravity drainage, manual syringe aspiration, continuous suction from a vacuum bottle, and continuous suction through a wall system. This literature review aims to investigate the safety of these techniques and to determine if there is a significant difference in the complication rates between them.

Methods: A comprehensive literature search revealed six articles studying thoracentesis techniques and their complication rates, reviewing a total of 20815 thoracenteses. Of all the procedures, 80 (0.4%) were performed by gravity drainage, 9431 (45.3%) by manual aspiration, 3498 (16.8%) by vacuum, 7580 (36.4%) by wall suction and 226 (1.1%) were unspecified.

Results: Overall, there was a 4.4% complication rate including hemothoraces, pneumothoraces, reexpansion pulmonary edema (REPE), chest discomfort, bleeding at the site, pain, and vasovagal episodes. The rate of pneumothoraces and REPE alone was 2.5%. Sub-analyzed by each thoracentesis method, there was a 47.5% (38/80) complication rate in the gravity group, 1.2% (115/9431) complication rate in the manual aspiration group including 0.7% pneumothorax or REPE, 8% (285/3498) in the vacuum group including 3.7% pneumothorax or REPE, 4% (309/7580) in the wall suction group all of which were either pneumothoraces or REPE, and 73% (166/226) in the unspecified group most of which included vasovagal episodes. Procedure duration was shorter in the suction groups compared to gravity drainage. Two smaller studies indicated that in the vacuum suction groups, the rates of pneumothoraces, hemothoraces, REPE causing respiratory failure, procedure site pain and early termination of the procedure were significantly higher than non vacuum techniques. However, other studies have noted that these complications may be due to other factors such as procedure duration, quantity of fluid removed, number of needle passes through, patients' BMI, and operator technique. Larger studies have demonstrated that symptom-limited suction drainage of pleural fluid using vacuum or wall suction is safe with a low risk of complications even in those with large volumes drained. Overall, emphasis on operator experience and the use of ultrasound have had a positive impact in reducing the rates of complications.

Conclusion: The overall rate of significant complications from thoracentesis by any technique is low. All suction modalities of drainage seem to be safe and operator technique, attention to symptom development, amount of fluid removed, and intrapleural pressure changes may be important in predicting complication development, and therefore, may be useful in choosing which technique to employ. Further randomized trials are needed to study how the specific modes of drainage during thoracentesis affect the development of these complications.

ETHNIC DISPARITIES IN CLINICAL PRESENTATION AND SURGICAL OUTCOMES FOR HISPANIC PATIENTS WITH LOCALIZED RENAL MASSES

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INTRODUCTION AND OBJECTIVE: We aim to determine if Hispanic patients differed in clinical presentation and surgical management of renal masses compared to Non-Hispanic Caucasian patients in our Northern New Jersey catchment area.

METHODS: We utilized an IRB-approved renal mass database including 1017 patients who underwent partial or radical nephrectomy at our institution between May 2017 and April 2022. We evaluated 1017 patients who identified as either "Hispanic" or "Non-Hispanic Caucasian." Continuous data was analyzed using the Wilcoxon Rank Sum test. Categorical data was analyzed using Chi-Squared and Fisher's Exact Tests where appropriate.

RESULTS: 134 patients (13.18%) self-identified as Hispanic and 883 (86.82%) identified as Non-Hispanic Caucasian (Table 1). In terms of presentation, Hispanic patients were significantly younger on average (56.95 vs 63.92, p=0.0000), more likely to be female (48.51% vs 33.64%, p=0.0001), and less likely to have a history of tobacco use (29.10% vs 43.57%, p=0.018). Hispanic patients had lower incidences of coronary vascular disease (1.491% vs 6.0%, p=0.0315) and chronic kidney disease prior to undergoing surgery (16.39% vs 24.47%, p=0.0158). There was no significant difference in rates of undergoing radical nephrectomy between the two groups (29.66% vs 24.5%, p=0.6212). There was no significant difference in changes from baseline preoperative eGFR (-11.99 vs -13.31 mL/min/1.73 m2, p=0.6012). Additionally, there was no significant difference in the rate of major complications (1.63% vs 2.29%, p=1.0), readmissions (6.67% vs 4.96%, p=0.4328), or mortality (2.99% vs 2.27%, p=1.000).

CONCLUSIONS: In our Northern New Jersey population, we found that Hispanic patients presented with renal masses at younger ages with less comorbidities and less prior tobacco use in comparison to Non-Hispanic Caucasian patients. We did not identify significant differences in surgical management, perioperative or long-term outcomes between these cohorts. Our findings suggest that high volume, quaternary medical centers may reduce inequalities in access to care for patients from ethnic minorities.

A POST-RESUSCITATIVE CARE PROTOCOL IS ASSOCIATED WITH IMPROVED DETECTION OF COMPLICATIONS IN THE WELL BABY NURSERY

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Background: The Neonatal Resuscitation Program (NRP) recommends that neonates who required resuscitation in the delivery room via positive pressure ventilation (PPV) and/or continuous positive airway pressure (CPAP) should receive post-resuscitation care (PRC). However, there are no details to clarify what that should consist of. Previously at our institution, PRC was performed for newborns that continued to show signs of mild distress after resuscitation, and entailed informal cardiorespiratory and blood glucose monitoring. After the new NRP's PRC guidelines, additional surveillance was established at our institution for infants who received PPV and/or CPAP in the delivery room, entailing cardiorespiratory monitoring in the nursery for three hours and admission blood pressure and blood glucose. Objective: To determine if a PRC protocol would result in more frequent NICU admissions and/or more timely identification of complications requiring NICU care.

Methods: This was a single center retrospective and prospective cohort study from 2015-2018. During this time, there were 25,122 live births with 21,884 nursery admissions. There were 367 infants in 2015-2016 retrospective cohort and 398 infants in 2017-2018 prospective cohort. The primary outcomes were incidence of NICU transfer and time to NICU transfer. Details of pregnancy, labor & delivery course, neonatal characteristics, and NICU course were collected. Analysis of Variance (ANOVA), Welch's test, and Fisher's exact test of independence were used to compare continuous parametric, continuous non parametric and count variables, respectively. A Poisson regression model was used to compare the rate of transfer to the NICU.

Results: Overall, baseline characteristics for neonates and mothers were similar between cohorts. The incidence of NICU transfer was significantly higher in the PRC cohort (16.08% vs 11.17%, $p<0.05$). Infants monitored with the PRC protocol were 1.52 times (95% CI 1-2.33, $p=0.048$) more likely to be transferred to NICU. The time to transfer for both groups (3:52 vs 4:24 hr:min, pre PRC vs PRC) was not different between groups. Likewise, a poisson regression model did not detect a significant difference in rate of transfer between both groups.

Conclusion: Even when infants seemingly recover after delivery room resuscitation, there is a significant risk for complications, particularly respiratory distress in neonates who underwent resuscitation with PPV and/or CPAP. The time to transfer being similar between groups understandably corresponded to the maximum allotted time (4 hours) for nursery monitoring of respiratory distress. This cohort study demonstrates that a specific PRC protocol is feasible and may improve detection of late emerging complications requiring transfer to a higher level of care with over 85% compliance with the protocol. This supports NRP recommendations for increased surveillance after delivery room resuscitation with either resuscitative intervention.

EVALUATION OF VALPROIC ACID USE FOR HYPERACTIVE DELIRIUM IN THE INTENSIVE CARE UNIT

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Background: Intensive Care Unit (ICU) delirium is commonly encountered in mechanically ventilated patients and is associated with significant morbidity and mortality. The current Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU (PADIS guidelines) recommend antipsychotic medications for patients experiencing significant distress or agitation that is harmful to themselves or others. However, antipsychotic medications may be associated with serious adverse effects, and have shown inconsistent clinical efficacy in landmark trials. Recently there has been growing interest in utilizing valproic acid in hyperactive delirium due to less cardiac and anticholinergic side effects. There are several retrospective cohort studies that have evaluated the use of valproic acid in critically ill patients with hyperactive delirium. Most of these studies demonstrated a reduction in the incidence of delirium, agitation, and a reduction in sedative requirements. In contrast, a recent retrospective study found no significant difference in delirium and coma free days or agitation and coma free days with the addition of valproic acid to antipsychotics versus antipsychotics alone. This study aims to characterize the use of valproic acid in ICU patients with hyperactive delirium.

Methods: This is an IRB-approved, retrospective, non-interventional chart review that includes adult patients ≥18 years of age, admitted to the MICU/CCU/4PW, received ≥24 hours of valproic acid between June 1 2021 through July 27 2022, and/or any antipsychotic exposure ≥24 hours between January 1 2020 through June 31 2022 for the treatment of ICU hyperactive delirium. Only the first courses will be evaluated and interruptions <48 hours will be included. Patients were excluded if they were prescribed valproic acid and/or antipsychotics for indications other than ICU agitation or delirium, valproic acid or antipsychotics were home medications prior to admission, and concurrent carbapenem use with valproic acid. The primary outcome is the time to hyperactive delirium resolution, and secondary outcomes is ICU and hospital length of stay, delirium duration, time to agitation resolution, time to delirium resolution, in-hospital mortality, restraint use, and use of adjunctive psychoactive medications.

Results: Data collection is still on-going. The results of this study are pending. 48 patients are included in this study, with 34 patients in the antipsychotic monotherapy group, 9 patients in the valproic acid monotherapy group, and 5 patients in the combination therapy group. Statistical analysis is pending.

Conclusion: The conclusion of this study is pending.

UTILIZING ANTENATAL DOPPLER VELOCIMETRY AS A TOOL FOR PREDICTING OUTCOMES IN SMALL FOR GESTATIONAL AGE NEWBORN

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Background: Fetal growth restriction (FGR) is a leading cause of perinatal morbidity. The underlying etiologies of FGR are similar in that they cause uteroplacental hypoperfusion, which leads to chronic fetal hypoxia, negatively affecting fetal development and postnatal sequelae. Antenatal ultrasound surveillance with doppler velocimetry allows perinatologists to monitor the progression of FGR. While abnormal umbilical artery doppler studies have been implicated in poor neonatal outcomes, their utility in predicting specific neonatal morbidity has not yet been investigated. Our objective was to identify antenatal sonographic findings amongst FGR fetuses that can predict postnatal complications in the small-for-gestational-age (SGA) neonate.

Methods: A retrospective chart review of SGA neonates was performed. Corresponding maternal antenatal sonograms were reviewed. Pregnancies affected by known chromosomal abnormality were excluded. Group comparisons were performed using student t-test for continuous variables and chi-square test for categorical variables with a significance threshold of 0.05.

Results: Eighty four SGA neonates were diagnosed with FGR antenatally. Maternal chart review identified a heterogeneous racial distribution. 26% of mothers were of advanced maternal age. 86% were at least overweight, and 40% met criteria for obesity. 30% of SGA neonates required total parenteral nutrition (TPN) postnatally (n=26), 50% of whom had abnormal umbilical artery dopplers on antenatal ultrasound (n=13; $p < 0.05$). 13% of the SGA neonates were noted to have residual feeds (n=6), 83% of whom had abnormal umbilical artery dopplers on antenatal ultrasound (n=5; $p < 0.05$). 60% of SGA neonates had hyperbilirubinemia (n=46), 33% of whom had abnormal umbilical artery dopplers (n=15; $p<0.05$). After adjusting for gestational age, the average length of stay for SGA neonates who had abnormal umbilical artery dopplers was 19.5, whereas the average length of stay for SGA neonates without doppler abnormalities was 4 days ($p<0.05$).

Conclusion: The preliminary results of this study demonstrate that FGR with abnormal umbilical artery dopplers is predictive of neonatal feeding intolerance, hyperbilirubinemia, and increased length of hospital admission. While a limitation of this study is small sample size, future investigative efforts are warranted to determine the reliability of our results in a higher powered database. Such research could inspire the development of antenatal sonographic markers for postnatal complications, optimizing informed care and prenatal counseling of pregnancies affected by FGR.

IN PATIENTS WITH LEFT VENTRICULAR ASSIST DEVICES, DOES RADIOTHERAPY AFFECT DEVICE FUNCTION? A SYSTEMATIC REVIEW OF THE PUBLISHED LITERATURE

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Background: Cancer and heart diseases are the leading causes of morbidity and mortality in developed nations. Due to donor shortages and poor transplant candidacy, left ventricular assist devices (LVAD) have become a preferred treatment modality in patients with advanced systolic heart failure. Cancer affects 1/10 patients approximately and shares common risk factors with cardiovascular diseases. It is therefore not surprising that a subset of LVAD patients will develop thoracic or breast cancers that require chest or mediastinal radiation. The aim of this review is to elucidate the safety of chest radiation in patients with LVAD.

Methods: A systematic literature search from January 1 st , 2000, through June 2 nd , 2022 was conducted in the PubMed and Cochrane Central Register of Controlled Trials (CENTRAL) databases. Medical Subject Headings (MeSH) was searched for Heart- Assist Device, Radiotherapy, and Radiation.

Results: 71 records out of which 56 were excluded which included LVAD patients who did not receive radiotherapy. 15 studies described the effect of radiation exposure on LVAD function. In all reports, radiation exposure did not result in pump stops, alarms, operational changes, or other device malfunctions.

Conclusions: While further extensive studies are required for assessment of device specific dose tolerance and therapeutic validation, radiation therapy may be safe for LVAD patients without evidence of device malfunction when delivered carefully with conformal techniques.

30-DAY RATE OF READMISSION & ECONOMIC BURDEN AMONG PATIENTS WITH IRON DEFICIENCY ANEMIA WITH CO-EXISTING CKD STAGE III AND IV

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Background: There is limited data on the readmission rate for IDA with co-existing CKD III/IV. Therefore, we sought to determine the 30-Day readmission rate (30-DRr) for IDA in individuals with CKD III/IV and its impact on healthcare utilization and economic burden in the United States.

Methods: Using the 2018 National Readmission Database and International Classification of Diseases, 10th revision (ICD-10) codes, a retrospective study of patient discharges with IDA as a primary diagnosis and with co-existing CKD stage III/IV as a secondary diagnosis. Readmission was defined as the first admission to any hospital for any non-trauma diagnosis within 30 days of the index, for patients discharged alive. The primary outcome was 30-DRr, while secondary outcomes were readmission mortality rate, length of stay, most common diagnoses for readmission, and resource utilization defined by hospital charge (HC).

Results: A total of 10,884 index hospitalizations for IDA with co-existing CKD III/IV were identified. The mean age on index admission was 78.2 ± 9.9 years, 61.7% (6,715) were female, and the in-hospital mortality rate was 0.5% (n = 54). The 30-DRr was 14.7% (n = 1,590) (Figure 1). The mean age for readmission was 73.8 ± 13.1 years, 54% (859) of patients were female, and the in-hospital mortality rate was 4.7% (n = 75) (95% CI 6.5 - 18.2, $p < 0.001$), which was significant compared to index admission mortality rate of 0.5% (n = 54). The average length of stay on the initial admission was 4.0 days, compared to 5.9 days on 30-DRr (95% CI 1.4-1.6, $p < 0.001$). Hospital charges on index admission had a mean of $36,236, compared to $60,071 on 30-DRr (95% CI 1.4-1.9, $p < 0.001$). Based on the data analyzed, there were statistically significant differences between the index admission and the 30-DRr for mortality, length of stay, and hospital charges. The most common diagnoses on readmission were unspecified gastrointestinal hemorrhage 22%, hypertensive heart failure with CKD II-IV 16%, sepsis 6.5%, acute kidney injury 5%, and atrial fibrillation 1.5%.

Conclusion: Patients with CKD stage III or IV are at higher risk for readmission and apart from end-stage renal disease patients, there exists little data on the factors associated with readmission for this group. Anemia in CKD patients has been shown to prolong the length of stay in the hospital. We have demonstrated that the presence of iron deficiency anemia in a CKD III/IV patient is associated with an increased risk of readmission and a greater economic burden on the healthcare system. The implications of this data include the possible implementation of closer follow-up with nephrology post-discharge or more aggressive outpatient management of anemia.

EFFECTS OF SOCIAL ENGAGEMENT ON LEVEL OF ADJUSTMENT IN MULTIPLE SCLEROSIS PATIENTS AT TIME OF DIAGNOSIS

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Background: Disorders of mood and affect have a 50% prevalence among patients living with multiple sclerosis. The disease process itself, as well as the secondary symptoms impact opportunity cost in employment, physical ability and social independence. Chronic illnesses can often contribute to feelings of anger, anxiety, embarrassment, and fears of abandonment. Previous studies noted a positive relationship between socio-intellectual engagement on self-efficacy, stress perception and mood, as well as a negative relationship between socio-intellectual stimulation and poor mood and perceived stress. Adjustment studies also identified identity satisfaction and self-efficacy as protective factors for mood and symptom management in patients with a recent diagnosis of MS. However, few studies have identified how the adjustment period after a recent diagnosis of MS can be affected by the level of social engagement. Accordingly, understanding the relationship between lifestyle factors and disease adjustment may identify an increased role for psychiatric and social intervention in the comprehensive treatment of multiple sclerosis. Objective: To understand how the level of social engagement impacts adjustment to a recent diagnosis of multiple sclerosis.

Methods: Participants diagnosed with multiple sclerosis within a three month period underwent brief psychological screening with the PHQ-9 (patient health questionnaire -9) and GAD-7 (generalized anxiety disorder -7) to allow confounding mood as a consideration when analyzing data. Eligible participants proceeded to complete three standardized surveys assessed for resiliency (BRS), psychological adjustment (BASE-6) and social engagement.

Results: A sample size of n=19 participants was included in the study with an age distribution of 21- 46 with female sex representing 72% of the sample size. Of the participants in the study 44% identified as Hispanic/Latin American and 33% identified as White/Caucasian. Approximately 26% of participants had a psychiatric comorbidity. Approximately 42% of participants had scored moderate to severe in the PHQ -9 and 26% scored moderate to severe in the GAD-7. Based on preliminary review of data, there is no linear relationship between higher scores on the BASE-6 questionnaire and the social engagement questionnaire.

Conclusion: Preliminary review of data suggests that there is no relationship between the level of general psychological adjustment and a participant's level of social engagement. However, further research following subjects longitudinally using the BASE-6 as a tool to track psychological adjustment can be done to further assess adjustment to a chronic diagnosis.

A CASE OF PEDIATRIC PURULENT PYOMYOSITIS OF THE PELVIC MUSCULATURE WITH SEPTIC PULMONARY EMBOLI: THE POWER OF PERSEVERANCE

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An adolescent male presented to the emergency department (ED) with one day of fever up to 101F, pleuritic chest pain, dyspnea, and generalized body achesm and two days of pain in his right lower abdomen, groin, and upper inner thigh. In the ED, he was tachycardic, tachypneic and febrile to 102F. There was tenderness of the right inner thigh and groin, pain with flexion of the hip, and a positive obturator sign. Initial evaluation was significant for leukocytosis with neutrophilia, elevated C-reactive protein, creatine kinase, ferritin and D-Dimer. SARS-CoV-2 nucleocapsid IgG was positive. Chest radiograph demonstrated prominence of the pulmonary interstitium and mild patchy alveolar opacities at the lung bases. Computed tomography (CT) of the abdomen and pelvis revealed peripheral parenchymal nodules with trace left pleural effusion. The patient was started on ceftriaxone for possible bacterial community acquired pneumonia. After admission, the medical team had concern for a primary pyogenic focus with septic emboli. Repeat blood culture was sent, and the patient was started on IV vancomycin for possible Staphylococcus aureus infection. The CT was evaluated with pediatric radiology and there was concern for myositis. CT chest with contrast performed on hospital day three was suspicious for septic emboli. The repeat blood culture sent on hospital day two grew methicillin resistant Staphylococcus aureus (MRSA) sensitive to clindamycin. A Magnetic Resonance Imaging (MRI) of the pelvis and right thigh then demonstrated pyomyositis with abscess. Subsequently, orthopedic surgery brought the patient to the operating room and appreciated purulence between the adductor longus and brevis and within the brevis musculature. The abscess cultures later grew MRSA. Post-operatively, the patient's antibiotic therapy was changed to clindamycin based on susceptibility with improvement in fever and pain. Pyomyositis is an infection of muscle that spreads hematogenously. Diagnosis can be difficult, and treatment is often delayed. For the patient in this case, the initial CT was not enough to make the diagnosis, and MRI was a crucial diagnostic step. The COVID-19 pandemic has added another layer of diagnostic murk. Amidst a flood of pneumonia with systemic inflammation caused by a ubiquitous novel respiratory virus, it is easy to lose sight of diagnostic landmarks that were once so familiar. A patient with multifocal pneumonia and elevated CRP would have been a red flag for invasive bacteremia. Now that patient is neatly rolled into our new reality of severe acute respiratory syndrome caused by a novel coronavirus. A pandemic is a hard current to swim against. This case highlights the importance of not limiting focus to a single clinical feature and the importance of cooperation across multiple disciplines. An errant diagnosis can have all the inertia of a runaway freight train, and can be just as deadly.

A "COAL" FINDING: A CASE OF PULMONARY ANTHRACOFIBROSIS

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Case Summary: A woman aged 70-75 from Colombia presented with 3 weeks of worsening non-productive cough, shortness of breath, and hoarseness with 4 days of fever. On presentation, she was febrile and hypoxic to 88%. Examination revealed diffuse wheezing, rales, and bibasilar crackles. She had leukocytosis, anemia, and hyponatremia. Blood cultures, streptococcal, and legionella antigens were all negative. Sputum culture was also negative for acid-fast bacilli. Chest x-ray showed right middle lobe consolidation and chest CT showed right middle lobe collapse. Initially, she was treated for acute exacerbation of asthma secondary to bacterial pneumonia with ceftriaxone, azithromycin, methylprednisolone, and bronchodilators, but symptoms persisted. Bronchoscopy revealed bilateral multisegmental mucosal black pigments. Bronchoalveolar lavage and bronchial washing were negative for malignancy. Biopsy confirmed fibrosis and anthracosis of the right middle lobe without acute inflammation or malignancy. The patient was then diagnosed with diffuse pulmonary anthracofibrosis with middle lobe syndrome (MLS). Further history revealed that she had been exposed to a charcoal-burning stove for 16 years while in Colombia. Discussion Pulmonary anthracofibrosis (PAF) is characterized by hyperpigmented deposits on the tracheobronchial tree and lung parenchyma with associated narrowing and stenosis. The etiology is unknown; TB was thought to be causative, with 27-60% of patients with PAF having TB. It has also been associated with biomass fuel exposure. Kim et al. proposed that chronic smoke inhalation from incomplete combustion of biomass fuel leads to carbon particles being engulfed by macrophages, which remain in the respiratory submucosa and lead to chronic inflammation and fibrosis. Nearly half the world uses biomass fuel for heating and cooking. As such, PAF is more common in women of developing countries who prepare meals in poorly ventilated spaces, with the median age of diagnosis being 67.9 years. Patients often present with chronic cough and dyspnea, are frequently diagnosed with COPD and asthma and have a poor response to therapy. According to Kim et al., bronchial narrowing is most common in the right middle lobe (68%), leading to middle lobe collapse due to airway obliteration, as in our patient. The predilection for the right middle lobe may be due to a lack of collateral ventilation, sharp bronchial angle, and extrinsic compression by enlarged lymph nodes. Although no conventional treatment has been reported, bronchodilators, corticosteroids, and antibiotics have been used.

Conclusion: Patients with PAF have nonspecific symptoms with undetected risk factors, leading to delayed diagnosis. Physicians must be able to conduct an extensive exposure history to help with diagnosis. PAF should be considered a differential diagnosis in female patients with chronic respiratory symptoms and radiologic evidence of MLS.

INTRATHECAL BACLOFEN PUMP MALFUNCTION

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Case Summary: 34-year-old female with spastic quadriparetic cerebral palsy, receiving long term intrathecal baclofen (ITB) therapy presented with suspected ITB withdrawal. Patient developed five days of worsening extremity tone, pruritus and one day of visual and auditory hallucinations. Blood pressure 160/92, heart rate 115, satting 100% on room air. Creatine Phosphokinase 641 units/L. Abdominal X-ray unremarkable. Investigation into pump malfunction included a bolus dose without change in symptoms, and side port aspiration without flow indicating catheter malfunction. Withdrawal symptoms were treated using intravenous ativan and cyproheptadine. Patient was immediately taken to the operating room where the sheared catheter was replaced. The following two days, dosing of the withdrawal medications were maintained while titrating to her previous ITB dose. Her symptoms initially improved, but two days postoperatively she experienced worsening hallucinations. Pump investigation and medical work-up into the causes of hallucinations were performed. Ultimately, the symptoms resolved once cyproheptadine was discontinued.

Discussion: Cyproheptadine is a first generation antihistamine. Its antiserotonergic and anticholinergic properties prove beneficial in its off-label treatment of serotonin syndrome. It has been well demonstrated that intrathecal baclofen withdrawal mimics serotonin syndrome, given the surge of excitatory neurotransmitters occuring during withdrawal. Cyproheptadine is frequently used in the treatment of symptoms of intrathecal baclofen withdrawal, in addition to oral baclofen and intravenous benzodiazepines. Hallucination is an exceedingly rare side effect of cyproheptadine, often listed with a "frequency not defined." Conclusions: This is the first documented case of cyproheptadine-induced hallucinations which mimicked the presenting ITB withdrawal symptoms. Patients should be closely monitored for the potential for worsening hallucination symptoms with the use of this medication.

HEMIBALLISMUS AFTER SUBACUTE STROKE: A CASE REPORT OF INPATIENT REHABILITATION MANAGEMENT

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Case Summary: A 73-year-old male with a history of type II diabetes mellitus was admitted to the acute care hospital for cellulitis. While hospitalized, he developed new-onset right sided hemiballismus. Neurologic workup including MRI of the brain revealed a subacute ischemic stroke of the left basal ganglia. The patient was initiated on Tetrabenazine, an inhibitor of the neurotransmitter transport protein VMAT2, and subsequently experienced improvement of hemiballismus. He was discharged to acute inpatient rehabilitation, where Tetrabenazine was initially unavailable. An alternative neuroleptic was initiated, but the patient experienced worsening of choreiform movements despite this. Upon obtaining and reinitiating tetrabenazine, the patient showed improvement and eventual resolution of hemiballismus. After 20 days in inpatient rehabilitation, he was discharged home at a close supervision level. Through a hospital pharmacy discount program, the patient was given a provisional supply of Tetrabenazine, which can cost in excess of 4,000 USD for a 1-month supply.

Discussion: Tetrabenazine is a well-tolerated medication with a high efficacy in managing hyperkinetic movement disorders. However, its prohibitive cost can be a barrier to treatment for patients and providers. In this patient with basal ganglia stroke, Tetrabenazine provided control of hemiballismus, allowing for participation in inpatient stroke rehabilitation and eventual discharge to home.

Conclusions: This case highlights the prohibitive cost and difficulty of accessing Tetrabenazine, which may be critical for patients with movement disorders. Physicians should maintain awareness of patient assistance programs which can improve access to medications that improve patient functional status and quality of life.

WHEN A 4 LEAF (CLOVER) MEANS BAD LUCK: A CASE OF QUADRICUSPID AORTIC VALVE AS A CAUSE OF SEVERE AORTIC INSUFFICIENCY

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Case Summary: 58 year old male, history of obesity presented with 2 weeks of worsening shortness of breath (SOB), dyspnea on exertion, orthopnea and lower extremity edema. Family history was significant for coronary artery disease in his father. Physical examination and laboratory workup were consistent with acute congestive heart failure (CHF). Transthoracic echocardiogram (TTE) showed dilated hypertrophic left ventricle with moderate diastolic dysfunction, left ventricular ejection fraction (LVEF) of 45%, severe aortic regurgitation (AR) and pulmonary artery systolic pressure (PASP) of 74mmHg. Transesophageal echocardiogram showed that the left cusp was immobile and the aortic root was dilated at 4.3 cm with no signs of vegetation or endocarditis. Patient underwent left heart catheterization which showed mild non obstructive coronary artery disease. After diuresis and medical optimization, the patient was discharged with cardiology follow up. The patient was readmitted for worsening symptoms. Repeat echocardiogram showed all heart chambers with moderate dilation and hypertrophy with severe diastolic dysfunction, LVEF 30% and severe AR with immobile aortic valve, PASP at 57mmHg. The patient was again aggressively diuresed and optimized for aortic valve replacement. Intraoperatively, a bifid right coronary cusp was found, consistent with a quadricuspid valve with flail rudimentary cusp at the level of the commissure, resulting in severe aortic insufficiency (AI). A prosthetic valve was placed and symptoms improved without complications. The patient's initial Metabolic Equivalent (METs) was 1.7 ml/kg/min and within 8 weeks improved to 8.7ml/kg/min; the patient was able to tolerate 30 min of moderate intensity exercise without issues.

Discussion: This patient presented with acute CHF and was found to have severe AR. Intraoperatively the right cusp was found to be bifid consistent with quadricuspid aortic valve. Congenital anomalies of the aortic valve occur due commissural underdevelopment leading to the formation of unicuspid, bicuspid or quadricuspid valve. Quadricuspid aortic valves (QAV) are extremely rare with an incidence of <0.05%. Its development is thought to be in part due to a disruption in the division of one of the three mesenchymal ridges that would normally give rise to the three cusps. QAV can be asymptomatic in younger patients (< 18 years old) with symptoms developing later in life (> 40 years old). Symptoms depend mostly on the functional status of the valve. Echocardiography has allowed for earlier diagnosis. Indications for surgical management include severe AR and severe aortic stenosis. Aortic valve reconstruction surgery (AVRS) is the most commonly used method. Post procedural complications include progressive AR, cardiac arrest, third degree heart block and prosthetic heart valve endocarditis. This case highlights the rapid progression of heart failure due to a QAV with marked improvement in symptoms with surgical treatment.

VENTRICULAR TACHYCARDIA IN THE SETTING OF COVID-19 INFECTION POST VACCINATION AND MONOCLONAL ANTIBODY

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Case Summary: A 73-year-old Caucasian male with history of nonischemic dilated cardiomyopathy, paroxysmal ventricular tachycardia (VT) status post automatic implantable cardioverter defibrillator (AICD) placement and hypertension, presented to the emergency room (ER) for Bebtelovimab administration after three days of subjective fevers, cough, generalized weakness confirmed to be due to COVID-19. He received Bebtelovimab infusion and was discharged home in stable condition. Over the next 24 hours he developed palpitations, shortness of breath, and dizziness prompting return to the ER where he was noted to be tachycardic (~150 bmp), hypotensive and hypoxic requiring BiPAP support. ECG revealed wide complex tachycardia (WCT). Laboratory results were negative for any significant electrolyte imbalances, but brain natriuretic peptide (BNP) and troponins were both elevated at 2200 pg/mL and 0.7 ng/mL respectively. His liver function was normal, but there was evidence of mild acute kidney injury with a creatinine level of 2.28 mg/dL. Of note, his previous cardiac catheterization revealed no critical coronary artery disease and transthoracic echocardiogram (TTE) showed ejection fraction (EF) of 45%. AICD past interrogations were negative for VT or ventricular fibrillation (VF) episodes, but did reflect episodes of supraventricular tachycardia (SVT) and atrial fibrillation requiring automatic mode switching. He was compliant with his home medications of Apixaban and Sotalol and had no recent change in medications. In the ER, diltiazem and metoprolol were administered followed by diltiazem infusion for persistent tachycardia which abated shortly thereafter. Despite normalization of his heart rate, he became hypotensive with symptoms of acute heart failure for which milrinone was initiated. He then developed recurrence of WCT. Digoxin was given and amiodarone infusion was started however discontinued due to deterioration in both renal and liver function. AICD was interrogated reflecting that patient was in VT during both events. Under mild sedation, a shock of 20J was delivered restoring him to sinus rhythm. The AICD was reprogrammed to a lower detection rate and no further VT occurred. Follow up AICD interrogations revealed no further episodes of VT.

Discussion: COVID-19 related arrhythmias have been widely reported and studied. It may occur due to direct viral myocardial injury, severe respiratory insufficiency, systemic inflammation reaction, or proarrhythmic effects of COVID therapies and other drug interactions as well as autonomic imbalance. Bebtelovimab, a spike protein monoclonal antibody, is authorized for emergent use for treatment of moderate to severe is COVID-19 infection. Side effects include allergic reactions and dizziness with one case report of bradycardia following Bebtelovimab infusion. Presently, there are no reported cases of Bebtelovimab potentially contributing to other arrhythmias such as VT storm, and the mechanism remains unknown.

GROUP A STREPTOCOCCUS PNEUMONIA IN A PREVIOUSLY HEALTHY INDIVIDUAL: IS IT STILL A THING?

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Learning Objectives: -Recognize risk factors based on the history obtained from the patient and correlate it with the presentation of symptoms, and based on this, understand which studies are relevant to initiate early management in Group A Streptococcus pneumonia. -Appreciate the rarity of this medical condition in an otherwise healthy individual.

Case Summary: This 32 year old male with no past medical history presented with fever, hemoptysis and tachycardia. Laboratory results showed a white blood cell count of 21.4, sodium of 131, mild transaminitis and elevated creatine kinase. At this point pneumonia panel, Acid Fast Bacillus (AFB), and cultures for sputum and blood were sent. His initial imaging findings and clinical presentation were concerning for tuberculosis (TB) vs community acquired pneumonia (CAP), as it yielded a consolidation in the right upper lobe. The patient had no obvious risk factor except for imprisonment 2 years prior to his symptoms onset. Empirical therapy with ceftriaxone, azithromycin and methylprednisolone was started and infectious disease (ID) was consulted. Later on, quantiferon and 2 more AFBs were sent as per ID, that together with the rest of the studies, came out negative, except for sputum and blood cultures that were positive for Streptococcus pyogenes, ruling out TB. Antibiotic therapy was narrowed down to only Ceftriaxone, as per ID. Patient responded well to therapy, with subsequent resolution of hemoptysis, leukocytosis and lung imaging findings, 2 weeks after he was discharged from the hospital. Discussion: The current body of knowledge regarding respiratory infections caused by Group A streptococcus (GAS) is limited by multiple factors, including its relative rarity and the diversity of how it can present, specially in a developed country. Its mimicry characteristics of other clinical entities, such as TB, can be deceiving, which can delay appropriate treatment if it occurs in settings where the diagnostic tools are not readily available. Though it is associated with more severe outcomes than other types of pneumonia, the prevalence of modern antibiotics has helped limit the mortality. Though GAS pneumonia and TB share overcrowding as a common risk factor, a distant history of incarceration, as shown in this case, would not be relevant in GAS pneumonia since this entity occurs in an acute fashion, unlike TB. As a result, the history, imaging and constellation of symptoms, can be skewed, leading to an incorrect diagnosis.

Conclusion: GAS is known to cause many different kinds of infections, including invasive pneumonia in rare cases, where there is usually a component of overcrowding. When it is the causative agent, it is associated with a more severe disease course, but it can often be adequately treated if caught early enough. By sharing more cases and atypical presentations of this disease, the clinical manifestations of this pathogen can be better understood, identified, and treated.

DOES THAT GO THERE?: A RARE OCCURRENCE OF SPONTANEOUS STERNOCLEIDOMASTOID ABSCESS IN A PATIENT WITHOUT KNOWN RISK FACTORS

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Learning Objectives: -Early recognition of soft tissue infections in patients without obvious risk factors and appreciate the complexity and rarity of this clinical entity. -Diagnose and empirically manage soft tissue infections to prevent progression and complications.

Case summary: A 61 year old male presented with a 9 day duration of neck pain, erythema and swelling for which he had previously been seen in the Emergency Department (ED). Initial computed tomography (CT) of the neck showed infiltration without collection and he was discharged on oral doxycycline. He presented again with worsening symptoms and new onset fever and chills. On examination, vital signs were within normal limits, and no signs of trauma. Swelling was noted at the neck in the region of the right sternocleidomastoid. Repeat CT scan of the neck showed an abscess measuring 2.5 cm in diameter (Image). Laboratory tests showed normal white blood cell count, glucose of 359, hemoglobin of 8.5% and mild transaminitis. Patient was started on empiric antibiotics with vancomycin and piperacillin/tazobactam initially and then switched to targeted antibiotics with cefepime/vancomycin, once the blood cultures yielded Staphylococcus aureus. 4 days after antibiotics course, most of his symptoms resolved except for neck tenderness and erythema involving the right sternoclavicular joint. Incision and drainage was done without complications, and tissue cultures confirmed S. aureus. Patient was discharged on a 6 week course of daptomycin. Discussion: Spontaneous intramuscular abscesses are a rare occurrence outside the tropical regions in individuals with no preceding trauma or other known risk factors such as poorly controlled diabetes. Therefore, they require a high index of suspicion to be diagnosed early and treated appropriately. This medical condition, also known as pyomyositis, has been previously documented in people with and without risk factors. However, the peculiarity of this case lies in this individual's immunocompetence, as he did not have a vulnerability that went beyond moderately controlled Diabetes. Different parameters for elevated A1c have been established over time that may proportionally correlate with an increase in the risk for infection, but this has not been consolidated yet. The limited literature on this condition makes it difficult to determine the reason for its occurrence.

Conclusion: Generally speaking, encountering cases of spontaneous abscesses is common in the context of individuals with notable risk factors. Different muscle groups have been documented with this entity. The SCM, however, caught our attention as a peculiar location, particularly in this individual with no relevant risk factors or evidence of inoculation or trauma. By shedding more light on it, we hope to increase awareness and lead to an early diagnosis, therefore avoiding potentially fatal outcomes.

NEUROPSYCHIATRIC MANIFESTATIONS OF OSMOTIC DEMYELINATION SYNDROME: A CASE REPORT

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Case Summary: A 34-year-old female with history of alcohol use disorder presented with altered mental status. Labs demonstrated severe hyponatremia, which was rapidly corrected with hypertonic saline from 104 to 122 mmol/L within 24 hours. Her mental status returned to baseline. Hyponatremia was further corrected to 134 mmol/L in the next six days but she subsequently became non-verbal with suspected mutism, and inability to follow commands. MRI brain was compatible with osmotic demyelination syndrome. Patient received IVIG and plasmapheresis without immediate improvement. Upon acute rehabilitation admission, she was disoriented and apraxic, requiring maximum assistance for ADLs and ambulation. After two weeks of comprehensive rehabilitation, she began to produce intelligible speech and inconsistent command following.

Discussion: ODS was first described in chronic alcoholics with malnutrition, but was later expanded to patients who developed severe hyponatremia and were rapidly replenished. With a decrease in serum tonicity, water is displaced from the cells into CSF. Following rapid correction, the brain cannot recapture osmolytes, leading to parenchymal dehydration and demyelination of astrocytes The pons is particularly vulnerable due to its proximity to CSF via the fourth ventricle. Clinical symptoms of ODS commonly present with variations of motor dysfunction; however, our patient had predominantly behavioral symptoms. Similar findings were captured by Gopal et al., where after a week of sodium fluctuations and a one-time increase of 15 points, their 51-year old female patient began demonstrating paranoid delusions and echolalia.

Conclusion: Clinical symptoms of ODS vary greatly, extending beyond the typical presentation colloquialized as "locked-in syndrome". Particular emphasis must be made to not rapidly overcorrect sodium in patients with severe hyponatremia, with current guidelines suggesting 6-8 mEq/L per 24hrs. Our case demonstrated that multidisciplinary care is critical to improve medical and functional outcomes.

EARLY INTERVENTION TO IMPROVE FUNCTION IN A RARE CASE OF TERSON'S SYNDROME AFTER TRAUMATIC BRAIN INJURY

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Case Summary: A previously healthy 19-year-old male pedestrian was struck by a motor vehicle resulting in a right lower extremity crush injury, bilateral subdural hematomas, venous epidural hematoma, bilateral temporal infarction, and multiple skull fractures. He required a right transfemoral amputation and right hemicraniectomy. In inpatient rehabilitation (IPR), the patient reported bilateral blurred vision that significantly impacted therapies. He required total assistance for transfers and wheelchair navigation, and needed both tactile and verbal cues for tasks. The patient was evaluated by a retina specialist and neuro-ophthalmologist for bilateral blurred vision. The exam was notable for visual acuity (VA) of counting fingers only and bilateral vitreous hemorrhages which precluded fundus examination to rule out optic nerve pathology. Finders were consistent with Terson's Syndrome (TS). Right-sided pars plana vitrectomy (PPV) was performed during IPR with plans for eventual left eye PPV. Post-PPV, right eye VA improved from only finger counting to 20/40 with intact visual fields. Consequently, tactile cues were no longer required in therapy and the patient became able to self-orient for tasks like upper-body dressing.

Discussion/Conclusion: Estimated in only about 3.1% of traumatic brain injuries (TBI), TS is defined as intraocular hemorrhage in the setting of intracranial bleed. Sequelae include macular holes, retinal detachment, and permanent blindness. Evaluation by ophthalmology with appropriate management is not only important for visual rehabilitation, but as seen in this case, can amplify general functional progress post-TBI. This patient's dual diagnosis of TBI and amputation made it particularly beneficial for him to have the PPV done before resuming IPR. Post-PPV, he demonstrated more active participation and progress in performing out-of-bed ADLs, enhanced self-correction for left-sided neglect, and independent use of modalities for right-sided phantom pain. Intervention for TS accelerated functional gains in IPR. Timely vitrectomy prior to or during IPR should be considered for patients with TS. This case demonstrates how early detection and management of TS facilitates functional improvement, allowing for new therapeutic goals during IPR.

BILATERAL PARAMEDIAN THALAMIC SYNDROME IN A 63-YEAR OLD FEMALE SECONDARY TO ARTERY OF PERCHERON INFARCTION: A CASE REPORT

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Case Diagnosis: A 63-year old female with recrudescence of paramedian thalamic syndrome due to infarction of the Artery of Percheron.

Case Summary: Patient arrived at ED with primary complaints of vomiting, malaise, and loss of balance. Diagnostics included CT head without contrast which demonstrated subacute L cerebellar infarction. MRI revealed acute L cerebellar infarction as well as old infarction of bilateral thalami. Clinically, the patient demonstrated symptoms of dysmetria, poor coordination of LUE/LLE, leftward truncal lean, and vertiginous signs. The patient also displayed recurrence of bilateral lower extremity sensation deficits, worsening diplopia, and short-term memory loss, likely a recrudescence of her Artery of Percheron stroke a few months prior. Subsequent TEE identified a PFO so the patient was initiated on anticoagulation and subsequently discharged to inpatient rehabilitation. Diplopia ultimately improved with use of prism glasses, although cognition remained a barrier, with relatively poor carry-over between therapeutic sessions.

Discussion: First described in 1973, the Artery of Percheron (AoP) is an uncommon anatomical variant that, when infarcted, consists of 0.4 - 0.5% of ischemic strokes. It is characterized as a common trunk that directly branches off of the posterior cerebral artery (PCA) to feed the bilateral thalami. This is often initially identified on imaging, where conventionally MRI evidence would show a V-shaped hyperintensity on the pial surface of the paramedian thalami and midbrain. Symptoms associated with paramedian thalamic syndrome vary based on extension of the infarct caudally into the mesencephalon, but generally include vertical gaze palsy, diplopia, ataxia, amnesia and fluctuating levels of consciousness.

Conclusion: A keen appreciation of anatomical variants can help fully elucidate a differential diagnosis among strokes, particularly those with high clinical symptom overlap. Bilateral thalamic infarction can occur more readily in individuals that possess the AoP, with a constellation of diencephalic and mesencephalic symptoms that may be early indicators of its involvement.

NERVOUS UNDER PRESSURE: SEVERE FEMORAL NEUROPATHY POST CARDIAC CATHETERIZATION - A CASE REPORT

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Case Diagnosis: A 79-year-old male with left iliopsoas hematoma causing motor and sensory deficits across the femoral nerve territory.

Case Summary: A 79-year old male was admitted for left lower extremity (LLE) dysfunction following transfemoral cardiac catheterization. Physical exam confirmed 0/5 strength with LLE hip flexion and knee extension and sensory loss across the femoral nerve distribution. Computed Tomography (CT) of the abdomen and pelvis without contrast showed left retroperitoneal intramuscular iliopsoas hematoma measuring 8.3cm x 7.8cm x 15.5cm. Electromyography (EMG) revealed fibrillations, positive sharp waves, increased motor unit amplitude, and severely reduced recruitment in the left vastus lateralis and rectus femoris. The patient was diagnosed with severe left femoral neuropathy. He required minimum assistance with static balance and was unable to ambulate.

Discussion: The development of iliopsoas hematoma following cardiac catheterization is rare, at 0.5%, although incidence of femoral nerve compression with an established hematoma can be as high as 70% due to inelastic iliacus fascia. Management includes conservative and surgical approaches, with the average length of time to recover strength to a 4/5 level varying between 2.3 months with surgery and 3.6 months with conservative management. EMG findings of fibrillation potentials, increased motor unit amplitude and decreased recruitment are indicative of a neuropathic process.

Assessment/Results: CT abdomen and pelvis without contrast prior to discharge demonstrated less high attenuation, suggesting resolving hematoma. Upon discharge, the patient achieved independent static balance, was able to ambulate 50 feet with contact guard, and negotiate 12 stairs with minimum assistance.

Conclusion: Although rare, femoral neuropathy due to retroperitoneal hematoma may occur in patients post cardiac catheterization. Compressive femoral neuropathy due to retroperitoneal hematoma should be considered if muscle weakness is observed. Early diagnosis and appropriate rehabilitation treatment plans are helpful for a functional prognosis, but surgical management should be considered if motor weakness does not improve.

CASE REPORT: CARDIOGENIC SHOCK FROM DELAYED COVID-19 INDUCED GIANT CELL MYOCARDITIS

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The literature regarding delayed coronavirus induced myocarditis remains a topic that has yet to be fully explored. Here, we present a case of a 54 year old man with a past medical history of hypertension and hyperlipidemia. The patient had been previously diagnosed with COVID-19 four weeks prior which he fully recovered from. The patient then presented to the emergency room with chest pain, shortness of breath, diaphoresis, and dizziness. Electrocardiogram showed ST elevations in the inferior and anterolateral leads, with an elevated troponin. He was transferred to the catheterization lab urgently where no significant coronary stenosis was visualized. 2D echo revealed depressed left ventricular function, ejection fraction 20-25%, with severe global hypokinesis and moderate tricuspid regurgitation. In the critical care unit, the patient required inotropic support with eventual transition to further circulatory support. He underwent intra aortic balloon pump placement. Cardiac magnetic resonance imaging and biopsy was diagnostic for giant cell myocarditis. The patient was started on immunosuppressive therapy and high dose steroids. He was then discharged and referred to a cardiac transplant team. Despite the growing understanding of COVID-19 myocardial involvement, cases of COVID-19 myocarditis are likely under-reported(10). A study by Annie et.al showed the prevalence of clinically confirmed COVID-19 myocarditis across a large multinational registry to be 0.01% (256 patients), with an associated increased mortality, underscoring the importance of diagnosing patients with myocarditis early in the process (9).

ADDERALL-INDUCED ACUTE HEPATIC INJURY

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Learning Objectives: Recognize the risk of hepatotoxicity related to Adderall in a patient with no history of preexisting liver disease. Understand the mechanisms of potential hepatotoxicity with amphetamine use.

Discussion: A Caucasian female in her 20's with a history of narcolepsy, depression, anxiety, PTSD and ADHD, stable on Lexapro for over a month, admitted to hospital for nausea, vomiting, abdominal pain for two weeks, reported with initiation of Adderall. The patient denied an intentional overdose of medications, previous history tranquilizer and stimulant use. On exam, patient was jaundiced with scleral icterus, and was found to have acute hepatic failure with marked elevation in AST, ALT, total bilirubin, INR and PT. CT showed mild diffuse hepatic steatosis. Lexapro and Adderall were discontinued immediately, N-Acetylcysteine (NAC) was given in ED, lactulose initiated for prevention of hepatic encephalopathy. Extensive testing revealed no specific cause for injury. Acetaminophen and salicylate level, blood alcohol, acute hepatitis panel all within normal limits, urine drug screen positive for cannabis. Serologic testing negative for HIV, CMV, Hepatitis, A, B, C in addition to other markers. Imaging provided no clear origin for hepatic injury. The patient's hospital course was not significant for invasive intervention, liver function stabilized through discontinuation of two standing medications, eventually discharged within a week for liver biopsy and outpatient treatment.

Conclusion: Liver injury secondary to chemicals and toxins accounts for 30% of acute hepatic injury (Vanga et. al 2013). There are several potential mechanisms through which amphetamine and dextroamphetamine (D-AMPH), the components of Adderall, can cause liver injury. One such mechanism includes lack of cytochrome P450 oxidase CYP2D6, seen in 5-9% of Caucasians, resulting in accumulation of hepatotoxic medicine. Another possible mechanism of injury is through microvesicular fatty change within hepatocytes. In addition to these processes, the patient's previous use of stimulants and tranquilizers may have predisposed to development of steatohepatitis. Despite these known mechanisms, Adderall-induced hepatic injury is not often observed in clinical practice and there are limited reported cases in literature. The patient's onset of symptoms coinciding with initiation of Adderall and subsequent medical stabilization following discontinuation, without a clear reason following extensive medical testing, suggests Adderall as the cause for her hepatic injury and deserves further exploration.

A CASE OF CARBON MONOXIDE POISONING IN A 6 WEEKS OLD INFANT PRESENTING WITH PERIORAL CYANOSIS; AN ATYPICAL DELAYED PRESENTATION.

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Learning Objectives: 1) To recall common presenting symptoms of carbon monoxide (CO) toxicity 2) To recognize atypical presentation 3) To review the pathogenesis of cutaneous findings in CO poisoning

A 6 week old infant presented to the Emergency Room (ER) with a history of persistent perioral cyanosis and diaphoresis with feedings. There were no additional sick symptoms. Patient was full term with an unremarkable nursery course. Vital signs consisted of a heart rate, 138 beats per minute(/min), respiratory rate of 40/min and an oxygen saturation (O2 sat) of 100% on room air (RA). On initial assessment, the patient had cyanosis of the lips and purple/blue sucking blisters while the remainder of the physical exam was unremarkable. Complete Blood Cell Count (CBC), Complete Metabolic Panel (CMP), Chest X-Ray and an electrocardiogram (ECG) were ordered and all within normal limits. Following admission, Arterial Blood Gases (ABGs) were obtained resulting in an elevated pH of 7.34 (7.35-7.45) , partial pressure of carbon dioxide (pCO2) of 39.8 mmHg (5-45 mmHg), and partial oxygen (pO2) at 66.9 mmHg (50-70 mmHg). The bicarbonate (HCO3) was decreased at 21 mEq/L (22-26 mEq/L). Collection of methemoglobin (MetHb) and carboxyhemoglobin (COHb) indicated elevated MetHb at 1.3 percent (ref. <1%) and COHb 2.8 percent (ref <1.5%). The patient was then placed on 100% O2 via a non-rebreather mask. Upon further assessment it was determined that the infant was exposed to CO during a building fire. Discussion: CO toxicity is one of the most common causes of poisoning, accounting for 50,000 ER visits and 1,200 deaths annually. CO is a non-irritant gas that is odorless, colorless, and tasteless. However, when combined with hemoglobin in the blood, it forms a cytotoxic COHb compound leading to tissue hypoxia. The most common CO exposures are house fires, gas leaks, motorbike exhaust, exposure hookah smoke and methylene-chloride/dichloromethane found in paint remover. Toxicity occurs within 20 days of exposure and primarily affects the central nervous and cardiovascular system. However, initial CO symptoms such as fatigue and malaise are often non-specific. Infants are more likely to present with altered mental status. Symptoms are faster in onset and more severe in children due to a higher metabolic demand. Cutaneous manifestations of CO toxicity such as discoloration, lesions, erythema and induration are often mistaken for cyanosis like it was for this patient. Untreated CO toxicity can progress to hypoxia, seizures, arrhythmias or what is known as delayed neuropsychiatric syndrome characterized by personality changes, abnormal movements, cognitive and neurological deficits. It is essential for practitioners to broaden their differential diagnosis and assess toxic exposures such as CO when patients present with cyanosis in the setting of normal pulse oximetry. Early identification and management is essential to reduce mortality and morbidity.

A RARE CASE OF SEVERE HYPOKALEMIA AND HYPOMAGNESEMIA DUE TO VENETOCLAX AND POLYPHARMACY LEADING TO LIFE-THREATENING CARDIAC ARRHYTHMIAS

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Case summary: An 81-year-old male with a past medical history of Hypertension, Type 2 Diabetes Mellitus, Chronic Kidney Disease (CKD), and Acute Myeloid Leukemia on Venetoclax and chemoprophylactic medications including Ciprofloxacin, Posaconazole, and Acyclovir presented to the emergency department after a witnessed syncopal episode at home with no stigmata of seizure activity for three minutes. He was evaluated by his cardiologist the day prior to admission and was found to be hypotensive with worsening kidney function, leading to the discontinuation of Benazepril. On arrival, a heart rate of 34 and blood pressure (BP) of 159/69. The physical exam was remarkable for bradycardia. Laboratory evaluation was significant for hypokalemia with potassium (k+) of 2.8 mmol/L, magnesium (Mg2+) of 1.5 mg/dL, Acute Kidney Injury on CKD, with creatinine (cr) of 2.01, and blood urea nitrogen (BUN) of 44 (baseline cr 1.25 and BUN 20). No orthostatic drop in BP. EKG revealed normal sinus rhythm with U waves and prolonged QT interval > 600 msec. Telemetry revealed two episodes of torsades de pointes; both initiated with sinus bradycardia, prolonged QT interval, premature ventricular contractions, and long short sequences likely due to hypokalemia induced by Venetoclax and polypharmacy. Venetoclax was discontinued, and Ciprofloxacin and Posaconazole were changed for Cefepime and Isavuconazole, respectively. Amiodarone, Metoprolol, and Torsemide were discontinued indefinitely. K+ and Mg were aggressively replenished, with a progressive uptrend of electrolytes noted after stopping Ventoclax. Subsequent EKG showed improvement of the QT interval alongside a resolution of U waves and subsequently reverted to sinus bradycardia. The patient was discharged home on Amoxicillin/Clavulanate and Isavuconazole with close follow-up with a hematology-oncology and cardiology.

Discussion/Conclusion: Venetoclax has the potential for renal toxicity via damaging the proximal and distal tubules of the kidneys, causing losses of potassium and magnesium. Only a few reported cases and studies have been published that show Venetoclax causing electrolyte imbalances like hypokalemia and hypomagnesemia, but they were mainly found to be asymptomatic or attributed to antimicrobial prophylaxis medications or underlying cancer. We recommend cautious concomitant use of other medications like chemoprophylactic and antibiotic prophylactics, plus vulnerable groups like CKD and arrhythmias, which can potentially cause hypokalemia and QT prolongation. The use of Venetoclax in these patients would require closer monitoring of electrolytes and kidney function to avoid fatal adverse events. Our case presents such a situation where Venetoclax, in conjunction with other medications, could lead to an unfortunate and life-threatening event. However, additional studies are required to find a direct association between Venetoclax and electrolyte abnormalities and establish its interaction with other drugs.

AN UNUSUAL PRESENTATION OF STREPTOCOCCUS GALLOLYTICUS IN INFECTIVE ENDOCARDITIS

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Case Summary: A 53-year-old male presented with one week of new-onset worsening and persistent exertional shortness of breath associated with orthopnea. Remarkably, three weeks prior, while being worked up for abdominal wall cellulitis with blood cultures positive for Streptococcus gallolyticus, he was incidentally found to have infective endocarditis (IE) of the aortic and mitral valve. At that time, he was discharged with a Ceftriaxone infusion for six weeks. His vital signs showed tachypnea. On physical examination, jugular venous distension, bilateral basilar rales alongside plus two pitting edema were noted, harsh systolic murmur in the second intercostal space (ICS) right parasternal radiating to the right carotid artery and blowing diastolic murmur in the left fifth ICS of the midaxillary line radiating to the axilla were heard, and 2x2cm soft, non-tender, immobile mass was appreciated in the right side of the neck. His brain natriuretic peptide was 1406 pg/ml. CT chest revealed a tiny left lower lobe pulmonary embolism and pulmonary edema. The echocardiogram demonstrated a left ventricular ejection fraction of 65-70%, severe aortic regurgitation, and moderate size aortic and mitral valve vegetations, which were larger compared to the previous study. CT soft tissue neck revealed findings highly concerning for osteomyelitis at C5/C6 and a prevertebral abscess, measuring approximately 7.7 x 2.6 x 5.0 cm in size. The patient was started on Furosemide, cultures were repeated, and Ceftriaxone was continued. The patient was transferred to our main facility emergently for aortic and mitral valve replacement. After the cardiac surgery, he was managed in the intensive care unit and underwent a C5/C6 anterior corpectomy and C4-C7 fusion. Colonoscopy was negative for colon cancer, demonstrating only two benign colon polyps. After guideline-directed medical therapy, he was discharged to follow-up outpatient.

Discussion/Conclusion: It has been well-established the association of Streptococcus gallolyticus bacteremia with colorectal carcinoma. Multiple hypotheses have been elucidated, with the most common mechanism being ulceration of polyps leading to hematologic dissemination; however, it is not well established how this pathogen enters the bloodstream in patients without polyps. One accepted theory is its passage through biliary channels, as Streptococcus gallolyticus bacteremia has been identified in cases of acute cholangitis and hepatic abscesses. To our knowledge, no case of Streptococcus gallolyticus bacteremia due to abdominal wall cellulitis and only a few ones due to colonic adenoma resulting in IE have been reported in the literature. Through this case report, we highlight the atypical presentation of Streptococcus gallolyticus IE due to either abdominal wall cellulitis or benign adenomas to aid clinicians in its earlier recognition and treatment and contribute to the growing literature of the etiologies associated with this phenomenon.

UNCOMMON PRESENTATION OF MOYAMOYA DISEASE: A CASE REPORT

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Case Diagnosis: Acute left MCA stroke secondary to Moyamoya disease

Case Summary: A 55-year-old male presented to the hospital with a 3-day history of intermittent, non-positional dizziness and holocephalic headaches. No recent trauma or prior headache was reported. Initial exam was notable for right facial droop and right-sided weakness. CTA head found left supraclinoid internal carotid artery and middle cerebral artery (MCA) M1 stenosis with near-occlusion and increased number of lenticulostriate arteries. Digital Subtraction Angiography confirmed extensive collateralization of perforators for the lenticulostriate branches and left posterior cerebral artery. He was diagnosed with acute left MCA infarction secondary to Moyamoya Disease (MMD). Dual antiplatelet therapy (DAPT) was initiated and he was subsequently transferred to inpatient rehabilitation. Therapy targeted right hemiplegia, and cognitive deficits with expressive and receptive aphasia. Discussion: MMD affects 0.5-1.5 per 100,000 individuals in East Asian countries annually and even lower elsewhere. More females than males, in a 1.8:1 ratio, present with migraine-like headaches, transient ischemic attack, and ischemic stroke. This case describes an uncommon presentation of MMD in a male with nonspecific symptoms of dizziness and holocephalic headache. Proper imaging identified the classic "puff of smoke" collateral vessels, indicative of MMD as the cause of stroke. It is important to be aware of the variations in presentation and less common symptoms that patients with MMD could present with so as not to delay diagnosis and subsequent care. Other possible presentations of MMD include seizures, choreiform movements, ICH, and visual impairment. Patients may also be asymptomatic with incidental findings of MMD.

Conclusion: MMD remains a disorder of unclear pathophysiology due to various factors including genetics, anatomical anomalies, epidemiology, and association with other risk factors. It is important to recognize the variations in presentation, including the uncommon symptomatology, of this less-than-common diagnosis so as not to delay treatment and subsequent stroke prevention.

AN EQUINE DECLINE: LACROSSE AND JAMESTOWN CANYON MENINGOENCEPHALOPATHY FOLLOWING HORSE BITE

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Case Description: A 21-year-old female presented following a horse bite with fever, urinary retention, headache, photophobia, phonophobia, and diplopia evolving to include neck stiffness, flaccid quadriparesis, and altered mental status. She required intubation and hospitalization. MRI brain and spine showed diffuse leptomeningeal enhancement of the cerebrum, cerebellum, and entire spinal cord as well as long segmental myelitis of the spinal cord. Serology was Jamestown Canyon Virus (JCV) IgM equivocal and La Crosse Virus (LCV) IgM positive, confirmed with positive JCV and LCV plaque reduction neutralization tests (PRNT). The patient required tracheostomy and PEG tube placement, and had return of function in bilateral upper extremities with continued lack of motor function in bilateral lower extremities. She was discharged to inpatient acute rehabilitation and progressed to minimal assistance for ADLs and independent for wheelchair mobility due to persistent lower extremity weakness. After tracheostomy decannulation and PEG tube removal, she was discharged to subacute rehabilitation for ongoing care.

Discussion: LCV and JCV are mosquito-borne California serogroup orthobunyaviruses and are exceedingly rare infections. LCV has an annual incidence rate of 0.004 per 100,000 adults. There are 10-75 cases of JCV annually in the United States. Patients present with fever, malaise, neck stiffness and GI upset; hyponatremia and upper respiratory symptoms are seen in LCV and JCV infections, respectively. LCV is diagnosed with detection of elevated LCV IgM antibody in serum, while JCV diagnosis is made via positive JCV IgM in serum and/or CSF and confirmation by PRNT due to significant cross-reactivity among the California serogroup. No antiviral therapy or vaccine exists for LCV or JCV and management is supportive. There are no reported cases of meningoencephalitis with co-infection of LCV and JCV.

Conclusions: This case describes meningoencephalitis with co-infection of LCV and JCV, and highlights improvement despite persistent weakness through supportive care and intensive inpatient rehabilitation.

POST-PARTUM INPATIENT REHABILITATION TO FACILITATE RECOVERY AFTER HELLP SYNDROME COMPLICATED BY SEVERE STROKE: A CASE REPORT

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Case Summary: A 39-year-old G4P1112 female with a history of uncontrolled hypertension presented to the hospital at 27 weeks gestation with slurred speech, left facial droop, and left-sided weakness. She notably did not receive any prenatal care prior to admission. Imaging of the head revealed a right pontine intracerebral hemorrhage. A cardene drip was initiated for significantly elevated blood pressure. The patient was diagnosed with preeclampsia complicated by HELLP syndrome. An emergent cesarean section was performed. Multiple platelet transfusions along with a magnesium drip were also required. Hospital course was complicated by dysphagia requiring placement of a gastrostomy tube (G-tube). The patient subsequently went to acute inpatient rehabilitation (IPR) where therapies immediately addressed her severe hemiparesis and dysphagia, optimizing her long-term functional outcomes. Case Diagnosis: Acute pontine hemorrhage secondary to Hemolysis, Elevated Liver Enzymes, and Low Platelets (HELLP) syndrome

Discussion: HELLP syndrome, a subtype of preeclampsia, occurs in about 0.5-0.9% of pregnancies. The overall incidence of stroke during pregnancy is about 30 in 100,000. In addition to preeclampsia, our patient was high parity with advanced maternal age, presenting with an NIHSS of 10 and ICH of 1, thereby rendering her in the severe stroke category. Despite her medical complexity and functional deficit, the prompt IPR course with interdisciplinary coordination of care allowed her the maximum functional outcome and she was discharged home.

Conclusion: Although the incidence of stroke during pregnancy is relatively low, preeclampsia remains a significant risk factor for peripartum stroke. This patient did not receive adequate prenatal care, or follow-up during pregnancy, thus placing her at risk. This case describes the uncommon situation of preeclampsia with HELLP syndrome presenting initially as a severe stroke, highlighting the importance of immediate IPR to maximize functional recovery.

CARDIAC ARREST INDUCED BY AN ANAPHYLACTIC REACTION FROM MONOCLONAL ANTIBODY INFUSION FOR CORONAVIRUS-19

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Case Summary: A 75-year-old male with a history of glaucoma presented to the emergency department after a recent COVID-19 exposure three days prior. A review of systems was unremarkable and he was asymptomatic. He denied any use of tobacco, alcohol, or illicit drugs. His vitals were BP 154/70 mmHg, HR 78 bpm, RR 14 breaths per minute, Tmax 98.6°F, and SpO2 99% on room air. Cardiopulmonary examination was unremarkable. COVID-19 test came back positive. The patient was started on casirivimab/imdevimab infusion. He became flushed, erythematous, and profusely diaphoretic a few minutes later. Due to high suspicion of a hypersensitive reaction, the medication was immediately discontinued. However, he suddenly became bradycardic, hypotensive, and progressed into cardiac arrest. Cardio-pulmonary resuscitation was started immediately. Intravenous epinephrine, methylprednisolone, diphenhydramine, and 1-liter normal saline bolus were administered. Return of spontaneous circulation (ROSC) was achieved within five minutes. Post-ROSC electrocardiogram revealed accelerated junctional rhythm with no ST/T wave changes. Labs revealed troponin 0.11 ng/mL (ref:: <0.04 ng/ml) and potassium 3.1 mmol/L (ref: 3.5-5 mmol/L). Echocardiography revealed an ejection fraction (EF) of 65-70% with no wall motion abnormalities. Computed tomography-angiogram of the chest revealed calcification of coronary arteries without any evidence of stenosis or occlusion and no pulmonary embolism. The patient recovered and was discharged in stable condition. On an outpatient follow-up, cardiac magnetic resonance imaging results revealed a normal left ventricular size with an EF of 80%. On late gadolinium enhancement imaging, there was no myocardial fibrosis or myocardial infarction.

Discussion: Casiriviamb/imdevimab was temporarily granted emergency use authorization for post-exposure prophylaxis in cases of severe COVID-19 infection. However, on January 24th, 2022, the FDA withdrew its authorization due to emerging data demonstrating a lack of efficacy against the omicron variant, which was the leading COVID-19 subtype [2]. Since its launch, data regarding this monoclonal antibody cocktail infusion's efficacy and safety profile data has been increasingly described. Multiple clinical trials have reported a 1-2% incidence of hypersensitivity reactions, including anaphylaxis [3]. To our knowledge, this is the first reported case of casirivimab/imdevimab causing hypersensitivity-induced cardiac arrest as a potential adverse side effect. While the decision to revoke the therapies emergency use authorization status originated from a lack of efficacy, the literature also suggests that the safety profile data is not as appealing as previously thought. Our case aims to contribute to the growing awareness of adverse events from casirivimab/imdevimab and ultimately supports the FDA's decision to limit its usage due to life-threatening hypersensitivity reactions, which outweigh any potential benefit.

MANAGING POTENTIAL TRIGGERS OF DIFFUSE RASH IN BRAIN ABSCESS PATIENT: A CASE REPORT

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Case Summary: Patient with history of CRPS presented with AMS and was found to have a left parieto-occipital mass. Her course was complicated by status epilepticus refractory to lorazepam, levetiracetam, lacosamide, and valproic acid. Termination of seizures was achieved with a phenobarbital and phenytoin regimen. Patient underwent excision of the mass which revealed an abscess growing strep viridans requiring intravenous ceftriaxone. In acute inpatient rehabilitation, she developed a diffuse pruritic maculopapular rash. Phenytoin and phenobarbital levels were in therapeutic ranges. Medication changes tried included discontinuation of pregabalin and switching ceftriaxone to vancomycin. Symptoms were managed with oral diphenhydramine, topical hydrocortisone, hydroxyzine, and oral steroids with no improvement. Phenytoin was halved then discontinued and replaced with levetiracetam with substantial improvement in symptoms. Notably the rash began 22 days after initiation of phenytoin in the acute care hospital. Prior to discharge the phenobarbital was discontinued and the patient was able to continue only on Keppra.

Discussion/Conclusion: New-onset generalized rash in the inpatient setting is commonly medication induced (cutaneous adverse drug reactions (cADRs)) and occurs closely timed with the start of inciting agent. The majority of cADRs are neither severe or life-threatening. Symptom management and prompt discontinuation of the medication are important to minimize patient suffering. Isolating the cause can prove difficult as cutaneous reactions are common with many classes of medication including antibiotics, antiepileptics (AED), pain medications, chemotherapy, and psychotropic medications. Among AEDs, incidence of rashes range from 1.7 to 8.8%. Maculopapular rash from phenytoin usually occurs 3 to 20 days after initiation. As with this patient, when multiple medications are potential triggers of rash it is prudent to exercise a tiered approach for alternatives by considering the harm-benefit ratio of each agent. This is a case of maculopapular rash management complicated by multiple medication risk factors. Physiatrists need to be familiar with the differential and management of cADRs.

FUNCTIONAL CONSIDERATIONS OF RIGHT FRONTAL INFARCT IN AN AMERICAN SIGN LANGUAGE USER

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CASE SUMMARY: Our patient has a history of childhood deafness, end-stage renal disease on dialysis, diabetes who presented with left-sided weakness and ataxia. She was found to have right frontal infarct on CT head. MRI brain confirmed acute right centrum semiovale infarction. She underwent stent placement due to failure on aspirin and plavix. Neurological exam revealed left sided weakness (arms > legs) with diminished fine motor control. She was admitted to ARI for 2 weeks and received PT, OT, and ST through video or in-person American Sign Language (ASL) translator. Despite decreased motor function of left upper extremity, her signs were intelligible and appropriate, with intact comprehension. Additional challenges from her infarct included cognitive fatigue, impaired problem-solving, memory impairment, and impaired reading comprehension/written expression in both English and Spanish which was previously intact. The patient progressed in therapy and was discharged to home with outpatient care.

DISCUSSION: There are about 500,000 deaf ASL users in the US. Words in ASL can be divided into three types: one-handed, two-handed symmetrical, and two-handed asymmetrical. Literature is sparse regarding stroke outcomes in this patient population, and primarily revolves around cerebral organization of language. While language is processed and generated through left temporal and frontal regions, ASL users were assumed to theoretically depend on bilateral hemispheres as their language encoding requires visual and spatial processing. However, several case studies have disproved this theory; demonstrating ASL users with right-sided strokes had preserved language use and ASL users with left-sided strokes had impaired signing and comprehension. Theoretically, signing words with two-handed asymmetrical ASL would be most impaired by hemiplegia. The patient's right-hand dominance allowed her to sign impaired but comprehensible language, however evident that certain words that required two hands remained asymmetrical.

CONCLUSION: We describe the case of a deaf, CVA patient who utilized ASL for communication. For clinicians, recognizing the unique challenges that neurological deficits pose to deaf patients is crucial to forming an individual therapy plan to address communication deficits.

A CHALLENGING CASE OF ULCERATIVE GASTRODUODENAL LESION IN PATIENT WITH ULCERATIVE COLITIS

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A 69-Year-old African American patient with a history of ulcerative colitis (UC) presented to the emergency department with nausea, vomiting, and an inability to tolerate oral intake for 5 days. It was associated with mild epigastric pain but no changes in bowel habits, fever, chills, hematemesis, or melena. He had a similar episode three months ago where he required hospitalization. No other associated symptoms. Past medical history includes UC diagnosed 14 years ago, chronic deep vein thrombosis, hypertension, lower extremities lymphedema, and hypertension. Surgical history includes total proctocolectomy with ileal pouch-anal anastomosis two years ago. Family history was remarkable for a father who had coronary artery disease and a mother who had breast cancer. He was taking pantoprazole 40 mg tablet daily, amlodipine 5 mg tablet daily, and atorvastatin 20 mg tablet daily. He does not smoke or drink alcohol and denies any illicit drugs. He has no known allergies. On admission. Vitals were within normal. He is awake and alert. Conjunctiva was anicteric. He has good air entry with no wheezing or crackles on the lung exam. The abdomen was soft and mildly tender in the epigastric region. Bowel sound was normal. No perianal lesion was noted on rectal exam. Labs revealed WBC 7.5 109/L, Hgb 9.8 g/dl, platelet 202 109/L, creatinine is 0.7 mg/dl, Lipase is 50 unit /L, Lactate 1 mmol/l and serum gastrin level is 55 pg per ml. CT abdomen revealed the stomach was markedly distended with narrowing at the gastroduodenal junction which demonstrates mural thickening and evidence of mucosal ulceration, with surrounding edema. Small and large bowels are normal in caliber. There is a patent colorectal anastomosis. Upper endoscopy was performed this admission and 3 months ago which revealed severe acute and chronic esophagitis with an esophageal ulcer, deformed stenotic pylorus, H pylori negative gastritis, and severe extensive duodenal ulcerations. He was treated with intravenous (IV) acid suppression therapy, IV hydration, and nasogastric decompression. The patient improved but he did require a period of IV parenteral nutrition. Given his persistent symptoms for months with no improvement, the decision was to precede with surgical treatment. He underwent a gastrojejunostomy to bypass the obstruction. The patient did well after surgery and tolerated the oral diet. UC is a chronic, relapsing disease with the colorectum as the chief target organ of UC, whereas upper gastrointestinal (UGI) manifestations are infrequent. Recently, emerging evidence has suggested that UC presents complications in esophageal, stomach, and duodenal mucosal injuries. UGI involvement may be ignored by many clinicians. The occurrence of UGI lesions has been estimated in 5%-19% of patients. 5-aminosalicylate, infliximab, corticosteroid, or antitumor necrosis factor (TNF) has been effective. A high index of suspicion is needed to recognize and treat these lesions effectively.

LATE-ONSET MANIA IN A FRAGILE X CARRIER

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CASE SUMMARY: Here we report on an older female who is a fragile X carrier presenting with a first episode of mania at age 70. The patient had a past medical history of fragile-x permutation, uncontrolled hypertension, and atrial fibrillation. The patient had no significant past psychiatric history. She has a son diagnosed with autism spectrum disorder and fragile X syndrome. In clinic, she presented with a 6-month history of mood lability, pressured speech, forgetfulness, suspiciousness, and sleep disturbance. Medical work-up was significant for Head CT brain demonstrating a small remote area of encephalomalacia in the left frontal deep white matter. On cognitive evaluation, she scored 30/30 on the MMSE and 29/30 on the MOCA. The patient was diagnosed with bipolar I disorder, MRE manic with psychotic features. She was prescribed quetiapine 50 mg PO BID. Two weeks later, she returned with worsening symptoms of disinhibited behavior, irritability, increased non-goal-directed activity, aggression, disorganized thought process, word-finding difficulty, and inability to care for her son. She had not been adherent with quetiapine. One week later, she was admitted to a psychiatric unit for stabilization. After ten days of treatment and titration of Divalproex to 500 mg PO BID, her symptoms improved.

DISCUSSION: Fragile X syndrome (FXS) is a genetic disorder caused by a trinucleotide repeat expansion of CGG in the 5' untranslated region of the fragile X mental retardation 1(FMR1) gene located on the X chromosome.[1] It is classified according to the number of CGG repeats with normal alleles (5-44 repeats), premutation alleles (55-200 repeats), or full mutation alleles (>200 repeats). Premutation expansions are common. They occur as 1 per 113-259 females and 1 per 260-810 males. People with fragile-x gene permutations have a higher incidence of new-onset older-age mood disorders, including OABD.[1] We recommend routinely screening patients with fragile X premutation for late-life mood and anxiety disorders. However, in this case, we cannot exclude the possibility of vascular mania contributing to the patient's presentation due to the patient's underlying cerebrovascular disease. [2,3].

CONCLUSIONS: Neuropsychiatric correlates of the fragile x permutation are under-researched, though in combination with cerebrovascular changes may increase susceptibility for OABD. Clinicians should be alerted to the increased risk of psychiatric disorders beginning in late-life in carriers of the premutation. REFERENCES: 1- Deepika Kour Sodhi1 Randi Hagerman. Pharmacogenomics and Personalized Medicine 2021:14 1689-1699 2-Jesus Ramírez-Bermúdez , Oscar Marrufo-Melendez , Cecilia Berlanga-Flores, et al. Am J Geriatr Psychiatry 2021 Dec;29(12):1225-1236. doi: 10.1016/j.jagp.2021.03.007. 3- Steffens DC, Krishnan KR. Structural neuroimaging and mood disorders: Recent findings, implications for classification, and future directions. Biol Psychiatry 1998;43:705-12.

NEONATAL PARECHOVIRUS WITH CLINICAL MENINGOENCEPHALITIS, APNEA, AND SEVERE DIFFUSION RESTRICTION ON NEUROIMAGING

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Case Presentation: A previously healthy newborn presented with seizure-like activity and decreased intake. Two household contacts had recent upper respiratory tract infections. Vitals: Temperature 39.5C, heart rate 174, respiratory rate 38 and oxygen saturation 97% on 1 liter of oxygen by nasal cannula. Physical exam was notable for irritability, hypotonia and recurrent self-limited apneas lasting 10-15 seconds with oxygen desaturation to 82%. A complete infectious workup was done, including blood, urine and cerebrospinal fluid (CSF) cultures, complete blood count (CBC), electrolytes, respiratory viral polymerase chain reaction (PCR) panel, and CSF PCR panel which were within normal limits except CSF PCR was positive for parechovirus (PeV). Patient was placed on antimicrobials until all cultures were negative. He underwent EEG and MRI to consider seizures. EEG was normal but MRI demonstrated multifocal areas of restricted diffusion within the white matter of the frontal, parietal, occipital and temporal lobes and the splenium of corpus callosum; consistent with PeV meningoencephalitis with possible superimposed hypoxic ischemic injury. Further work-up included magnetic resonance venography (MRV), chest X-ray, echocardiogram, and polysomnography (PSG). MRV and chest X-ray were normal and echocardiogram showed left physiologic peripheral pulmonary artery stenosis, an unlikely cause of apneic events. PSG showed central apneas with bradycardia and oxygen desaturations. Patient was managed with oxygen and recovered over ten days. He was discharged with an apnea monitor and close follow up with primary care, neurology, neonatal apnea and Early Intervention providers.

Discussion: We describe a case in which a recent CDC advisory increased our suspicion for a rare cause of apnea and neurologic symptoms in a young infant. PeV infection is difficult to diagnose as symptoms are nonspecific, often presenting as sepsis-like illness or similar to CNS Enteroviral meningitis in neonates. Although CSF studies in both cases often lack pleocytosis, CSF PCR is able to differentiate the two. CSF PCR panels don't routinely include PeV so index of suspicion needs to be high to search for it. Although limited data on neurodevelopmental sequelae of PeV meningoencephalitis exists, awareness can help providers counsel families. A cohort of cases in Australia showed affected patients can have neurologic morbiditities including cerebral palsy, epilepsy and developmental delays. A different prospective cohort showed that the risk of developmental delay in the second year of life was high following PeV hospitalization.

Conclusion: Clinicians should have a high index of suspicion and perform PeV CSF analysis in infants presenting with sepsis-like illness, acute neurologic abnormalities, or seizure-like activity even in the absence of CSF pleocytosis. Provider awareness of PeV can facilitate timely diagnosis, focused work up, and guide management of associated morbidities.

PULMONARY LANGERHANS CELL HISTIOCYTOSIS MASQUERADING AS LYMPHANGIOLEIOMYOMATOSIS

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Introduction: PLCH (Pulmonary Langerhans Cell Histiocytosis) is an uncommon cause of diffuse lung disease that represents 3% of all causes of interstitial lung disease.

Case Description: A 42 year-old-woman visited ED due to renal colic where an abdominal CT imaging revealed incidental finding of cystic changes at the lung base. Her respiratory symptoms at the time were mild dyspnea on excretion and weight loss. Her social history was significant for 15 pack years of smoking. Spirometry showed normal lung functions. HRCT of the chest showed innumerable small round cysts bilaterally evenly distributed from apex to base, small pulmonary nodules and lymph nodes within the mediastinum. A provisional diagnosis of Lymphangioleiomyomatosis (LAM) was made based on clinical and radiological appearance. However, PLCH was in the differential due to similar cystic lung changes and smoking history. Considering her minimal symptoms with normal lung functions, an extensive treatment was not indicated and was managed with complete abstinence from cigarette smoking and avoidance of exogenous estrogens. Due to insurance restrictions, a conclusive diagnosis was not made and she was lost to follow up. Her symptoms gradually worsened over the next 5 years with recurrent episodes of bronchitis requiring antibiotics and interval worsening of PFT that showed mild obstructive lung disease and reduced DLCO. Repeat CT chest revealed no significant change in bilateral cysts or nodules. Video-assisted thoracoscopic surgery (VATS) was conducted and the histology showed numerous Langerhans cells on immunostaining for S100 and CD1a. Staining for HMB45 was negative. Mutation for the BRAF gene was negative. Her initial treatment was corticosteroids and cladribine. A follow-up CT of her chest after treatment showed a decrease in the size of bilateral pulmonary nodules without significant change in the size of the cysts. Later she developed a rash on her bilateral lower limbs suggestive of extrapulmonary presentation of PLCH and was treated with vinblastine, MTX and 6MP. Her PET- CT was negative for FDG avid lesions. She was followed up in the office and had functional and symptomatic improvement in her overall status.

Discussion: PLCH is principally seen in adults between the ages 20 and 40 years. It is a smoking-related lung disease. Abnormalities described on HRCT are lung cysts which vary in size, have thin walls and tend to be pleomorphic, often sparing the lung base. The combination of nodular and cystic changes in HRCT is highly characteristic of PLCH. Unlike, in this case the patient's radiological findings were more characteristic of LAM which usually presents with multiple small round cysts of relatively uniform size, shape and distribution. As a result, while clinical features and imaging findings can be used to make a provisional diagnosis, analysis of biopsy tissue may be important for appropriate diagnosis.

PULMONARY ADENOCARCINOMA MIMICKING PNEUMONIA IN A YOUNG ADULT

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This is a case of a 27-year-old male with no past medical history who presented for worsening left sided pleuritic chest pain, fever, productive cough with white sputum and dyspnea on rest and exertion. For 3 months he had been having similar symptoms where he was initially diagnosed with persistent pneumonia. He was treated with multiple antibiotics without much relief. The patient reported having night sweats, but denied any weight loss, hemoptysis or testicular swelling. Patient's denied negative for tobacco use, vaping, alcohol or sexual activity. He denied any sick contacts or recent travel. The patient worked with spray paint and denied using any protection. On physical exam there were bilateral decreased lung sounds on auscultation. In the ED chest X-Ray showed a large peripherally based mass involving the right upper and mid lung zones. A CT-angiogram was ordered to rule out a pulmonary embolism, which showed extensive multifocal pneumonia with dense right upper lobe and left lower lobe consolidation, abscesses within the consolidated left lower lobe and numerous bilateral pulmonary nodules with cavitating nodules in the right lower lobe. However, one week before admission the patient underwent a bronchoscopy or the right upper lobe, transbronchial biopsy and EBUS performed at the level 7 lymph node due to his persistent symptoms. In the ED Pathology was first noted to be positive for adenocarcinoma. On admission his vitals were within normal limits. Pertinent labs include WBC 13, D-dimer 665. Hematology/oncology and thoracic surgery planned for a Video-assisted thoracic surgery biopsy as well as a Positron emission tomography scan as outpatient. Brain MRI and CT scan of the abdomen/pelvis were negative for masses, metastasis or lymphadenopathy. Due to the fact that the patient had been having fevers inpatient ID started him on antibiotics for 10-14 days.Discussion/Conclusion:About 2%-5% of all lung cancer cases are found in people under 40 years. Adenocarcinoma is the most prevalent type of lung cancer. Like all other lung cancers, it is related to tobacco use, but it is also the most frequently diagnosed lung cancer in nonsmokers. It often grows more slowly than other lung tumors, although it can also spread in its early stages. Young adults are most frequently diagnosed with lung adenocarcinoma. Pneumonic-type lung adenocarcinoma is an adenocarcinoma with pneumonia-like infiltration or consolidations involving regions in the lungs. It is characterized by ground-glass opacity or consolidation on a chest CT that resembles infectious or inflammatory lung disease. Early clinical manifestations of pneumonic lung cancer resemble most forms of pneumonia. Cancer cells can grow and spread, which can cause secondary infections, bleeding in the lungs, pulmonary embolism, and other symptoms. Clinicians must remember this type of lung cancer particularly in patients presenting with clinical and radiological signs indicative of unresolved pneumonia.

WHEN THE STEREO IS LOW: A CASE OF IMPAIRED STEREOPSIS AS A SUBTLE VISUOSPATIAL SIGN OF POSTERIOR CORTICAL ATROPHY

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Case Summary: A 69-year-old female presented with a history of unsteady gait, confusion and urinary incontinence beginning in 2020. Prior to onset, the patient had no difficulties ambulating but now requires a walker for assistance. She also began having mild bilateral hand tremors with decreased size and legibility of handwriting. Shortly after initial symptom onset, she began having COVID and isolation based anxiety, and subsequently had cognitive impairment described as fogginess, forgetfulness, word-finding and short-term memory difficulties, while long-term memory remained intact. The patient noted progressive multitasking difficulties and depth perception impairment, later noted to be significant visuo-spatial defects in the absence of ocular disease. As these symptoms progressed, she developed urge incontinence with increased frequency despite medical therapy. An MRI showed moderate hydrocephalus and microvascular disease. Further evaluation demonstrated a major neurocognitive disorder that may be multifactorial, though with a suggestion of PCA based on neuropsychological testing. Labs and testing included failure of symptom resolution on large-volume lumbar puncture (normal pressure), a normal cisternogram, and negative/normal labs, which included CSF testing (with testing for 14-3-3 tau). A PET scan suggested a lack of a degenerative process.

Conclusion: Posterior Cortical Atrophy (PCA) is characterized by neurodegeneration of the posterior cortical regions of the brain causing visuospatial deficits in the absence of ocular disease with an insidious onset and gradual progression. In contrast to other forms of dementia, episodic memory, verbal fluency and personal insights are relatively preserved. In a patient presenting with symptoms of mild dementia, gait disturbance, and urinary incontinence, the clinical suspicion for Normal Pressure Hydrocephalus (NPH) increases. The NPH triad can mimic the effects of normal aging and neurodegenerative diseases but the pathophysiology is different and often reversible. However, NPH-like symptoms can present in PCA likely due to alterations in CSF flow contributing to changes in intracranial pressure. There are two proposed pathophysiological mechanisms of CSF accumulation to explain why these symptoms may occur in the setting of PCA. One mechanism includes the failure of drainage of vasoactive metabolites, creating an environment that promotes PCA characteristics. Another mechanism includes the loss of the Windkessel effect in the skull base arteries, causing focal brain damage manifesting as ventriculomegaly while simultaneously lowering cerebral blood flow which leads to NPH symptoms and cerebral hypoperfusion. This presentation of NPH symptoms with a suboptimal response to a large volume lumbar puncture and signs of visuospatial deficits in the absence of hallmark clinical and radiographic features for more common causes of dementia, have led to a working diagnosis of idiopathic PCA.

METFORMIN-INDUCED SEVERE LACTIC ACIDOSIS RESULTING IN ALTERED MENTAL STATUS

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Case summary: In this case report, we describe a 72-year-old female patient with a history of Type 2 Diabetes Mellitus, hypertension, and hyperlipidemia. She presented with significant mental status change and intractable vomiting. Upon arrival, she was found to have severe metabolic acidosis with a pH of 6.9, hyperkalemia (6.3 mmol/L), hypoglycemia (52 mg/dL), and acute kidney injury with a very low bicarbonate level (<5 mmol/mL) and elevated lactate level (12 mmol/L). The patient received urgent hemodialysis along with sodium bicarbonate, dextrose, insulin, and calcium gluconate. Her condition improved dramatically within 24 hours, with a reversal of acidosis, a reduction in potassium levels, and more than 50% lactate clearance. After 48 hours in the ICU, the patient was discharged in a clinically improved condition.

Conclusion: Metformin-associated lactic acidosis (MALA) is a rare but potentially life-threatening complication of metformin use, a widely prescribed medication for Type 2 Diabetes Mellitus. Lactic acidosis arises from an imbalance between lactic acid production and utilization. Our case highlights the importance of recognizing MALA as a potential complication of metformin use and emphasizes the need for prompt treatment. Healthcare providers should be vigilant in monitoring patients on metformin for signs and symptoms of lactic acidosis, especially in those with renal insufficiency, and intervene promptly if necessary to prevent morbidity and mortality.

MONOPLEGIA TO MULTIPLE MYELOMA: A UNIQUE PRESENTATION

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Case Summary: A 66-year-old female with a history of hyperlipidemia and arthritis presented to the hospital after suffering a fall at home. On initial evaluation she had right lower extremity (RLE) weakness which subsequently progressed to monoplegia. Imaging was significant for severe central canal stenosis with compression at T4-5, and a small lesion noted at C6-7. She underwent T4-5 laminectomy with resection of an epidural plasmacytoma. Further imaging confirmed evidence of myeloma throughout the spine. Postoperatively there was continued weakness in her RLE however after admission to acute rehabilitation, she saw the return of more proximal strength and was eventually able to regain some ambulation with therapies. Unfortunately she had to leave acute rehabilitation to obtain further treatment of her newly confirmed diagnosis of multiple myeloma (MM), however she was able to continue making significant functional gains during that time.

Discussion/ Conclusion: MM is a rare plasma cell malignancy with a lifetime risk of approximately 0.76% and makes up only 10% of all hematologic malignancies. The typical presenting symptoms include fatigue, malaise, and bone pain. This case demonstrates a unique presentation of MM that includes monoplegia due to central nervous system compression; CNS involvement of plasmacytomas are exceedingly rare. This case report highlights the unique presentation and rare incidence of MM presenting as monoplegia with plasmacytoma involvement. This patient's course should serve as a reminder to remain vigilant when evaluating lower extremity weakness.

HOW AN EARLY EMG/NCS LED TO EARLY TREATMENT: A CASE STUDY ON INFANTILE BOTULISM

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Case Summary: A 5-month-old female born vaginally and full term with no postnatal complications presented with a 1 week history of constipation and decreased appetite. The day before presentation she had poor suck, did not feed well, and had no wet diapers. She was given a fingertip of honey 2 weeks prior to presentation, and there was an active construction site near the home. On examination, the patient was well nourished but ill appearing with ptosis, poor suck reflex, weak cry, hypotonia, and rhinorrhea. Reflexes were present in all extremities. Neurosonogram was unremarkable. EMG/NCS confirmed a presynaptic neuromuscular junction disorder (Botulism) and the patient was given a one time dose of Infant Botulism Immune Globulin Intravenous (BabyBIG-IV) with significant improvement. After treatment, the stool cultures confirmed botulinum toxin type B in the stool. The patient was later discharged home in stable condition.

Discussion/ Conclusion: Infantile Botulism in the USA is a rare occurrence with approximately 77 cases annually. EMG/NCS was performed with repetitive nerve stimulation, where there was decrement noted in two different motor nerves, and evidence of ongoing denervation in the right bicep and early recruitment in others. Due to the potency of botulinum toxin at the neuromuscular junction, the muscle fibers are essentially chemo-denervated and fibrillations and positive sharp waves are common. With EMG/NCS confirmation the patient was able to be successfully treated with BabyBIG-IV, even prior to the results of the stool cultures thus highlighting the utility of an EMG/NCS in this setting. This case report highlights the necessity of an early EMG/NCS study when botulism is suspected. This patient had the unfortunate exposure from two potential sources, however EMG/NCS was able to confirm the suspected diagnosis of infantile botulism even prior to stool culture results.

GALLSTONE ILEUS: A DRAMATIC PRESENTATION OF AN UNFAMILIAR CAUSE OF BOWEL OBSTRUCTION

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Learning Objective: 1) The Importance of Early Diagnosis and Treatment of Gallstone Ileus (GI) 2) Vigilance for the atypical presentation of GI

Case Summary: A 62-year-old female presented to the hospital with a one-day history of acute abdominal pain, shortness of breath, and bilious emesis. Abdominal pain was diffuse, intermittent, and colicky associated with nausea and non-bloody bilious vomiting. The rest of the systemic review was unremarkable. She had a history of essential hypertension and hyperlipidemia. She had no history of prior surgeries. She denied alcohol use, smoking, or any illicit drug use. Her family history was non-contributory to the presenting symptoms. Home medications were amlodipine and pravastatin. On admission, vitals were relatively stable. Pertinent positives on physical exam included a moderately distended abdomen with mild tenderness on deep palpation diffusely, especially in upper abdominal quadrants, tympanic to percussion throughout with hyperactive bowel sounds, and decreased air entry on the bases of bilateral lungs with bibasilar crackles. Labs were significant for a WBC count of 24.9 cells/uL, serum creatinine 1.9 mg/dl, lipase 265 U/L, and BUN of 48 mg/dl. Hemoglobin, bilirubin, AST, ALT, ALP, and lactate were within normal limits. CXR revealed nonspecific bilateral interstitial and airspace opacification, with a severely dilated, air-filled stomach. Subsequently, the patient had several episodes of vomiting associated with hypotension, and severe hypoxia leading to cardiac arrest with ROSC after CPR. Abdominal X-ray revealed dilated small bowel loops consistent with small bowel obstruction (SBO). She was intubated and an orogastric tube was placed with 4L. of bilious output. The rectal tube was noted to have excessive bile-colored liquid stool. CT abdomen with contrast demonstrated findings concerning for gallstone ileus as an etiology for her SBO and a cholecysto-duodenal fistula. She developed candidemia, likely 2/2 hematological seeding from the above-mentioned findings, which led to hypoxemia and cardiac arrest. A laparoscopic enterotomy was performed and the gallstone was removed. The patient clinically improved and was discharged with a follow-up for elective cholecystectomy.

Discussion: This case highlights the importance of an early diagnosis and treatment of GI. CXR demonstrated a severely dilated and air-filled stomach. Abdominal X-ray showed findings pointing towards SBO after the cardiac arrest and CT abdomen with contrast was not performed earlier in the clinical course. Physicians should be vigilant with a high suspicion for GI when a patient presents with SBO, especially if the most common causes have been ruled out based on history taking, as a delay in diagnosis could lead to catastrophic complications. In addition, biliary output from the nasogastric or dark bile-colored stools should provide an additional clue for life-threatening GI.

PEMBROLIZUMAB INDUCED HYPOPHYSITIS: A RARE BUT DEADLY SIDE EFFECT OF ANTI-PD-1 THERAPY

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Case Summary: A middle-aged male with a history of adenocarcinoma of the lung complicated by metastasis to the brain, bone, and liver treated with radiation and chemotherapy with carboplatin, pemetrexed, and pembrolizumab as well as a right-sided video-assisted thoracoscopic surgery, prior saddle pulmonary embolus and left lower extremity deep venous thrombosis, presented to the emergency department for evaluation of weakness and worsening dyspnea. In the emergency department, the patient was given cefepime, vancomycin, high-intensity heparin, and a 1-liter bolus of normal saline, and was placed on a 3-liter nasal cannula. The patient was initially treated on the general medicine floor but was upgraded to the medical intensive care unit (ICU) for refractory hypotension requiring vasopressors. During his hospital course, a large amount of urine output with low specific gravity and an elevated serum sodium level was noted. A recent outpatient magnetic resonance imaging of the brain was reviewed which was concerning for a pituitary/pituitary stalk lesion. Given the increased urinary output, lab results, and prior imaging, endocrinology was consulted and serum cortisol and TSH were checked. The serum cortisol was 1.0 ug/dl (8.7-22.4) and the TSH was 0.064 uIU/mL (0.300 - 4.500). The patient was diagnosed with diabetes insipidus, central hypothyroidism, and central adrenal insufficiency. He was treated with desmopressin, levothyroxine, and steroids. The patient responded well and was eventually downgraded out of the ICU to the general medical floor. Unfortunately, given his grave overall prognosis and declining performance status, the patient was eventually discharged on home hospice.

Discussion/ Conclusion: This case strengthens the literature surrounding hypophysitis as a rare, but serious, complication of immunotherapy use. A recent study, consisting of 69 reported cases of anti-PD-1 induced hypophysitis, demonstrated that 90% of patients had long-term hypopituitarism, 6% had pituitary function recovery, and 4% of patients experienced death [1]. In addition, a review article from 2019 focusing on the adverse events of immune checkpoint inhibitors demonstrates the myriad of potential endocrinopathies associated with anti-PD-1 medications and the outcomes of each scenario [2]. Early diagnosis is crucial in improving patient outcomes. With the increasing use of PD-1 checkpoint inhibitors as immuno-oncologic agents, it is important to consider endocrinologic etiologies when faced with unusual hemodynamic instability. Although our patient's outcome was ultimately terminal, the correction of his blood pressure and inpatient recovery was a direct result of timely diagnosis of hypophysitis and prompt action taken thereafter.

MANAGEMENT OF SACRAL PRESSURE INJURY WITH ACELLULAR FISH SKIN GRAFTS - A CASE REPORT

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Background: Sacral pressure injury (SPI) reconstruction with primary closure and skin grafting continues to be a challenge due to the low success and high recurrence rates. Free flaps are often chosen despite a high risk of complications associated with the surgery. We present a patient with a chronic SPI treated by an alternative method using Kerecis® acellular fish skin graft (FSG) to achieve early full closure. Due to its native dermal structure, porosity, biomechanical properties and natural bacterial barrier rich in Omega 3 fatty acids, the FSG help facilitate the formation of granulation tissues and allow faster wound closure. The aim of this case report is to describe a novel skin graft manufactured from fish skin that could prove beneficial in the treatment of chronic SPI. Objective: We present a new treatment approach for chronic stage IV SPI using FSG in conjunction with negative pressure wound therapy (NPWT) in a single case report. Several mechanical debridements along with wet to dry dressing changes and collagenase were performed to ensure a clean and healthy wound bed prior to grafting. NPWT was used to help with tissue granulation to achieve the optimal wound size for grafting. Initial application of the FSG was done in the operating room and NPWT was used to secure the graft. Weekly NPWT dressing changes were performed a in the outpatient setting and wound healing progress was assessed by photographs and measurements.

Case Summary: An 80-year-old male patient with hypertension, cerebrovascular accident, atrial fibrillation and Covid-19 infection presents for management of a chronic stage IV SPI that developed 1.5 years ago. The initial SPI measured 11 x 11 x 2cm. In May 2021, the patient underwent serial mechanical debridements. The wound was dressed with wet to dry dressings along with collagenase and transitioned to NPWT after 2 weeks to achieve tissue granulation optimal for graft application. At the time of graft application, the wound measured 3.5 x 5 x 1cm. A vascular wound bed was achieved after sharp excision and debridement. FSG was placed directly on the wound followed by a knitted cellulose acetate fabric impregnated with petrolatum emulsion and NPWT. The NPWT was placed to -125mmHg suction. NPWT was changed weekly at an outpatient clinic and serial dimensions were taken to monitor wound healing progression. Results: Significant granulation tissue and a decrease in wound depth by half was noted within the first month of FSG application. NPWT kept the wound clean and well vascularized, which allowed for optimal healing. Over 6 months, the wound demonstrated complete wound closure after just one application of Kerecis® FSG.

Discussion: Surgical management of SPI faces many complication risks such as wound dehiscence, ulcer recurrence, and infection, leading to higher rate of hospitalization and prolonged hospital stay. The above case represents an example of FSG application in treating chronic SPI. Acellular FSG wit

A RARE PRESENTATION OF ERYSIPELOTHRIX RHUSIOPATHIAE ENDOCARDITIS CAUSING ACUTE HEART FAILURE

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Case summary: A 57 year old woman with no past medical history presented to the hospital for 3 weeks of weakness, fatigue, progressively worsening dyspnea on exertion. A month ago, she had fever and vomiting for two days following a bite on her thigh preceded by erythematous plaque. On physical examination, she had tachycardia, distended jugular veins, a loud diastolic murmur in the right upper sternal border, bilateral crackles on lung auscultation, and bilateral lower extremity edema. She also had thrombocytopenia at 36,000/uL, electrolyte abnormalities with hyponatremia at a sodium of 119 mmol/L, hypokalemia at a potassium of 3.1 mmol/L, and a highly elevated BNP at 2,563 pg/mL. Chest x -ray showed bilateral pleural effusions and interstitial edema. An initial transthoracic echocardiogram showed severe aortic regurgitation with vegetations on the aortic leaflets and a normal LVEF of 60% with grade III diastolic dysfunction. The blood cultures were identified as Erysipelothrix Rhusiopathiae (E. Rhusiopathiae). Her antibiotics were switched to Penicillin G. The patient continued to decline with continued shortness of breath. Pre-operative transesophageal echocardiogram showed vegetations on three aortic valve leaflets, no abscess, and ECG showed sinus tachycardia. The patient underwent aortic valve replacement where she had a fistula between the aortic valve and right atrium (Gerbode defect) that she also underwent closure of fistula, and valvular abscess was also found in pathology.

Discussion: Our case highlights a rare case of E. Rhusiopathiae infection that led to aortic valve endocarditis and congestive heart failure that required valve replacement which concomitantly had electrolyte imbalance and thrombocytopenia. Transmission of E. Rhusiopathiae has also been seen from blood-sucking insects to birds. Although the source of transmission could not be confirmed for our patient, it can be inferred from the history of insect bite. There is no known data for electrolyte abnormality in the setting of E. Rhusiopathiae bacteremia. The hypo-osmolar hyponatremia in the setting of the initial high BNP in our patient can reveal the presence of heart failure preserved ejection fraction. Our patient also had thrombocytopenia which literature shows thrombocytopenia and arteritis likely due to neuraminidase inhibitors was found in the rats infected with E. Rhusiopathiae. Besides endocarditis, during the surgery, our patient was found to have a Gerbode defect. It is mainly caused by surgery, however, some non-iatrogenesis causes can be due to Myocardial Infarction (MI), blunt cardiac trauma, and endocarditis. The rationale behind the endocarditis-induced Gerbode defect is the reopening of the congenital defect in the membranous atrio-ventricular septum due to inflammation. Recognizing some unusual manifestations of E. Rhusiopathiae infections that previously were not reported in the literature, can lighten up the approach for future consideration.

BRAINSTORMING A SOLUTION OF CYTOKINE STORM: SECONDARY HISTOLYMPHOPHAGOCYTIC HISTIOCYTOSIS.

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Case Summary: A female in her 60s presented to the hospital for shortness of breath and persistent low-grade fever over the past month. Physical exam was significant for an anxious female with no pallor, jaundice, or skin lesions. Labs on admission were significant for normocytic anemia of 6.2 (ref: 13.2-17.5 g/dL), thrombocytopenia at 110,000 (ref: 140 - 450 103/uL), and ferritin 2018.4 (ref: 11 - 307 ng/mL). Peripheral blood smear revealed 2 to 3+ schistocytes, tear drop cells, myelocytes, metamyelocytes, and promyelocytes. During her admission, she had refractory anemia and thrombocytopenia despite multiple transfusions. Subsequent testing revealed an IL2-R level of 5687 (ref: 532 - 1891 pg/mL), and NK cells were normal at 166 (ref: 70 - 760 cells/uL). Genetic abnormalities t(15;17) and BCR ABL were negative. Overall her H-score was 136 suggesting a 9-16% chance of HLH. Bone marrow biopsy showed hypercellular bone marrow (~95%) with myelomonocytic hyperplasia, megakaryocytic hyperplasia, and multilineage dysplasia with evidence of occasional hemophagocytosis. These findings were most consistent with CMML-1 vs very high-risk MDS (5q and 7q deletion) complicated by secondary HLH (met 5/9 criteria) (Figure 1). She was treated with etoposide, dexamethasone taper, and as needed tocilizumab. On week 3 of etoposide, she was started on a 7-day course of azacitidine. Unfortunately, the patient expired due to opportunistic infections prior to the completion of her treatment.

Discussion/Conclusion: HLH is a rare life-threatening syndrome characterized by immune dysregulation resulting in an uncontrolled inflammatory response. Primary HLH is inherited but secondary HLH results from an underlying disease such as malignancy. The mortality of HLH is extremely high however due to its non-specific presentation, it is often missed. The current diagnostic criteria were proposed by the HLH-2004 study. In a 2016 systematic review of the treatment of HLH in adults, initial treatment almost always included glucocorticoids but otherwise treatment strategies varied widely. In general, treatment was targeted toward the underlying cause. In these studies, all except two used etoposide-based regimens. CHOP chemotherapy was used for patients with lymphoma or EBV-associated HLH. A small number of patients underwent hematopoietic cell therapy (HCT). Overall the mortality rate was approximately 42%. It was seen that lymphoma-associated HLH was an adverse prognostic factor associated with a higher mortality rate and autoimmune HLH had the lowest mortality. Other adverse prognostic markers included highly elevated ferritin, marked thrombocytopenia, lack of etoposide therapy, and low albumin. HLH is a life-threatening illness that is often missed, highly fatal, and may be the first sign of an underlying malignancy. We recommend that more studies should be done to improve treatment guidelines in adult patients with HLH.

COCAINE AND BENZODIAZEPINE INDUCED ACUTE SADDLE PULMONARY EMBOLISM

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Learning objective: Being mindful of the increased risk of venous thromboembolism in polysubstance abuse - especially benzodiazepines and cocaine

Case Summary: A 59-year-old female with a past medical history of anxiety, major depressive disorder, COPD, and polysubstance abuse was found unresponsive at home. On arrival at the hospital, she was noted to have PEA. Post ACLS, Naloxone was administered, and ROSC was achieved. She was subsequently intubated and transferred to the ICU to manage the acute respiratory failure of unclear etiology, likely secondary to polysubstance abuse based on history. Caregivers reported that due to her recent bouts of severe depression, she was using Fentanyl patches and other illicit substances and was prescribed Alprazolam. The urine drug screen was positive for benzodiazepines, cocaine, and cannabinoids. Initially, during her ICU stay, the patient could not tolerate spontaneous breathing trials. Initial Transthoracic Echocardiogram showed left ventricular ejection fraction (LVEF) of 50-55% with mild to moderate right ventricular dilation and hypokinesis. Despite appropriate ventilatory adjustments, tachycardia and hypoxia were noted. CT chest PE protocol was hence ordered and demonstrated acute saddle embolus straddling the bifurcation of the main pulmonary artery and extending into the left upper lobe artery with additional pulmonary emboli seen in the right and left lower lobe subsegmental pulmonary arteries without evidence of pulmonary hypertension or right heart strain. Weight-based Enoxaparin therapy was initiated, and a subsequent Echocardiogram 6 days later showed an LVEF of 65-70% with minimal right ventricular dilation and normal right ventricular systolic function. The patient was subsequently extubated, transitioned to oral apixaban, and discharged after medical optimization with outpatient follow-up.

Conclusion: Due to prolonged immobilization and decreased muscle movement involved in benzodiazepine overdoses, there is an increased risk of venous thromboembolism. Conversely, Cocaine, being a sympathomimetic, promotes tachycardia, dysrhythmia, hypertension, and coronary vasospasm. A wide array of pulmonary complications from bronchospasm to vasospasm leading to pulmonary infarction and defects in perfusion that present as PE on ventilation-perfusion scan can also be attributed to cocaine. Cocaine has been linked to rapid clotting, increased platelet activation, and increased activity of plasma plasminogen activator inhibitor (PAI-1), associated with an increased risk of clot formation. To our knowledge, this is the first case of co-ingestion of benzodiazepine and cocaine leading to acute saddle PE. Both benzodiazepine and cocaine overdoses, by themselves, increase the risk of venous thromboembolism. When ingested together, these risks are amplified, and clinicians should be mindful of this when caring for patients with overdose secondary to co-ingestion of unknown toxic substances.

BENEFITS OF A CUSTOMIZED INTER-INJECTION INTERVAL FOR SEVERE CERVICAL DYSTONIA

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Case Summary Patient with a 17 year history of severe right antero and laterocollis causing significant discomfort had received botulinum toxin injections at 3-month intervals for 15 years. Although she benefited from prior injections, she failed to have persistent improvement despite escalating doses to 500 units with her pain and position returning to baseline within 4-6 weeks. At rest, her head and neck were side-bent at 80° with head resting on right shoulder and any motion limited by pain. Recent injection of 400 units resulted in symptomatic dysphagia lasting 6 weeks. Despite this adverse event (AE), overall benefit was sufficient and she insisted on continued injections. Total dose was decreased to 200 units per injection session and the interval shortened to 8 weeks. This regimen was well tolerated and head position greatly improved without AEs. More importantly, the improved position and pain relief were maintained without loss of benefit between injections.

Discussion Cervical dystonia (CD) is a movement disorder characterized by involuntary contractions of cervical muscles, which cause abnormal head movements and postures. Repeated botulinum toxin injections are first-line treatment for CD with current standard of care dictating at least 3-months between injection sessions to minimize adverse effects and risk of toxin immunoresistance. Growing evidence, however, suggests no significant increase in adverse effect rates with injection intervals shorter than 3-months. In our patient, the combined decrease in dosage with increase in injection frequency resulted not only in significant and prolonged symptom improvement but also decreased the recurrence of adverse effects.

Conclusion Our case highlights the necessity to update the current botulinum toxin injection guidelines to better address our patient needs. In some patients, the combination of shorter inter-injection intervals with lowered dosage per injection session can result in improved symptoms and decreased adverse event rates.

ELECTRODIAGNOSTIC FINDINGS OF BRACHIAL PLEXOPATHY MASKED BY HEMIPARESIS

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Case Summary 41-year-old male with history of end-stage renal disease on hemodialysis, Type B aortic dissection, hypertension who presented to acute inpatient rehabilitation (IPR) with left hemiparesis following right thalamic intracranial hemorrhage. During IPR, patient developed left upper extremity pain with pitting edema from the shoulder to fingers. Radiographs of the left shoulder were negative for subluxation and fracture. Likewise, venous and arterial duplex studies were unremarkable. His discomfort was initially assumed to be centrally related, however, electrodiagnostic studies revealed underlying acute left middle and lower trunk plexopathy potentially contributing to his pain. He was then treated with a renally-dosed regimen of gabapentin which significantly improved his pain and led to improved participation during therapies.

Discussion Post-stroke shoulder pain (PSSP) is a common problem in stroke survivors that can hamper a patient's recovery and therapy participation. Individuals with hemiplegia are susceptible to PSSP due to traction of the brachial plexus or from downward shoulder subluxation resulting in increased tension on the axillary nerve. In the current literature, there is a lack of electrodiagnostic analysis regarding these patients. Prior small scale studies have shown that PSSP secondary to brachial plexus injury is due to lesions specifically of the upper trunk; however our patient was found to have damage to the middle and lower trunks.

Conclusion This unique case highlights the need for electrodiagnostic studies in the setting of PSSP. Large scale studies are needed to better understand the mechanisms of injury surrounding brachial plexus injuries in these patients. Through comprehensive evaluation, we were able to identify the source of the patient's pain as a brachial plexus injury that would have likely remained hidden given the complex medical picture.

"WHEN TWO WORLDS COLLIDE" : PROSTATE METASTASES TO THYROID

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Introduction: Prostate cancer is the second most common cancer in men. It is known to commonly metastasize to the bone. Identifying rare locations for prostatic metastasis, such as the thyroid, helps us better understand the wide spectrum of presentations we can encounter. It is also rare to see a "collision tumor" of prostatic metastases with a primary tumor of the thyroid. This makes our case an especially valuable addition to the literature.

Case Description: A 49 year old male with a family history of bladder cancer, remote history of tobacco use 17 years prior, presented to our hospital with a complaint of worsening right groin pain. On admission, a CT Abdomen Pelvis showed multifocal sclerotic osseous metastases. It also showed pathologic lymphadenopathy in the retroperitoneum and pelvis, along with an enlarged prostate gland. The CT Chest showed nonspecific thyroid nodules, and the bone scan showed diffuse osteoblastic metastatic disease. Prostate specific antigen (PSA) was elevated at 1430 ng/ml. Thyroid stimulating hormone (TSH) was 3.043 uIU/ml, within normal limits. Retroperitoneal lymph node biopsy showed metastatic adenocarcinoma consistent with prostatic primary. The patient was started on Casodex and received cycle 1 of taxotere inpatient. Ultrasound guided fine needle aspiration cytology (FNAC) of the left thyroid gland revealed both Bethesda category II and Malignancy Bethesda category V cells. A Molecular panel resulted as BRAF p:V600E positive. The patient underwent total thyroidectomy. Pathology results were consistent with papillary thyroid carcinoma. Immunostains for one area were positive for TTF-1 and classified as well circumscribed/encapsulated papillary thyroid carcinoma. Immunostains performed on another slide within a follicular variant showed a 3mm area that was negative for TTF-1 but positive for NKX3, PSA, PSMA. Based on clinical correlation with the patient's history of metastatic prostate carcinoma, this area was classified as metastatic prostatic carcinoma to a well circumscribed/encapsulated papillary thyroid carcinoma, follicular variant. On outpatient follow up, the patient completed six cycles of chemotherapy, and remains on androgen ablation therapy. He is scheduled to be treated with radioactive iodine therapy (RAI) and will continue with surveillance scans.

Discussion: Metastasis from prostate to thyroid is exceedingly rare. "Collision tumor" refers to the rare phenomenon where a single anatomical site serves as the location for two histologically distinct tumors. Our patient had metastatic prostatic carcinoma in the thyroid which was negative for TTF-1, as well as a separate lesion which was completely positive for TTF-1, confirming its likely origins in the thyroid. Hence, this patient was found to have two histologically distinct lesions co-existing in the same organ. Our case is interesting as it also poses the question of whether the follicular variant papillary thyroid cancer developed before or a

ELEVATED CATECHOLAMINES: A CASE OF FALSE ALARM

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Case Summary: A 64 year old female presented to our Endocrinology office for evaluation for an incidentally found left adrenal nodule found 2 years prior and recently found elevated catecholamine levels. Her past medical history included Hashimoto's thyroiditis, Parkinson's disease, and anxiety. At the time of the appointment, her medications were carbidopa-levodopa, levothyroxine, venlafaxine and estradiol. The patient reported that she had episodic feelings of anxiety and nervousness throughout the day, and daily regular headaches. During these episodes she reported nausea and vomiting associated with dizziness. Her physical exam was grossly unremarkable except for anxious mood. Regarding her adrenal nodule, it was initially discovered when she underwent CT abdomen and pelvis during work up for irritable bowel syndrome which revealed a 1.4 x 1.0 cm nodule in the left adrenal gland and repeat imaging was conducted two years later which revealed a stable left sided adrenal nodule 7 Hounsfield units with washout at 60%. The patient also underwent an Iobenguane i-123 scan which revealed no evidence of pheochromocytoma. She had also completed laboratory testing which showed elevated total catecholamines 7862 pg/mL (ref range: 242-1125 pg/mL), elevated dopamine levels 7489 pg/mL (ref range: <20 pg/mL) and normal norepinephrine, epinephrine, and metanephrines. Repeat lab work done prior to the appointment revealed similar results.

Discussion/Conclussion: The incidence of adrenal nodules found fortuitously during imaging studies has increased over the years. It is common practice to determine if the nodule found is malignant and exclude hypersecreting tumors such as pheochromocytomas and aldosterone producing tumors. This commonly leads to testing which can be done by primary care teams or through referrals to endocrinology. Pheochromocytomas and paragangliomas are very rare tumors with an incidence of 0.6 per 100,000 and a literature review by Miyamoto found only 33 individual cases of dopamine secreting tumors. Eisenohofer et al discusses in multiple papers the importance of checking metanephrines as opposed to catecholamines in evaluation of pheochromocytoma as well. Other factors that influenced testing included: posture during blood work, stress during testing, situational factors such as hospitalization and medications which cause interference in screening testing Despite the elevated total catecholamines, closer evaluation revealed it was significantly elevated solely due to the dopamine levels in the blood. Given the patient's longstanding history of Parkinson's disease well controlled with carbidopa-levodopa, it was reasonable to conclude that this was a medication induced elevated dopamine level and highly unlikely a catecholamine producing tumor. It was decided to monitor her clinically as opposed to retesting her off her current regimen to avoid worsening of her Parkinson's symptoms.

RHABDOID TUMOR PREDISPOSITION SYNDROME IN TWO INFANT SIBLINGS DUE TO A GERMLINE SMARCB1 MUTATION

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Atypical teratoid rhabdoid tumors (ATRT) are aggressive, malignant tumors of the central nervous system (CNS) that develop due to a loss-of-function mutation in the SMARCB1 gene. Rhabdoid tumor predisposition syndrome (RTPS) is characterized by familial cases as a result of pathogenic germline variants of this gene and an increased risk of developing ATRT within the first 2 years of life, which carries a poor prognosis. Genetic penetrance is incomplete with variable expressivity but the patient's age at time of diagnosis remains the most significant indicator of survival. We present a case of RTPS in a sibship born to unaffected parents, one of which was a carrier. The first sibling was diagnosed at 8 months of age after presenting with vomiting, developmental regression, and CN VI palsy for 3 months. Imaging revealed a posterior fossa mass, acquired obstructive hydrocephalus, and spinal metastasis. Four years later, her 3-month-old sister was brought in for evaluation due to vomiting, irritability, and macrocephaly for 2 months, along with a new vertical gaze palsy. Imaging findings also showed a posterior fossa mass and acquired obstructive hydrocephalus but without metastasis. Both siblings underwent craniotomy with subtotal tumor resection and ventriculoperitoneal shunt placement. Chemotherapy was promptly initiated but despite active treatment, they had rapid disease progression and ultimately passed away. Whole exome sequencing of both patients revealed an in-frame deletion involving the SNF5 homology domain of SMARCB1, with consistent findings on whole transcriptome sequencing, and evidence of loss of a single copy of chromosome 22. In this case report, we present a family faced with the devastating outcomes of RTPS and emphasize the importance of genetic testing and counseling for these families after diagnosis in the first child. Families should also be streamlined to a fertility specialist prior to subsequent pregnancies as an opportunity for familial screening.

A CASE OF SARCOIDOSIS WITH NECROTIZING GRANULOMAS

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Introduction: The diagnosis of sarcoidosis is based on clinical presentation, radiology, and histological evidence of non-necrotizing granulomas. We demonstrate an unusual case of systemic sarcoidosis with histopathology yielding necrotizing granulomas. This case highlights that there likely is a spectrum of sarcoidosis based on degree of necrosis and the importance of excluding other disorders.

Case Summary: A 52-year-old female presented with few months history of dizziness, fatigue, weight loss, abdominal pain and shortness of breath. She underwent outpatient positron emission tomography scan which showed hypermetabolic lymph nodes in the chest, abdomen, liver, spleen, bone marrow and extensive nodular opacities in the lungs. She had no risk factors for tuberculosis. On presentation, she was in third degree heart block though hemodynamically stable. ACE level was elevated at 182 (reference range 9-67 U/L); QuantiFERON, lymphoma panel flow cytometry, ANCA, hepatitis C and HIV were negative. Computerized tomography showed mediastinal, hilar lymphadenopathy, diffuse bronchovascular thickening, hepatic heterogeneity and numerous splenic lesions. Cardiac magnetic resonance imaging was suggestive of a multifocal infiltrative process. Liver biopsy showed focally necrotizing granulomatous inflammation; stains were negative for fungal organisms and acid-fast bacilli. Despite findings of necrotizing granulomas, there was a high suspicion for sarcoidosis, therefore bronchoscopy was deferred and steroids were started with subsequent improvement in symptoms.

Discussion: Given the wide spectrum of multi-organ involvement and non-specific clinical symptoms, the diagnosis of sarcoidosis relies heavily on the presence of non-necrotizing granulomas and the exclusion of other causes of granulomas. Our patient had the complete typical features of sarcoidosis including cardiac, lung, liver, spleen and lymph nodes involvement. However, the biopsy showed focally necrotizing granulomatous inflammation. In such a case, important differentials that must be excluded are infectious etiologies (notably mycobacterium), lymphoproliferative disorders, and other inflammatory diseases like vasculitis. The histochemical stains, cultures and flow cytometry were not consistent with these other etiologies. The other main differential to consider is necrotizing sarcoid granulomatosis (NSG) which is a rare systemic disease characterized by sarcoid-like granulomas, vasculitis and variable degrees of necrosis. There has been a debate whether NSG is a variant of sarcoidosis or a separate entity in itself. While there were areas of necrosis in the granulomas in this case, there was a lower suspicion for NSG given there were no signs of vasculitis.

Conclusion: Our case points to the concept of sarcoidosis as a disease with a wide spectrum based on the degree of necrosis with classical sarcoidosis on one end to NSG on the other with cases such as ours in the middle of the spectrum.

RAPIDLY PROGRESSIVE EOSINOPHILIC PNEUMONIA SECONDARY TO PEMBROLIZUMAB AND ANTI-TIGIT THERAPY

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Case Summary: A 46 year-old female with lung adenoid cystic carcinoma with prior left pneumonectomy and radiation therapy presented with fever and shortness of breath. She had recurrence of cancer in the right lung and was on active clinical trial with Pembrolizumab and anti-TIGIT EOS-448. Following the initiation of the therapy, she developed peripheral eosinophilia and a skin rash, biopsy of which showed eosinophilic infiltrates favoring a drug reaction, for which she was on Dupilumab. On presentation, her oxygen saturation was 95% on 4 LPM oxygen, heart rate 108 bpm, and was afebrile. Labs were notable for WBC 12.7 103 u/L (ref range 4-11), absolute eosinophil count 1400 uL (ref range 0-700), ESR 120 mm/hr (ref range 0-20), C-reactive protein 33 mg/dl (ref range <0.5); ANCA, respiratory pathogen panel, fungitell, aspergillus, and blood cultures were negative. Chest computed tomography showed new multifocal infiltrates throughout the right lung. She was started on antibiotics for pneumonia. On hospital day 2, she developed worsening dyspnea, hypoxia, and fever to 101.5°F. Empiric steroids were then started for eosinophilic pneumonia given the clinical deterioration despite appropriate antibiotic coverage, the peripheral eosinophilia and radiographic findings. Bronchoscopy was deferred due to the rapid decline and underlying pulmonary history that placed her at further risk of decompensation. The following day, she had significant clinical improvement and her eosinophil count was 0. Following discharge, the clinical therapy was held and she had no recurrence of similar episodes.

Discussion: We describe a rare case of acute eosinophilic pneumonia (AEP) secondary to Immune Checkpoint Inhibitor (ICI) and anti-TIGIT therapy, as well as the associated diagnostic challenge. ICIs have previously been associated with peripheral eosinophilia as well as rare cases of respiratory involvement including eosinophilic pneumonia or bronchiolitis. However, current literature is scarce in the description of the adverse effects of anti-TIGIT therapy. Our patient experienced skin rash, eosinophilia and AEP as a result of this clinical therapy. Furthermore, a diagnostic criterion of AEP includes bronchoscopy findings of eosinophils in lavage fluid. Other reports involving ICIs and AEP have all used bronchoscopy as a means of diagnosis as is standard practice. Given the rapid clinical deterioration in this case despite anti-microbial coverage and underlying high risk history, the presumptive diagnosis of AEP was made without bronchoscopy. The subsequent empiric initiation of steroids proved to have a dramatic clinical response as characteristic of AEP.

Conclusion: We highlight that AEP can occur with ICIs as seen with prior reports, though the contribution of anti-TIGIT therapy in this case remains unclear. We also emphasize the clinical judgment of timely initiation of steroids even without a confirmatory bronchoscopy in cases of rapidly progressive AEP.

LEFT ATRIAL APPENDAGE CLOSURE (LAAC) IN SITUS INVERSUS TOTALIS

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Case Summary: A 76 year-old male with history of persistent atrial fibrillation with a CHA2DS2-VASc score of 5, situs inversus totalis, and chronic lymphocytic lymphoma (CLL) with variable thrombocytopenia was referred for left atrial appendage closure (LAAC). He was not a candidate for long term anticoagulation due to a previous history of thrombocytopenia and a fall leading to subdural hematoma and subarachnoid hemorrhage. Pre-operative structural heart computed tomography (CT) revealed situs inversus totalis with LAA area of 467.0mm2 and average landing zone diameter of 24.4mm; there was no evidence of thrombus within the LAA. Intraoperative transesophageal echocardiogram (TEE) demonstrated a "chicken wing morphology" of the LAA with an emptying velocity of 49m/s. Under TEE guidance, the atrial septum was crossed via guidewire puncture and a 27mm Watchman FLX LAA occluder device was successfully placed with no evidence of residual flow. Per shared decision making with neurosurgery, the patient was discharged on short-course of apixaban to be closely monitored as outpatient.

Discussion/Conclusion: LAAC has become an increasingly utilized method for stroke prevention in patients with contraindications to pharmacologic anticoagulation. Anatomic abnormalities can make access and device implantation difficult. Situs inversus totalis, a rare congenital abnormality that affects 1:10,000 people, is characterized by mirror-transposition of both abdominal and thoracic organs. The use of transesophageal echocardiography (TEE) and three-dimensional cardiac imaging has greatly improved the ability of physicians to perform necessary cardiac procedures in patients with potentially challenging anatomy. We present a case of successful LAAC using such imaging modalities in a patient with situs inversus totalis with contraindication to long-term oral anticoagulation.

RARE CAUSE OF MASSIVE PANCREATIC PLEURAL EFFUSION

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Case Summary: A 56-year-old male with history of alcohol-related chronic pancreatitis with known pancreatic pseudocyst presented with worsening exertional dyspnea and right sided chest pain for 2 weeks. His vitals were stable with normal oxygen saturation on room air. Computerized tomography (CT) of the chest showed a large right sided pleural effusion, along with 6 cm pseudocyst and dilatation of the pancreatic duct. A pigtail catheter was placed that initially drained 3 liters of serosanguinous fluid. Pleural fluid analysis showed neutrophil predominant, exudative effusion with amylase level 25,538 U/L. Cytology was negative for malignant cells. Octreotide was started and he underwent magnetic resonance cholangiopancreatography (MRCP) that showed the known pseudocyst, but no fistula or communicating tract. He ultimately underwent Endoscopic Ultrasound (EUS) and fine needle aspiration of the pseudocyst that was negative for malignancy. His symptoms improved and he had no further output from the pigtail catheter.

Discussion: Acute pancreatitis commonly causes a reactive, small to moderate, left sided pleural effusion in which the pleural fluid amylase is typically in the normal range. Chronic pancreatitis may cause a large left pleural effusion with extremely high amylase levels. It is very rare to have a large, right pleural effusion from chronic pancreatitis as in our case. The mechanisms of chronic pancreatic pleural effusion include pancreatic duct disruption leading to leakage and potential formation of a pancreaticopleural fistula (PPF), or rupture of a pseudocyst. PPFs are extremely rare, characterized by an elevated pleural fluid amylase levels as high as 30-50k. They should be further investigated by either MRCP, CT or endoscopic retrograde cholangiopancreatography (ERCP) that can show a duct communication. There was a high suspicion for pancreatic etiology in this case given the elevated pleural amylase, though the MRCP and CT did not delineate a fistula or a visualized communication with the thoracic cavity. Therefore, we suspect the effusion occurred from either leakage from the pancreatic duct or ruptured pseudocyst in the retroperitoneum with movement of fluid to the pleural space due to the transdiaphragmatic pressure gradient and diaphragmatic defects. Management of large pancreatic pleural effusions typically include total parenteral nutrition, octreotide, and drainage. If a PPF is present, ERCP is required with stent placement or surgical intervention if conservative management fails.

Conclusion: It is important to have a high index of suspicion for pancreatic etiology of pleural effusion in patients with history of alcoholic chronic pancreatitis and pseudocyst.

NON-ARDS CHLORAMINE INDUCED LUNG INJURY MANAGED BY VENOVENOUS EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO): A NOVEL APPROACH

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Introduction: Majority of those affected by chloramine inhalation injury do not develop hypoxia and treatment is largely supportive with primary focus on protective airway management and optimization of volume status to reduce further lung injury1; however, there has been minimal research on the utility of venovenous extracorporeal membrane oxygenation (VV ECMO) in the patient population that develops severe respiratory failure without acute respiratory distress syndrome (ARDS) refractory to standard of care supportive management. We present a case of a patient with multiple pulmonary comorbidities who was initiated on VV ECMO for severe hypoxemic/hypercapnic respiratory failure after an accidental chloramine inhalation injury. Case Report A 65-year-old man, with past medical history of chronic obstructive pulmonary disease, severe persistent asthma , and 1.5 pack per day cigarette smoker for thirty years, presented with headache and severe shortness of breath after mixing ammonia and chlorine while cleaning his pool; the mixture exploded, resulting in inhalation of toxic fumes. He developed difficulty breathing and hypoxia which was refractory to methylprednisolone, albuterol nebulizers, non-invasive positive pressure ventilation (NIPPV) and ultimately required intubation. Given very high peak pressures and inability to ventilate the patient, ECMO was implanted and continued for a total of 13 days. Bronchoscopy at the time showed a severely edematous tracheobronchial tree without any endobronchial lesions or necrosis. The patient did well and was eventually weaned off of EMCO and explantated. The patient was eventually sent to a rehabilitation facility for physical therapy and is now home.

Discussion: This case demonstrates a novel approach to management of severe non-ARDS chloramine inhalation injury. Since our patient could not oxygenate nor ventilate with lung protective ventilation alone, and bronchoscopy was not remarkable for endobronchial lesions, necrosis, or casts, the decision was made to initiate ECMO. To our knowledge this is a novel approach. ECMO is widely used for ARDS management 2,3, also in ARDS management as a result of chloramine injury4. This patient did not have ARDS, but had significant mucosal edema and airway secretions. In this case, ECMO was utilized to allow pulmonary rest and avoid further lung injury, which ultimately proved successful as the patient was extubated, decannulated, and eventually discharged home on no oxygen therapy. Since there is very little research on the utility of ECMO in this specific patient population, further investigation of the utility of ECMO in the treatment of inhalation injury without ARDS is warranted.

RUPTURE OF SINUS OF VALSALVA ANEURYSM: A SUBTLE CAUSE OF ACUTE HEART FAILURE

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Introduction: Sinus of valsalva (SOV) aneurysm is a rare congenital or acquired cardiac anomaly. SOV aneurysm rupture can present varyingly as acute heart failure, acute coronary syndrome or cardiac tamponade. The aneurysm usually ruptures into the right atrium (RA) or right ventricle (RV) leading to significant left to right shunting and can subsequently cause acute heart failure.

Case Summary: A 60-year-old male with history of hypertension presented with shortness of breath of three days duration. Physical exam revealed elevated jugular venous pressure, systolic murmur and lower extremity edema. Transthoracic echocardiography showed shunting of blood from aorta into the RA via ruptured SOV and moderate dilatation of the RA and RV. A computerized tomography (CT) aortogram showed SOV dehiscence of non-coronary cusp. Cardiac catheterization and transesophageal echocardiography showed no coronary artery disease and confirmed SOV rupture with left to right shunting, respectively. He underwent surgical repair with full recovery.

Discussion: A thorough history, physical exam and familiarity of acute structural abnormalities can help clinicians with prompt recognition and management of acute heart failure due to SOV aneurysm rupture. Echocardiography is the standard choice to establish diagnosis. CT aortogram can provide supportive information about the defect and assist in pre-surgical assessment. Rupture of SOV aneurysm has high morbidity and mortality. Surgical management is typically required in such cases, however the use of transcatheter closure devices have also been described with suitable outcomes.

Conclusion: While a rare presentation of acute heart failure, early identification of rupture of SOV aneurysm is critical as timely intervention will result in a favorable long-term outcome.

AUTOIMMUNE PANCREATITIS MIMICKING CHOLANGIOCARCINOMA/PANCREATIC CANCER PRESENTING AS PAINLESS JAUNDICE AND PORTA HEPATIS ADENOPATHY: A CASE REPORT

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A 62-year-old Korean descendant male with a history of diabetes, hypertension,and hyperlipidemia presented with fatigue, jaundice, and indigestion for 3 weeks. He endorsed a 20-pound weight loss without fever, night sweats, or anorexia. Initial physical exam was significant for scleral icterus, jaundice, and a soft abdomen with negative Murphy's sign, minimal distension and some mild pain to palpation of the right upper quadrant. Initial laboratory testing revealed a mixed cholestatic and hepatocellular pattern of injury, with a serum alkaline phosphatase of 1,917 U/L, total bilirubin of 10.1 mg/dL, direct bilirubin of 7.3 mg/dL, aspartate transaminase of 550 U/L, and alanine transaminase of 749 U/L. Lipase was elevated to 180 U/L . Serum CA 19-9 was 24 U/mL and alpha-fetoprotein was 3.9 ng/mL. Hepatitis serologies and serum lymphoma panel returned negative. A CT of the abdomen and pelvis with contrast evidenced a normal-appearing liver and pancreas with pronounced common bile duct (CBD) dilation to 1.7 cm. The patient underwent endoscopic retrograde cholangiopancreatography and endoscopic ultrasound on which demonstrated a 2.4 cm hypoechoic mass causing distal duct obstruction and compression of the superior mesenteric vein with portal collateralization, diffusely heterogeneous pancreatic enhancement, hypoechoic porta hepatis adenopathy, and pancreatic duct dilation to 4 mm. The patient was initially thought to have pancreatic malignancy or cholangiocarcinoma. Subsequent fine needle biopsy revealed diffuse mixed inflammatory infiltrate with lymphocytes, plasma cells, and eosinophils and associated "storiform fibrosis" and atrophy - compatible with a diagnosis of autoimmune pancreatitis (AIP). CD138 staining showed abundant plasma cells with high-number of IgG-4 positive cells. In light of these findings and the high suspicion for AIP, the patient was started on a course of oral steroids. Serum IgG-4 levels and liver function tests obtained on his 4-week follow-up have significantly decreased and his symptoms have greatly improved. This case of a patient with AIP outlined an example of an already rare disease that was atypical in the fact that many of the patient's presenting symptoms, as well as his initial laboratory findings and imagings closely mimicked a possible diagnosis of pancreatic cancer or cholangiocarcinoma. Only a few cases have been reported of AIP with a focal mass. Our case presents an instance where focal AIP with a discrete mass does not exhibit typical findings on EUS/ERCP and CT findings. The patient's rapid response to corticosteroid treatment further supports the diagnosis of AIP. This case serves as a reminder to more closely consider this rare diagnosis in the correct demographic and to be on the lookout for such atypical presentations to ensure prompt diagnosis and treatment, as AIP is a disease entity with dramatic response to treatment.

HIGH RISK GASTROINTESTINAL STROMAL TUMOR IN FIRST TRIMESTER PREGNANCY: A CASE REPORT

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Case Summary: A 24 year old G3P1011 presented to the Emergency Department at 4w6d by last menstrual period (LMP) with worsening abdominal cramping, bloating, and associated nausea. Physical exam revealed a large, mobile, nontender mass palpated in the right lower abdomen. Transvagianl ultrasound noted the presence of a large pelvic mass of unknown etiology. Pelvic magnetic resonance imaging (MRI) was obtained for further characterization, revealing a 7.3 x 12.4 x 12.2 cm mass with multiple fluid levels, centered in the anterior mesentery. Exploratory laparotomy was performed with en bloc resection of small bowel and pelvic mass, with pathology demonstrating a 12.8 cm spindle cell neoplasm compatible with GIST and notable for a mitotic rate of 40 mitoses/50 high power field (HPF). Next generation sequencing (NGS) was pursued in order to predict tumor responsiveness to Imatinib, which revealed a mutation at KIT exon 11, suggesting a response to tyrosine kinase inhibitor therapy. The patient's multidisciplinary treatment team, consisting of medical oncologists, surgical oncologists, and maternal fetal medicine specialists, made the recommendation for adjuvant Imatinib therapy. The patient was offered termination of pregnancy with immediate initiation of Imatinib, as well as continuation of pregnancy with either immediate or delayed treatment. Interdisciplinary counseling focused on both the maternal and fetal implications of each proposed management plan. She ultimately elected termination of pregnancy, and underwent an uncomplicated dilation and evacuation.

Discussion: There are less than 20 reported cases of gastrointestinal stromal tumors in pregnancy. Of these reported cases, there are only two that detail GIST in the first trimester. We report our experience with the third known GIST diagnosis in the first trimester of pregnancy. Notably, our case report highlights the earliest known gestational age at time of GIST diagnosis.

Conclusion: GIST diagnosis in pregnancy is exceedingly rare. Patients with high-grade disease encounter a multitude of decision-making dilemmas, often with competing maternal and fetal interests. As additional cases of GIST in pregnancy are added to the literature, clinicians will be able to implement evidence-based options counseling for their patients. Shared decision-making is contingent upon patient understanding of diagnosis, risk of recurrence, available treatment options, and the treatment-related implications on maternal and fetal outcomes. A multidisciplinary approach is crucial for optimization of patient-centered care.

SEVERE ASTHMA ATTACK DUE TO METAPNEUMOVIRUS REQUIRING INTUBATION COMPLICATED BY ACUTE IDIOPATHIC SPONTANEOUS ATRAUMATIC BILATERAL LOWER EXTREMITY COMPARTMENT SYNDROME

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Acute compartment syndrome is a condition that occurs commonly secondary to trauma-related factors such as fractures or crush injuries which leads to increased interstitial pressures within a closed fascial plane (1). To our knowledge, there has never been any documented case report of spontaneous idiopathic bilateral lower extremity compartment syndrome. We describe a case of a 31-year-old male with a past medical history of well-controlled asthma and idiopathic compartment syndrome who developed compartment syndrome of his bilateral lower extremities while intubated due to a metapneumovirus (MPV) -induced asthma attack. He presented for progressive shortness of breath after having a worsening cough over a period of three days, fevers, chills, and malaise. After arrival in the emergency department, he required rapid sequence intubation for respiratory deterioration. A respiratory pathogen panel was later positive for MPV. The patient developed left and right lower extremity compartment syndrome on days two and three of hospitalization respectively. He was diagnosed via subjective report of leg pain, elevated CPK levels, and classic physical exam findings of tense compartments and pain on passive dorsiflexion, and he underwent limb-saving fasciotomies of both legs. Prior etiologies of SCS have been reported such as prolonged lithotomy position, HIV and COVID-19-induced myositis, methanol poisoning, exercise-induced, vibrio vulnificus infection, and horse riding among others (1, 2, 3, 5). This patient was negative for HIV and COVID-19, without toxic ingestions, recent vigorous exercise, other metabolic or endocrinologic disorders, hematologic/leukemic disorder, systemic sclerosis, or trauma to his lower legs prior to or during his hospital admission. The patient does have a history of prior SCS of his upper extremity and lower extremities with the last episode occurring seven years ago. Etiology at that time was not discovered after evaluation by rheumatology, general internal medicine, and orthopedics. He was told that he may have chronic exertional compartment syndrome (CECS) despite his prior episodes occurring regardless of exertion, and not meeting the typical diagnostic criteria of CECS (2). In regard to a genetic predisposition to SCS, only one case report exists of a young otherwise healthy man with recurrent SCS who was found to have a novel GYG1 mutation which is a gene responsible for the production of glycogenin (mutations of which have been discovered in a rare glycogen storage disease), however, there is no established link between said mutation and SCS (4). This case emphasizes the importance of having a low threshold for initiating interdisciplinary management for the classical presentation of a common syndrome without a clear etiology, the necessity of taking into account the pre-test probability for suspected conditions on a case-by-case basis, and how apt clinical acumen can prove life or limb saving.

A UNIQUE PRESENTATION OF METASTATIC PERIVASCULAR EPITHELIOID CELL TUMOR (PECOMA)

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Case presentation: This is a 64-year-old female with a 2018 history of uterine carcinosarcoma with poorly differentiated endometrial and leiomyosarcoma components. She underwent a total abdominal hysterectomy and pathology revealed extrauterine spread. PET/CT showed right hilar adenopathy and tumor activity. At that time, she was treated with 6 cycles of Carboplatin-Taxol which she tolerated well and had no further issues until a follow up PET/CT in 2020 revealed mediastinal activity. She subsequently underwent mediastinoscopy and biopsy suggesting sarcoidosis but no tumor. Later that year, a follow-up PET/CT again demonstrated mediastinal lymph node activity and biopsy showed recurrent tumor consistent with initial uterine pathology. She was again treated with 6 cycles of Carboplatin-Taxol which she tolerated well. In December 2020, a follow up PET/CT showed the presence of a lower lobe lung tumor for which she was treated with cyberknife. Her disease course was later complicated by pulmonary embolism and radiation pneumonitis treated with anticoagulation and steroids respectively. In July 2022, she developed a rapidly growing right thigh/buttock soft tissue mass. The mass was excised and outside pathology at John Hopkins was consistent with a diagnosis of Perivascular Epithelioid Cell Neoplasms (PEComa). For this, she underwent adjuvant treatment with radiation therapy. In November 2022, the patient presented with failure to thrive and abdominal pain. She was found to have a small bowel obstruction secondary to intussusception and required small bowel resection. Pathology showed that a tumor caused the leading edge of the intussusception and was consistent with her previous pathological findings. She has since recovered from her surgery and is currently being treated with FYARRO.

Conclusion: Perivascular Epithelioid Cell Neoplasms (PEComas) are rare subtypes of soft tissue tumors that often form around small blood vessels and can be found in various organs such as the stomach, intestines, lungs, genitourinary and the female reproductive organs. These tumors have a predominance for females and most PEComas are benign, however some may be malignant. PEComas are exceptionally rare however they should be included in the differential diagnosis when presented with recurrent malignancies of multiple organs. Although intussusception is also a rare occurrence in adults, comprising <5% of intestinal obstructions, it is important to consider that intestinal metastasis of PEComas may occur. Thus, the existence of multi organ neoplasms with concordat pathology should warrant a thorough evaluation during follow up and consideration of PEComa as a diagnosis. Diagnosis of PEComa does require surgical biopsy and immunohistochemical analysis. Tumor resection is currently the mainstay treatment and adjuvant therapy is used in high-risk patients such as ours.

ACUTE ISCHEMIC STROKE DUE TO INCOMPLETE ENDOTHELIALIZATION OF A LEFT ATRIAL APPENDAGE OCCLUDER

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Stroke is the most common complication of atrial fibrillation, with 90% of thrombi thought to originate from the left atrial appendage (LAA). For decades, anticoagulation has been the mainstay treatment for thromboembolic prophylaxis but is frequently complicated by bleeding events. Left atrial appendage occlusion (LAAO) has risen as a preferred intervention in patients with high bleeding risk. In a minimally invasive procedure, a device is implanted into the LAA to seal off potential emboli. Current post-treatment protocols involve surveillance imaging for device failure, which assesses peri-device leak (PDL) and incomplete endothelialization. If measurements fall within accepted parameters, the patient is transitioned off post-procedural anticoagulation to antiplatelet therapy. However studies show that while LAAO significantly decreases bleeding risk, ischemic stroke risk persists. Our patient is an 80-year-old man with moderate mitral regurgitation who underwent LAAO but suffered acute ischemic stroke one year later. He underwent mechanical thrombectomy with successful reperfusion. On workup, transesophageal echocardiogram and cardiac computed tomography revealed widening peri-device leak to 6 mm and only partial device endothelialization. Mitral regurgitation was now severe (effective regurgitant orifice area 0.48 cm^2, regurgitant volume 75 ml) with a high velocity posteriorly directed eccentric jet. Once stable, the patient was followed outpatient, where he decided to defer repair of his mitral valve and LAAO failure in favor of conservative management. Recent studies suggest that characteristics of this patient's LAAO failure might be more common than expected. One study shows that surveillance imaging showed incomplete endothelialization in up to 61% of patients by ~10 months post-procedure. Small PDLs (< 5 mm) are associated with higher stroke risk. While mitral regurgitation is thought to be protective against thrombus formation in AF, severe disease can contribute to LAAO failure in multiple mechanisms: 1) disturbances in tissue remodeling and device position due to shearing forces of the regurgitant jet, and 2) inhibition of thrombogenesis, which is paradoxically essential to successful neoendothelialization. Patients with comorbid mitral regurgitation and LAAO eligibility may benefit from concomitant percutaneous mitral valve repair and LAAO, which could offer significant advantages in reducing overall clinical burden for both the patient and interventionalist. In conclusion, LAAO remains a favorable alternative for stroke prophylaxis in patients with high bleeding risk. However PDL and incomplete device endothelialization are critical complications that are loosely addressed in current protocols. As real-world outcome studies continue to highlight their significance, guidelines are expected to redefine protocols that will allow clinicians to address nuances, intervene earlier on impending failure, and further reduce stroke risk.

A RARE PRESENTATION OF SYNCOPE

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Case Summary: A 56-year-old female with a past medical history significant for type 2 diabetes mellitus complicated by diabetic retinopathy and neuropathy, hyperlipidemia, and hypertension presented with persistent nausea and vomiting that initially started six weeks prior to admission. She reported that her symptoms were intermittent and progressive despite taking Ondansetron at home, and they have become untreatable, prompting her to come to the hospital. The patient described the emesis as non-bilious and non-bloody undigested food with associated fatigue, unintentional weight loss of 26 pounds due to inability to tolerate oral intake, and longstanding constipation in the last six weeks. The patient's diabetes has been managed at home with Metformin and Empagliflozin. On arrival, vital signs were remarkable for hypertensive urgency and tachycardia. Laboratory evaluation was notable for blood glucose ranging from 201 to 223, bicarbonate 12, anion gap 24, pH 7.3, positive serum acetone, and urine analysis with > 1000 glucose and > 80 ketones. CT scan of the abdomen was unremarkable. The patient was managed in the intensive care unit for euglycemic diabetic ketoacidosis with guideline-directed medical therapy. During the hospital course, the patient's emesis persisted, causing clinically significant dehydration, and decreased oral intake. She also had two syncopal episodes while trying to pass bowel movements. Syncope workup was unremarkable. Orthostatic vital signs were positive. As gastroparesis was suspected, the patient was hydrated with intravenous fluids and managed with frequent small meals and Metoclopramide. A gastric emptying study was done while on prokinetic showing rapid emptying. After extensive workup and excluding other causes of syncope, it was attributed to orthostatic hypotension secondary to diabetic autonomic neuropathy (DAN) due to prolonged uncontrolled diabetes. Blood glucose was monitored and controlled during the hospital course. The patient was treated with guideline-directed medical therapy, supportive treatment, and intensive physical therapy.

Discussion/Conclusion: DAN is a severe and often overlooked complication of diabetes mellitus. Cardiac autonomic neuropathy (CAN) is the most significant manifestation of DAN, and its treatment is challenging due to the advancement of the disease; thus, intensive glycemic control coupled with lifestyle modification has been proven to halt or delay the onset and progression of this phenomenon while improving the quality of life. The data describing the symptoms and presentation of CAN is limited. Through this case report, we aim to raise awareness to aid clinicians in identifying patients who would be candidates for intensive glycemic control, bring attention to newer medications for euglycemia with proven benefits for overall all-cause mortality, and early recognition of symptoms of DAN that may be masked or mistaken for other conditions to avoid life-threatening complications.

A RARE CAUSE OF INTERSTITIAL PNEUMONITIS

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Case Summary: A 39-year-old female with a past medical history significant for stage 3 breast cancer (Intraductal Carcinoma, Estrogen and Progesterone receptor positive and HER2 negative) presented with persistent objective fevers, reporting temperatures at the highest 103F that started nine days ago after she was started on Taxol for her breast cancer. The patient received four cycles of chemotherapy with neoadjuvant dose-dense (dd) Adriamycin and cyclophosphamide in the past. She started the first cycle of dd-Taxol with Onpro ten days prior to admission. She also reported associated shortness of breath, myalgias, and chest tightness that began nine days ago. On arrival, vital signs were remarkable for a temperature of 102 F. Laboratory evaluation, including blood and sputum cultures, respiratory pathogen panel, and pneumonia panel, were unremarkable. CT scan of the chest showed multifocal pneumonitis, as shown in figure 1. Initially, the patient was initiated on empiric antibiotics, including Cefepime and Azithromycin. As infectious causes were ruled out, interstitial pneumonitis was attributed to Taxol, and she was begun on Methylprednisolone with significant and prompt improvement, confirming the clinical suspicion. The patient was discharged on guideline-directed medical therapy and instructed to follow up with the pulmonologist, oncology, and primary medical doctor.

Discussion/Conclusion: It has been thought that pneumonitis caused by Taxol is induced by a delayed hypersensitivity reaction. Such reactions may occur within days to weeks after receiving Taxol. While Taxol-induced interstitial pneumonitis (TIP) is under-described, this case report will highlight such pulmonary injury with a poorly understood mechanism in the setting of a female patient receiving such an agent to treat breast cancer. TIP, while relatively uncommon, is a possibly fatal condition that must be recognized early while treating patients with cancer. Patients may present with nonspecific symptoms such as fever, shortness of breath, myalgia, and fatigue, and because these symptoms are most typically encountered in the first two cycles of Taxol usage with a higher dosage, this differential should be higher in the list when these symptoms are evident. Once the identification of TIP has been recognized by exclusion, Taxol should be halted, and glucocorticoid therapy should be initiated immediately. Additionally, given that it's not advisable to restart with taxane agents, non-particle albumin-bound paclitaxel (nab-paclitaxel), which exhibits less hypersensitivity, could be taken into consideration when resuming the patient on chemotherapeutic agents; however, additional research should be conducted prior to switching to these agents. With this case report, we aim to highlight the significance of recognizing this phenomenon to avoid delay in diagnosis and treatment as well as to contribute to the growing literature in this arena.

AN ATYPICAL PRESENTATION OF TUBERCULOSIS

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Case Summary: A 59-year-old male presented after being found to be hypotensive in the clinic. The patient also reports subjective fever, chills, and dry cough with associated weakness. He was previously seen in the emergency department (ED) two weeks prior for similar symptoms and was discharged with a course of azithromycin and instructed to follow up outpatient. The patient states he was feeling better after the course of antibiotics until the next five days, when the same symptoms returned, which prompted him to come to the ED. On arrival, vital signs were unremarkable. The chest CT showed left upper lobe pneumonia. QuantiFERON TB Gold test was positive, although all other tests, including the pneumonia panel, Nucleic Acid Amplification test (NAAT) for Mycobacteria tuberculosis (Mtb), AFB smear, and blood and induced sputum cultures, were negative. The patient continued to be febrile and tachycardic throughout the hospital course. However, his white blood cell count remained normal, and his only reported symptoms were fevers, chills, and dry cough. Echocardiogram was unremarkable. Initial negative cultures and persistent fever despite medical therapy prompted bronchoscopy, demonstrating MRSA in one culture, although AFB smears were negative. The patient was treated with increasingly broad-spectrum antibiotics. As the patient's symptoms persisted and a repeated chest CT showed worsening multifocal left upper lobe pneumonia and new involvement of the right upper lobe, a second bronchoscopy was done. Endobronchial biopsy from the left upper lung showed non-necrotizing granuloma, which was negative for malignancy. Two weeks after admission, mycobacteria with fluorochrome smear cultures from bronchoalveolar lavage (BAL) identified the Mtb. The patient was ultimately started on goal-directed medical therapy to treat Tuberculosis (TB).

Discussion/Conclusion: TB is known to be a great mimicker of what otherwise could be suspected to be a typical presentation of pneumonia in the presence of atypical radiological findings and endobronchial appearance. Mtb is a fastidious organism; thus, it can be challenging to culture via standard sputum collection. BAL has a 57% sensitivity to isolate Mtb. This patient presented with misleading chest CT findings consistent with possible community-acquired pneumonia alongside an initial negative NAAT for Mtb and multiple negative AFB smears in sputum and BAL specimens which led the medical team to pursue other etiologies of unresolving spiking fevers. Our case supports these findings by a biopsy of the left upper lung during bronchoscopy showing non-necrotizing granuloma and finally isolating the organism with the BAL. With this case report, we display a different presentation of pulmonary TB to aid clinicians in the earlier recognition of this phenomenon and contribute to the growing literature on bronchoscopy and BAL as an alternative way of diagnosing this disease when there is a high clinical suspicion.

AN ATYPICAL PRESENTATION OF NEUROSYPHILIS

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Case Summary: A 30-year-old male with no significant past medical history presented with right facial and left upper extremity weakness and left occipital headache for three days. He reported associated mouth numbness, loss of taste sensation, and loss of sensation on the left side of the face. He admitted similar symptoms six months ago, which were resolved by themselves. He admitted sexual intercourse with another male in the last 12 months, although he denies any previous sexually transmitted diseases. On arrival, vital signs were unremarkable, and the physical exam was remarkable for left ptosis and facial droop, impaired sensation on the left side of the face, deviation of tongue and uvula to the left side, decreased strength in the left upper extremity, scaly rash around the face, oral thrush, mild neck stiffness, and negative Kernig's sign, and Brudzinski's sign. Laboratory findings reveal white blood cells of 4.6 and HIV-4th Generation and HIV1 antibody tests were positive, with a CD4 count of 136. Rapid Plasma Reagin titer was reactive with 1:64 as well as the fluorescent treponemal antibody. MRI brain showed multiple nonspecific subcortical and periventricular white matter foci. Additional tests for opportunistic infections were negative. Infectious disease and Neurology services were consulted. Ultimately, the patient was placed on guideline-directed medical therapy for Neurosyphilis and HIV with AIDS, and he was discharged to follow up at the HIV clinic and primary medical doctor.

Discussion/Conclusion: Despite its relatively low prevalence among primary, secondary, and latent syphilis cases, the increasing rates of syphilis in the United States make it a relevant concern. Early recognition and treatment are crucial to prevent long-term complications. This case also underscores the importance of obtaining a thorough social and sexual history to identify potential risky behaviors for Neurosyphilis and HIV. Neurosyphilis can occur at any stage of syphilis and is classified as early or late. Early Neurosyphilis is seen in the first weeks to years of infection, as opposed to late Neurosyphilis, which presents years to decades after primary infection. Early Neurosyphilis consists of meningitis or meningovasculitis. It has been observed that a combination of untreated syphilis and HIV results in a predisposition toward early Neurosyphilis. Neurosyphilis concomitant with HIV and AIDS could atypically present with ischemic stroke-like symptoms. We present a case of a young male who initially displayed neurological symptoms suspicious of a cerebrovascular accident that resulted in the new onset of Neurosyphilis simultaneous with HIV and AIDS. With this case report, we aim to emphasize the importance of having a low suspicion index for Neurosyphilis co-occurring with HIV and AIDS in any young patient with potential high-risk behaviors for these conditions who present with neurological symptoms worrisome for a cerebrovascular accident.

THE IMPORTANCE OF CATCHING IGA NEPHROPATHY EARLIER!

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Case Summary: A 31-year-old male with a past medical history significant for Type 2 Diabetes Mellitus and Hypertension presented with a two-week history of headache and blurry vision. He reported that he has not been taking his blood pressure medications for the past six months due to a lack of insurance and has been borrowing insulin from his boss. His vitals were remarkable blood pressure of 183/120 and heart rate of 102. The physical exam was unremarkable. Laboratory findings were notable for the new onset of acute kidney injury with creatine of 9.50 and blood urea nitrogen of 64. Troponins were elevated and then trended down. Electrocardiogram showed non-specific T wave changes and left ventricular hypertrophy confirmed with an echocardiogram, which also showed an ejection fraction of 65%, grade III diastolic dysfunction, and normal wall motion. MRI brain was unremarkable. The patient was admitted to the intensive care unit (ICU) for the management of a hypertensive emergency. Cardiology recommended no additional intervention. After day one in the ICU, blood pressure was at the target goal for 24 hours. The 24-hour urine protein analysis showed 8100 mg, consistent with nephrotic range proteinuria. The renal ultrasound showed a normal renal sonogram. Glomerulonephritis workup was negative, including C3, C4, ASO titers, ANA, Anti-dsDNA, p-ANCA, c-ANCA, and anti-glomerular basement membrane antibodies. HBV, HCV, HIV, and syphilis tests were negative. Subsequently, the patient's creatinine increased to 13.23 and BUN 105. CT-guided renal biopsy demonstrated advanced IgA nephropathy. Ultimately, the patient was started on guideline-directed medical therapy, and renal replacement therapy was initiated, given the progression of the renal disease and the not expecting it to improve. During the hospital course, his blood glucose ranged from 70 to 130, and his hemoglobin A1c was 4.9; thus, he never needed insulin administration or to be discharged on diabetic medications.

Discussion/Conclusion: IgA nephropathy is a significant cause of kidney disease that can lead to progressive renal failure. While clinical presentation and laboratory findings can suggest IgA nephropathy, renal biopsy remains the gold standard for definitive diagnosis. Early identification and treatment of IgA nephropathy can delay or prevent the progression of renal damage, leading to better clinical outcomes. With this case report, we emphasize the importance of earlier diagnosis and treatment of IgA nephropathy to halt its progression to end-stage renal diseases, which will result in renal replacement therapy and, ultimately, a kidney transplant. Additionally, this case reinforces the significance of continuous glucose monitoring in patients with diabetes, especially insulin-dependent and newly diagnosed end-stage renal disease, to assist in the adjustment of diabetic treatment; thus, preventing episodes of spontaneous hypoglycemia that can lead to life-threatening complications.

A PERSISTENT PARVOVIRUS INFECTION CAUSING ANEMIA IN AN HIV PATIENT REQUIRING INTRAVENOUS IMMUNOGLOBULIN MAINTENANCE THERAPY

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Case Summary: A male in his 40s with a medical history of HIV, splenectomy presented to the emergency room with severe fatigue and palpitations for one week. His initial laboratory findings showed a hemoglobin (Hb) level of 3.3 g/dl with normocytic normochromic red blood cells (RBCs). The patient's absolute reticulocyte count was 0.011 x 106/µL, and the reticulocyte index was 0.08%. His baseline hemoglobin one year ago was 11 g/dl. The patient's workup was negative for opportunistic infections, and he had normal hemoglobin electrophoresis along with an unremarkable iron panel, vitamin B12, and folate levels. However, parvovirus B19 quantitative polymerase chain reaction (PCR) was >100,000,000 with peripheral blood smear showing atypical lymphocytosis, abnormal RBC morphology, target cells (1+), red cell distribution width of 15.3%, and CD4 count of 45 cells/mm3. Due to the patient's unwillingness, a bone marrow biopsy was not performed in our case. Provisionally, the patient was diagnosed with chronic parvovirus infection with pure red cell aplasia causing severe anemia on initial admission and received IVIg of 2 g/kg. By the time of discharge, his blood counts responded, and his Hb was stable at 7.2 g/dL; however, he was found to have persistent viral titers of parvovirus B19. After discharge, the patient did not follow up in the clinic. Unfortunately, the patient had a relapse about six months later and presented to the ER with a Hb of 4.8 g/dl and normocytic normochromic anemia with an absolute reticulocyte count of 0.060 x 106/µL and reticulocyte index of 0.46%. He underwent endoscopy with findings of plaques in the esophagus but no active bleeding ulcers, lesions, or evidence of carcinoma. After multiple blood transfusions, his hemoglobin stabilized at 9.3 g/dL, and he was subsequently discharged. Upon follow-up in two weeks, the hemoglobin dropped again to 6.7 g/dL. He was then treated with IVIg 1 g/kg x two days and since then has been requiring monthly maintenance IVIg of 0.4 g/kg for the last year. While on maintenance IVIg, he has not required breakthrough blood transfusions or hospitalizations. He reported improved adherence to his highly active antiretroviral therapy (HAART) regimen, with gradual improvement in CD4 counts and decreasing viral load.

Conclusion: Patients with HIV are at the risk of developing persistent parvovirus infection leading to chronic anemia. The use of long-term maintenance IVIg provides a favorable therapeutic outcome. However, it is challenging to determine the optimal dose and duration of IVIg treatment for chronic parvovirus infection to minimize relapses and recurring hospitalizations. We have been treating our patient for around one year with IVIg who had a good response, and we believe reporting our findings may aid in the management of similar cases. To define treatment guidelines further, prospective studies analyzing the effectiveness of chronic maintenance therapy should be conducted.

DISSEMINATED INTRAVASCULAR COAGULATION CAUSED BY SEVERE SEPSIS OF AN UNUSUAL ORGANISM, ALISTIPES FINEGOLDII

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Introduction- Alistipes finegoldii is a gram-negative anaerobic bacterium that is commonly found in the human gut microbiome. In this medical case report, we will present a case of a patient with bacteremia caused by Alistipes finegoldii that progressed to DIC. The purpose of this report is to increase awareness of Alistipes finegoldii as a potential pathogen and to contribute to the body of knowledge on the diagnosis and management of infections caused by this bacterium, particularly in cases of atypical presentation.

Case presentation- This section presents a case of a 63-year-old male with a medical history of diabetes and alcoholic liver cirrhosis who presented with altered mental status and rectal bleeding. The patient's initial vital signs showed a heart rate of 70 beats per minute and a blood pressure of 89/51. On physical exam, the patient had jaundice and an active gastrointestinal bleed. Laboratory evaluation was remarkable for hemoglobin 4.5 g/dL (normal 14 - 18 g/dL), mean corpuscular volume 110.5 fL (normal 80-94 fL), platelet count 124,000 uL (normal 150,000 - 400,000 uL), partial thromboplastin time 40.5 seconds (normal 24.5 - 37.6 seconds), prothrombin time 36.8 seconds (normal 9.5 - 12.8 seconds), INR 3.18, total bilirubin 4.9 mg/dL (normal 0.3 - 1.0 mg/dL), lactate 12.9 (normal <2.0). A CT angiogram of the abdomen revealed cirrhosis with hepatic lesions compatible with hepatomas, splenomegaly, portal hypertension with esophageal and gastric varices, and ascites. The patient required immediate ICU level care, with a central line placed for immediate transfusions to maintain hemodynamics and correct coagulopathies. Empiric antibiotics were started, and cultures were positive for Alistipes fingoldii, which was found to be pansensitive. Despite aggressive resuscitation efforts, the patient clinically deteriorated, with lab results showing disseminated intravascular coagulopathy. The patient expired despite appropriate transfusions of fresh frozen plasma, packed red blood cells, and vitamin K.

Discussion- This is the first documented case of Alistipes finegoldii that likely resulted in disseminated intravascular coagulation (DIC) which resulted in mortality of the host. There are other cases of A. fingoldii bacteremia associated with malignancy in the literature 1, but none of the cases indicate DIC as an outcome. This organism is beginning to emerge as an opportunistic organism. It remains that A. finegoldii should still be considered in those with acute pathology.

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AORTOESOPHAGEAL FISTULA IN SYPHILIS AORTITIS: A CATASTROPHIC COMPLICATION

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Introduction- Syphilitic aortitis is a rare complication of late-stage syphilis that affects the aorta 1. It is characterized by inflammation, degeneration, and aneurysm formation in the aortic wall 2. Aortoesophageal fistula, a rare and potentially life-threatening complication of aortitis, occurs when a connection forms between the aorta and the esophagus 3. In this case report, we present a patient with Syphilitic aortitis complicated by hemorrhage from aortoesophageal fistula, a rare and challenging manifestation of the disease 2.

Case presentation- A 45-year-old male with no prior medical history presented with two episodes of hematemesis. A chest x-ray revealed a possible aortic aneurysm, which was confirmed by a computed tomography angiography showing a 10 cm descending abdominal aortic aneurysm and a 6 cm thoracic aortic aneurysm with a possible aortoesophageal connection. Due to the extensive aneurysm involvement of the ascending aorta, there was suspicion of syphilis involvement which was confirmed with a VDRL positive dilution of 1:16 and positive rapid plasma reagin. Immediate ascending aortic aneurysm resection, ascending aortic replacement, elephant trunk of the descending arch, and resuspension of the aortic valve, along with a left carotid subclavian artery bypass and ligation of the left subclavian artery proximal to the left vertebral artery was performed. Despite these interventions, the patient continued to experience massive hematemesis and went into cardiac arrest with successful resuscitation. Emergent TEVAR was performed with a successful aortogram adequate sealing of the aneurysm sac. However, subsequent attempts at esophageal stenting were unsuccessful, and the patient ultimately suffered from abdominal compartment syndrome, perforated esophagus, and tension pneumothorax, leading to cardiac arrest without successful resuscitation. A biopsy taken from the ascending aorta later revealed prominent lymphoplasmacytic infiltrate on hematoxylin and eosin (H & E) stain consistent with syphilitic aortitis.

Discussion- This case highlights the complex and potentially life-threatening nature of aortic aneurysms and the need for prompt and aggressive management. The occurrence of aortoesophageal fistula and perforated esophagus added to the patient's difficulty in this case and highlights the importance of a multidisciplinary approach in the management of these patients.

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ANAPHYLAXIS TO JACKFRUIT IN A PATIENT WITH LATEX ALLERGY: CO-INCIDENCE OR CROSS-REACTIVITY?

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Learning objective: Raising awareness among the population with pre-existing latex allergy to prevent deadly anaphylaxis secondary to jackfruit ingestion due to established cross-reactivity

Case Summary: A 68-year-old female with a past medical history of hyperlipidemia, hypothyroidism, and seasonal allergies presented with acute onset of shortness of breath, wheezing, tongue swelling, periorbital swelling, and extensive generalized itchiness 30 minutes after ingesting four pieces of jackfruit. The patient took Benadryl with no relief in symptoms. EMS was called, and IM epinephrine was administered. Upon arrival at the hospital, she was found to be hemodynamically stable. The physical examination revealed tongue swelling, periorbital edema, urticaria, and tachycardia. Routine labs and chest x-ray were unremarkable. During the interview, the patient reported seeing an allergist several years ago and endorsed having a confirmed allergy to latex which resulted in a mild rash in the past. On the initial swallow evaluation, the patient was noted to have dysphagia. She was observed overnight in the hospital and received scheduled doses of methylprednisolone, diphenhydramine, and ipratropium/albuterol. Subsequently, the patient's dysphagia resolved, and she was noted to have no re-emergence of anaphylactic symptoms. Therefore, the patient was medically optimized and discharged with a tapered dose of prednisone, cetirizine, and epinephrine pen with follow-up at the primary care office and referral to an allergy specialist within a week.

Conclusion: Artocarpus heterophyllus (jackfruit) is the national fruit of Bangladesh, native to several Eastern countries and South America, where it has been consumed for centuries. The recent interest in meatless superfoods within The United States has dramatically increased jackfruit's overall popularity. To the best of our knowledge, there have been two prior cases reported in the literature on jackfruit-induced anaphylaxis in patients with a known latex allergy. With the increase in latex glove use within the healthcare industry secondary to universal precautions set by OSHA, there was an observed specific and significant increase in fruit hypersensitivity in patients with latex allergies. The incidence of jackfruit consumption will only continue to rise in Eastern and Western countries. While the incidence of jackfruit anaphylaxis is relatively low, latex allergies are prevalent, especially among healthcare workers. Not all individuals have 'latex fruit syndrome,' but educating susceptible individuals about the risks of cross-reactivity and anaphylaxis may still be prudent to prevent life-threatening anaphylactic shock.

CAVERNOUS TRANSFORMATION OF THE PORTAL VEIN SECONDARY TO PORTAL VEIN THROMBOSIS IN THE SETTING OF ADVANCED INVASIVE PANCREATIC DUCTAL CARCINOMA

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Cavernous transformation of the portal vein (CTPV) was first documented in the medical literature in 1869 by Balfour and Stewart who treated a patient who had splenomegaly, ascites, and on autopsy had varicose dilatation and thrombosis of the portal vein (1). Since then, there have been few cases documenting CTPV, and none in the setting of invasive pancreatic ductal carcinoma (IPDC). We present a case of a 66-year-old male with a past medical history of asthma, portal vein thrombosis (PVT), and recently diagnosed IPDC on active chemotherapy who presented with one week of worsening jaundice, pale stools, darkening of the urine, and severe nausea. His exam was significant for diffuse jaundice, no scleral icterus, and a benign abdomen. Initial laboratory results were significant for Hgb 9 g/dL, PLT 122 10*3 u/L, AST 88 U/L, ALT 60 U/L, ALP 410 U/L, and total bilirubin 2.2 mg/dL with a direct of 1.6 mg/dL. Imaging significant for CT of the abdomen with intravenous contrast completed from an outside hospital one month prior which demonstrated a new splenic vein thrombosis, an extension of his previously known PVT, portal hypertension, and cavernous transformation of the portal vein (CTPV). On hospital day two, the patient completed an ERCP which revealed no biliary obstruction. On hospital day four, the patient was discharged. CTPV can develop as quickly as 6-20 days after PVT occurs and is the result of the formation of periportal, intra-thrombotic venous, and arterial channels that form in response to resistance to flow (2). It usually occurs in non-cirrhotic livers and in non-tumoral PVT and has a wide range of clinical presentations from asymptomatic to findings consistent with portal hypertension such as esophageal variceal bleeding with pancytopenia due to hypersplenism (3). Rarely, it can present as a transient obstructive jaundice picture called "pseudocholangiocarcionma sign" (PSCS) which reflects a cholestatic liver injury pattern and specifically without scleral icterus which corresponded with our patient's clinical presentation (3). There is no specific consensus on CTPV management as it is dependent on the etiology and clinical context, but CTPV itself is only curable through liver transplantation and even then there is difficulty in reconstructing the portal vein (4). In this case, ERCP stenting of biliary ductal strictures was not performed as none were present, and the decision to continue with medical therapy and have close follow-up outpatient with Oncology and GI was made. It was postulated that this patient developed PSCS, however, a cofounder of recent use of Tamiflu two weeks before his presentation can not be excluded for the cause of his symptoms and lab findings. CTPV is a unique and rare complication of portal vein thrombosis and should be considered as part of the differential diagnosis in a new hepatic lesion or otherwise unexplained transaminitis and hyperbilirubinemia in the correct clinical context.

ROCKS CAUSING ASPHYXIATION: EVACUATED WITH A FLEXIBLE DISPOSABLE BRONCHOSCOPE

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Introduction: Foreign body aspiration is uncommon, yet can be life threatening when it occurs. While bronchoscopy is the gold standard of diagnosis and management of foreign body aspiration, it only accounts for 0.16-0.33% of adult bronchoscopic procedures 1. Furthermore, the gold standard of foreign body extraction at this time remains rigid bronchoscopy, while flexible bronchoscopy is utilized increasingly more frequently2. To our literature review, the utilization of a flexible disposable bronchoscope is rarely used even though it can provide rapid diagnostic and therapeutic utility. In this case we present a critically ill patient with extensive foreign body asphyxiation that was stabilized rapidly with a flexible disposable bronchoscope.

Case: 44 year-old female with a past medical history of drug use presents after being found down by the side of a creek. Patient was intubated in the field and presented with cardiopulmonary resuscitation (CPR) in process via automated active compression decompression CPR device (LUCAS). After achieving return of spontaneous circulation (ROSC) in the emergency department, computerized tomography (CT) of the head was non-diagnostic, while the CT chest demonstrated clusters of radiodensities within the left lower lobe bronchi. Foreign bodies were also noted in the patient's airway and nose. A disposable fiber-optic bronchoscope was utilized for diagnostic purposes in the emergency room and discovered multiple pebbles/rocks that were removed from the superior segment, medial basal, and anterior sub-segmental of the left lower lobe bronchus, using simple forceps and baskets. Images are presented below: The patient was transferred to the medical intensive care unit on full mechanical ventilatory support.

Discussion: Early bronchoscopy, with disposable instruments is readily available and should not be delayed in order to identify the cause of severe respiratory failure, even in the emergency room. A disposable fiberoptic bronchoscope is the quickest way to inspect the patient's airways even in the emergency room. Attempting to remove foreign bodies is essential in resuscitation efforts, may be life saving, and can be attempted with simple instruments such as forceps and baskets, as in this case.

CASE REPORT: PULMONARY TUBERCULOSIS LEADING TO SEVERE ACUTE RESPIRATORY DISTRESS SYNDROME

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INTRODUCTION: Tuberculosis (TB) is one of the most prevalent infectious diseases in the world and typically manifests with fever, weight loss, night sweats, and cough. Pulmonary TB is a rare etiology of acute respiratory distress syndrome (ARDS). This is a case of a previously healthy 65 year-old male with pulmonary tuberculosis that led to ARDS. This case illustrates the importance of considering TB as a potential ARDS etiology due to its fatal implications and differing management.

CASE PRESENTATION: A 65 year-old male with no medical history from Bangladesh presented with three weeks of productive cough, fatigue, night sweats, and mild respiratory distress one month after visiting New Jersey. At the time of admission the patient tested negative for bacterial and viral pneumonia, and serum laboratory studies including comprehensive metabolic panel and complete blood counts were unremarkable. Chest radiograph (CXR) on admission was notable for a right upper lobe consolidation (Figure 1) and two days after admission the patient was confirmed positive for tuberculosis by sputum sample PCR. He was consequentially initiated on anti-mycobacterial treatment consisting of Rifampin, Isoniazid, vitamin B6, Pyramazimade and Ethambutol (RIPE). Three days after admission the patient developed worsening respiratory failure requiring intubation. At that time, CXR showed diffuse bilateral infiltrates consistent with ARDS (Figure 1). ARDS was managed with ARDS Clinical Network Mechanical Ventilation Protocol (ARDSnet), proning, RIPE therapy and vasopressors for septic shock. Unfortunately the patient expired 18-days after presentation.

DISCUSSION: Although pulmonary TB is an uncommon etiology of ARDS, it is important to monitor these patients for the development of ARDS clinical features. Our patient developed severe ARDS one day after RIPE initiation and one month after symptom onset. In our case, the patient was unresponsive to RIPE therapy, ARDSnet mechanical ventilation, and proning. The pathophysiology of ARDS secondary to pulmonary TB is not well understood. Our patient's rapid deterioration one day following RIPE initiation whilst clinically stable for a month prior to admission is concerning for a unique pathophysiology of ARDS requiring further research. One possible mechanism is an immune reconstitution inflammatory syndrome following initiation of RIPE therapy.

CONCLUSION: Management of acute pulmonary TB should include therapeutic considerations to prevent progression to ARDS. Given our patient's deterioration on RIPE therapy and ARDS lung protective ventilation and proning, it is prudent to perform further research on management of this patient population to prevent progression to ARDS.

REFRACTORY TYPE B LACTIC ACIDOSIS WITH MULTIORGAN FAILURE AS THE INITIAL PRESENTATION OF DIFFUSE LARGE B CELL LYMPHOMA

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Introduction: Type B lactic acidosis (LA) is a complication of hematologic malignancies and is considered an oncological emergency associated with high mortality and poor outcomes if not diagnosed and treated promptly. We present a case of refractory type B LA with multiorgan failure as the initial presentation of diffuse large B cell lymphoma (DLBCL).

Case: A 65-year-old male presented with fatigue and shortness of breath for one week. On admission, he had a blood pressure of 145/72 mmHg, pulse rate of 109 beats/min, respiratory rate of 28 breaths/min, and oxygen saturation of 95% on room air. Initial blood work revealed hypoglycemia (glucose 43 mg/dL), acute kidney injury (creatinine 1.9 mg/dL), and severe metabolic acidosis (bicarbonate 9 mmol/L, anion gap 27, lactate 14 mmol/L, and pH 7.17). He was initiated on broad-spectrum antibiotics and admitted to the intensive care unit for emergent hemodialysis (HD). Despite two days of continuous HD, his LA persisted, and he developed worsening respiratory failure requiring intubation. Blood cultures, fungal markers, lymphoma, and leukemia flow cytometry remained negative. Empiric thiamine was initiated to facilitate LA clearance. On day 3, blood smear revealed atypical large cells with folded nuclei and agranular cytoplasm suggestive of an underlying hematologic malignancy. High-dose steroids were initiated, and he underwent a bone marrow biopsy. In the following days, he developed refractory shock and expired. Two days postmortem, bone marrow biopsy results revealed CD5+ large B-cell lymphoma, confirmed on autopsy.

Discussion: Severe, refractory hypoglycemia and LA in patients without apparent tissue hypoxia should raise suspicion for occult malignancy. Refractory type B LA with multiorgan failure may be the initial presentation of a hematologic malignancy; thus, a high index of suspicion is required to obtain an adequate tissue sample and initiate treatment. Treatment has not been fully established, but early chemotherapy is the best chance for survival. Intravenous thiamine, sodium bicarbonate, and renal replacement therapy are temporizing efforts to slow the progression to multiorgan dysfunction and respiratory muscle fatigue. Given the nearly definitive fatality in patients without prompt antineoplastic intervention, it may be reasonable to consider each patient's risk and benefit from empiric initiation of antineoplastic agents while awaiting definitive diagnosis.

Conclusion: Persistent LA without identifiable causes of tissue hypoxia should prompt clinicians to consider alternative etiologies, including high-grade occult malignancies. Prompt diagnosis is essential as early antineoplastic intervention may improve survival. We encourage a multidisciplinary discussion of the risks and benefits of initiating antineoplastic agents prior to diagnostic confirmation in cases with high suspicion for a new diagnosis of hematologic malignancies in patients with multiorgan failure and refractory LA.

A RARE CASE STUDY OF MFOLFOX-6 INDUCED LATE ONSET DUODENAL STRICTURE IN A PATIENT WITH CANCER OF THE SIGMOID COLON

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A 76 years old male with a history of sigmoid colon carcinoma s/p hemicolectomy and colorectal anastomosis three years ago, followed by six cycles of 5-FU, Leucovorin & Oxaliplatin every fortnightly, presented to the clinic with a history of gradual worsening symptoms of nausea, vomiting, abdominal fullness and reflux for the last six months. It was associated with intermittent pain in the abdomen in the epigastrium and right hypochondrium. Back then, he tolerated chemotherapy well except for minimum side effects(nausea, stomatitis, and bilateral paresthesias in both feet). However, his nausea and reflux persisted, and no other precipitating factors. On physical exam, mild epigastric tenderness was noted. His USG Abdomen showed a slightly thick-walled stomach. He underwent barium meal swallow, which was suggestive of partial obstruction in the C loop of the duodenum in the post-bulbar part, dilated stomach, duodenal bulb, and slow emptying. PET CT showed mild FDG uptake seen in the 2nd and 3rd part of the duodenum persists in later images suggesting inflammation. An Upper GI endoscopy showed tight stricture at the junction of D1 and D2, which didn't allow the passing of the dilating balloon. He underwent gastrojejunal anastomosis. He recovered pretty well without complications. Discussion Duodenal strictures occur likely from peptic ulcer disease, caustic injury, infections, pancreatitis, malignancies, and localized radiation therapy. Though mucositis secondary to systemic chemotherapy might occur anywhere throughout the gastrointestinal tract, our patient had late-onset duodenal stricture after chemotherapy developed over two years compared to previously reported cases. While the FOLFOX regimen (Folinic acid, 5FU & Oxaliplatin) is a comparatively safer alternative, our patient developed stricture likely from repeated mucosal insults leading to fibrosis and stricture. It has been studied that 5-FU causes decreased cellularity and increased apoptosis, leading to villous atrophy and predisposing the mucous membrane to ulceration and damage. Diagnosis is made by upper endoscopy, CT abdomen, or Barium meal study. In duodenal strictures, fluoroscopic guided balloon dilation with stent placement or gastrojejunostomy with dietary modifications is the mainstay of treatment.

SUCCESSFUL REMOVAL OF TRACHEOBRONCHIAL TREE CAST VIA DISPOSABLE FLEXIBLE BRONCHOSCOPY

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Introduction: Tracheobronchial tree casts is a rare sequelae of massive hemoptysis-induced acute hypoxic respiratory failure. Traditionally, rigid bronchoscopy has been used therapeutically to remove the cast. One case has also reported a patient who self-expectorated the cast. We present a unique case where a flexible bronchoscope was utilized at bedside to extract and reconstruct a massive hemorrhagic tracheobronchial cast obstructing the patient's airway completely, leading to resolution of the patient's acute hypoxic respiratory failure.

Case Presentation: The patient is a thirty-six-year-old male with extensive medical history including schizophrenia, right lower extremity gangrene status-post amputation as a sequelae of uncontrolled diabetes mellitus, and recurrent urinary tract infections secondary to a chronic foley catheter, who presented with a chief complaint of shortness of breath. The patient's hospital course was complicated by a left upper lobe cavitation leading to hypoxic respiratory failure secondary to massive hemoptysis, several episodes of cardiac arrest, and eventual embolization by interventional radiology as well as recurrent pleural effusions managed with several chest tubes. The patient achieved Return of Spontaneous Circulation after receiving 1 mg of epinephrine and three minutes of Cardiopulmonary resuscitation in one of these cardiac arrests. He was then found to be awake, with preserved circulation, however, continued to have massive hemoptysis, approximately 700cc of bloody output was noted in the suction canister. The patient was difficult to ventilate with a bag-valve mask through the tracheostomy. An emergent bronchoscopy demonstrated a massive clot obstructing the airway completely. Given it was refractory to suction, the decision was made to intubate orally to secure the airway. The tracheostomy tube was removed, and bronchoscopy was performed with a size 5.8 bronchoscope. A (hemorrhagic) cast was removed in pieces comprising the entire tracheobronchial tree, as shown. Following the bronchoscopy, the patient's stoma site was evaluated with no active bleeding, nor an obvious fistula was seen. We then introduced a new 7 distal long shiley tracheostomy tube under bronchoscopic guidance followed by bronchoscopic confirmation of correct position and attachment to the ventilator. The patient did well and was eventually discharged to rehabilitation center after decannulation.

Discussion/ Conclusion: A cast of the tracheobronchial tree, either spontaneously expectorated, or extracted via rigid bronchoscopy, has been reported in the past. The unique aspect of this case is that the cast was removed in pieces via disposable flexible bronchoscopy at bedside and reconstructed.

FACIAL NEUROPATHY FOLLOWING ROOT CANAL HYPOCHLORITETOXICITY: A CASE REPORT

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Case Description: A 25 year old female with no medical history developed caries and subsequent infection of her bottom left wisdom tooth (#17) which was resistant to amoxicillin. She underwent root canal involving the use of hypochlorite solution for intraprocedural disinfection. She subsequently developed left facial droop particularly near the mouth, and complained of numbness and tingling of the left cheek as well as "clogging sensation" in her left ear. The patient's symptoms persisted and ultimately underwent electrodiagnostic study of her face. Upon physical exam, there was significant left facial droop primarily around the lips. The forehead appeared unremarkable and the patient was able to close her eyes. Sensation was normal and symmetric throughout the face. Direct stimulation of the left and right facial nerves were normal. EMG of the left orbicularis oris revealed decreased recruitment, whereas the frontalis, nasalis, mentalis, and orbicularis oculi were normal. The patient was ultimately diagnosed with an incomplete isolated neuropathy of the buccal branch of the left facial nerve.

Discussion: Sodium hypochlorite (NaOCl) is an irrigant that is commonly used as a disinfectant and debris dissolvant during dental procedures because of its high pH. However, extravasation of NaOCl can cause potentially devastating damage to nearby tissues. Commonly reported examples range from simple erythema and edema of the nearby superficial skin to intraoral ulcers and mucosal necrosis. However, cranial nerve injury is rarely seen given their deeper location in relation to dental procedures.

Conclusion: Facial nerve palsy is a rare but potential adverse event of hypochlorite toxicity during dental procedures.

SUCCESSFULLY TREATING RESISTANT TESTICULAR PAIN WITH DORSAL ROOT GANGLION STIMULATION: A CASE REPORT

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A 54 year old man presented with chronic right groin pain which developed following right scrotal vascular injury during hernia repair in 2016, requiring right orchiectomy and testicular prosthetic placement complicated by infection and prosthesis removal. He described moderate sharp pain at the right groin radiating to the testicle as well as testicular phantom pain which was exacerbated by simple activities such as walking and laying prone. Examination was notable for tenderness along the right groin with pain upon resisted hip flexion. He was diagnosed with inguinal neuralgia with testicular phantom pain. Pelvic floor physical therapy for 12 weeks yielded moderate yet transient relief. He tried gabapentin without improvement, and amitriptyline caused significant adverse effects. Our objective was to alleviate this pain using interventional modalities. The patient underwent sequential right ilioinguinal, iliohypogastric, and genitofemoral nerve blocks with ultrasound, as well as right pudendal nerve block under fluoroscopy. Each of these procedures resulted in complete pain relief but only temporarily for about 5 days. The ultimate method used was dorsal root ganglion stimulation (DRGS) which was placed at the right L1 and S2 levels (Figs 1,2) given that sensory innervation of the groin, testes, and scrotum arise from these nerve roots. This resulted in total pain relief for the past 5 months and continues to be efficacious. We conclude that DRGS of L1 and S2 can be an effective intervention to relieve persistent groin and testicular pain with the advantage of providing long term relief compared to several other interventions.

CRANIOFACIAL SHINGLES PRESENTING AS OCCIPITAL NEURALGIA

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Case Description: A 55 year-old woman with chronic left traumatic brachial plexopathy developed head and neck pain described as excruciatingly sharp, shooting pins-and-needles. She also reported pain in her hair follicles when touched. She presented to the ER and was found with stiff, tender neck musculature with severely limited range of motion due to pain. The right mastoid was tender to palpation and Tinel test caused radiation of her usual pain over the right scalp. MRI cervical spine revealed mild C4-C5 and C5-C6 central canal narrowing without cord compression. Gabapentin, amitriptyline, baclofen, and hydromorphone were started for presumed occipital neuralgia without significant improvement. 4 days later, she developed painful vesicular rash over the right scalp, philtrum, and inside the nostrils and started on IV acyclovir with subsequent rapid improvement of scalp and neck pain with restoration of neck range of motion. She was diagnosed with shingles and discharged home with oral acyclovir.

Discussion: Occipital neuralgia is regarded as a common condition. However, studies show lifetime prevalence of 1.2-1.6 percent indicating overdiagnosis. The differential for neck and referred head pain is broad including C2-3 facet arthropathy, paracervical muscular spasms or trigger points, meningitis, tumor, and more. This patient had multiple risk factors and clinical findings consistent with occipital neuralgia including female gender, allodynia, unilateral neuropathic pain from the occiput radiating over the scalp, and relatively unremarkable imaging. However, her pain was likely due to shingles as evidenced by development of vesicular rash in the corresponding distribution with rapid improvement of symptoms following antiviral treatment.

Conclusion: Shingles can mimic occipital neuralgia and therefore should be on the differential when evaluating neck and posterior head pain.

DELAYED DIAGNOSIS OF SERONEGATIVE IMMUNE-MEDIATED NECROTIZING MYOPATHY

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Case Description: The patient presented with neck pain and was treated with steroid injections and physical therapy without improvement. She developed weakness and worsening myalgias of neck and proximal upper and lower extremities resulting in significant functional impairments. Nearly 2 years later, she was being considered for cervical spine surgery due to progressively worsening symptoms. Subsequent work up showed an elevated CK level at 904 U/L and EMG findings were consistent with myopathy. Inflammatory myopathy autoantibody testing was negative. Muscle biopsy revealed scattered necrotic fibers. The patient was ultimately diagnosed with the autoantibody-negative (seronegative) necrotizing myopathy. She received intravenous immune globulin (IVIG) with improvement of distal bilateral upper and lower extremity strength without improvement in the proximal muscles. She was admitted to acute inpatient rehabilitation where she improved from requiring maximal assistance to close supervision for ambulation and transfers.

Discussion: Immune-mediated necrotizing myopathy (IMNM) is a rare subtype of inflammatory myopathy characterized by symmetric proximal muscle weakness, markedly elevated CK, myopathic EMG findings, and muscle biopsy demonstrating necrotic fibers. IMNM is divided by autoantibody testing into anti-HMGCR, anti-SRP, and autoantibody-negative (seronegative) necrotizing myopathies, each with unique clinical correlates. Anti-HMGCR myopathy is closely linked to statin use. Anti-SRP myopathy patients tend to be younger with severe weakness and extra-muscular features such as heart and lung involvement. Seronegative IMNM remains poorly described in literature but is associated with increased risk of malignancy. While muscle biopsy can be avoided in anti-HMGCR and anti-SRP myopathies with positive autoantibody testing in the setting of proximal muscle weakness and elevated CK levels, early muscle biopsy is recommended for seronegative IMNM diagnosis.

Conclusion: Seronegative IMNM is a rare subtype of inflammatory myopathy. Early diagnosis and prompt multidisciplinary intervention are imperative for disease progression prevention and functional recovery.

GASTRIC OUTLET OBSTRUCTION CAUSED BY ACUTE GASTRIC VOLVULUS - A RARE COMPLICATION OF HIATAL HERNIA

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Case Summary: Patient was a mid-70 year old female with a past medical history of hiatal hernia and gastroesophageal reflux disease (GERD) presented with complaints of severe epigastric pain, nausea, and vomiting. The pain started after having her lunch the day prior and at night time, she started to experience vomiting. On arrival, the patient's vitals were: blood pressure 148/96 mmHg, heart rate 98 bpm, temperature 98F, respiratory rate 18, and oxygen saturation of 97% on room air. Physical exam was only significant for tenderness in the epigastric region with diffuse tympanic hyperresonant throughout. Significant lab values were: white blood cell count 12.8 x 109/L (normal range: 4.5-11.0 x 109/L), blood urea nitrogen 14 mg/dL (normal range: 7-20 mg/dL), and lactic acid 2.1 mmol/L (0.5-1.0 mmol/L). Computed Tomography (CT) of abdomen and pelvis with contrast revealed a large paraesophageal hernia with marked gastric distention and fluid retention, suggestive of gastric outlet obstruction (GOO) (Image 1). Patient was managed conservatively with intravenous (IV) fluids and nasogastric tube placement for decompression. Upper gastrointestinal (UGI) series revealed large paraesophageal hernia with organo-axial gastric volvulus (Image 2). During her hospital stay, she successfully underwent a robot-assisted hiatal hernia repair with anterior 180 degree fundoplication. Her postoperative course was unremarkable and the patient was discharged after a day of observation.

Discussion/Conclusion: Hiatal hernias are a common condition, especially in individuals over the age of 50, affecting up to 60% of the population. Larger hiatal hernias can lead to complications, ranging from GERD to gastric volvulus and incarceration of the bowels. Gastric volvulus is a severe complication and is commonly linked with other conditions such as hiatal hernias or adhesions. Its symptoms are known as Borchardt's triad, consisting of nonproductive vomiting, severe epigastric pain, and difficulty inserting a nasogastric tube. A case is presented where a large hiatal hernia resulted in gastric volvulus leading to gastric outlet obstruction in an elderly patient with a history of GERD. Modern surgical treatment of hiatal hernias can be done laparoscopically with robotic assistance, resulting in comparable outcomes to non-robotic surgeries but with increased ease and dexterity for the surgeon. The patient was successfully treated with a robot-assisted Nissen fundoplication, which not only reduced the remaining volvulus but also aided in reducing her GERD symptoms. In patients with history of hiatal hernia and abdominal symptoms it is important to consider gastric volvulus as a differential and to be prepared for prompt medical and surgical treatment.

NIVOLUMAB-INDUCED TYPE 1 DIABETES MELLITUS WITH AN UNUSUAL PRESENTATION OF MILD DIABETIC KETOACIDOSIS

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Case Summary: This is a mid-30 year old patient diagnosed with fibrolamellar hepatocellular carcinoma and who underwent partial hepatic resection in 2021. After 18 months of no follow-up, repeat imaging revealed recurrence of hepatic lesions. The patient was started on nivolumab and received a total of three cycles. Seven days after the third cycle of nivolumab, he developed fever, chills, abdominal pain, nausea, vomiting, polyuria, and weight loss that worsened over two weeks. Physical exam was significant for diffuse abdominal pain on deep palpation and hepatomegaly. Labs revealed a blood glucose concentration of 319 mg/dL (n=74-106 mg/dL), pH of 7.30 (n=7.31-7.41), a bicarbonate level of 23 mmol/L (n=22-32 mmol/L), and anion gap of 16 mmol/L (5-15 mmol/L). Urinalysis showed glucose >1000 mg/dL (n=0 mg/dL) and ketones >160 mg/dL (n=0 mg/dL). Further evaluation revealed the presence of glutamic acid decarboxylase-65 (GAD-65) antibodies and a C-peptide level of 0.7 (n=0.8-3.9 ng/mL), suggesting a diagnosis of autoimmune diabetes secondary to nivolumab use. He was treated with intravenous (IV) insulin and aggressive hydration with successful resolution of DKA. Following discharge, the patient became reliant on exogenous injection of insulin.

Discussion: Immune checkpoint inhibitors (ICIs) targeting programmed cell death receptor-1 (PD-1), programmed cell death-1 ligand (PD-L1), and cytotoxic T-lymphocyte associated antigen 4 (CTLA-4) have proven to be effective in end-stage tumors with distant metastasis (1). However, ICIs can cause various adverse effects, including T1DM, with an incidence of 0.6-1.4%. The mechanism of ICI-T1DM is believed to be the rapid destruction of B-cells by T-cells (2). Most patients with ICI-T1DM present with severe diabetic ketoacidosis (DKA), requiring critical care. However, some cases have an insidious onset, with high HbA1c levels. Frequent monitoring and follow-up can detect ICI-T1DM before it reaches the fulminant state. Latent autoimmune diabetes in adults (LADA), another form of autoimmune diabetes, was also considered for a mid-30 year old patient who met two out of three criteria but was insulin-dependent immediately after the onset of DKA, more consistent with ICI-T1DM (3). Autoantibody testing may not always be positive in ICI-T1DM, and the diagnosis is based on factors such as recent ICI use, acute DKA presentation, low C-peptide levels, and the immediate requirement for exogenous insulin. As ICIs use expands, clinicians should be aware of autoimmune adverse effects, including T1DM and counsel patients accordingly. Screening should be developed for those most susceptible to irAEs.

DUODENAL DIVERTICULAR ARTERIOVENOUS MALFORMATION: RARE CAUSE OF UPPER GASTROINTESTINAL BLEED

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Case Summary: An 81-year-old woman with a history of moderate aortic stenosis and coronary artery disease presented with exertional dyspnea and multiple episodes of melanotic stools over the past day. Upon arrival, her vital signs were heart rate 75, blood pressure 144/66 mmHg, respiratory rate 19 with oxygen saturation of 98% on room air, and temperature 37.3C. A soft S2 was heard at the second right intercostal space during the physical exam. Her labs showed elevated prothrombin (PT) of 14.5 seconds (s) (normal range: 11-13.5s), hemoglobin of 12.6 g/dL (normal range: 12.1-15.1 g/dL), blood urea nitrogen of 38 (normal range: 7-20 mg/dL), and creatinine of 0.96 (normal range: 0.6-1.1 mg/dL). The patient's rivaroxaban was discontinued, and she was given intravenous (IV) fluids, started on IV pantoprazole 40 mg twice daily, and admitted to the telemetry floor. Over the initial 12 hours of admission, the patient continued to experience multiple episodes of loosely formed melanotic stools, and her hemoglobin dropped to 9.6 g/dL. An esophagogastroduodenoscopy (EGD) was performed, which revealed two large diverticula, 15mm and 20mm, in the second position of the duodenum with hematin material (Figures 1a, 1b). Washing out the hematin revealed an oozing arteriovenous malformation (AVM), which was treated with argon plasma coagulation (APC) (Figures 2a, 2b). Her hemoglobin remained stable afterward, and the patient was discharged to her home. She was instructed to restart rivaroxaban four days after the procedure.

Discussion/Conclusion: Duodenal diverticula are commonly seen in upper endoscopicI studies, with a prevalence of 15-22% (1). Most are asymptomatic, but complications such as diverticulitis, obstruction, perforation, and GI bleeding have been reported (2). Upper GI bleeding caused by duodenal diverticulum AVMs (ddAVMs) is exceedingly rare, with only five reported cases to date (Table 1). A case of an 81-year-old female with a significant ddAVM-cause GI bleed is described, which was successfully treated by identifying and cauterizing the ddAVM using APC. The average age of patients with ddAVMs is 52 years, with a 3:2 female-to-male ratio. Symptoms include melena, syncope, lightheadedness, weakness, and shortness of breath. The locations of ddAVMs vary, with the fourth part of the duodenum being the most common origin. Management varies case to case, with successful hemostasis achieved using surgical and different cauterization methods. A literature review shows that both APC with thermal coagulation and HPC are effective in managing bleeding ddAVMs (Table 1). The majority of duodenal diverticula are benign and asymptomatic. Nonetheless, it is important to consider ddAVMs as a source of upper GI bleed. When considering the technical difficulties in identifying a small bowel bleed, it is imperative not to miss this as a potential source to avoid multiple endoscopic attempts.

IMMUNOTHERAPY RELATED ENCEPHALITIS IN METASTATIC NON-SMALL CELL LUNG CANCER

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Case Summary: 51-year-old male with a 20-pack-year smoking history presented with chronic headaches, weakness, and gait instability. CT head with IV contrast showed a 3.5 cm cerebellar mass with near-total obstruction of the 4th ventricle and a right upper lobe mass measuring 3.6 cm. He underwent a craniotomy and resection of a solitary cerebellar lesion. Biopsy revealed poorly differentiated adenocarcinoma, markers consistent with pulmonary primary malignancy. He was ultimately diagnosed with Stage IVB (cT2a, cN2, pM1c) lung adenocarcinoma. He was then treated with two cycles of paclitaxel + carboplatin every 3 weeks and switched to nivolumab 360mg every 3 weeks + ipilimumab (1 mg/kg) every 6 weeks. 4 months after his initial presentation the patient presented with seizure-like activity and altered mental status. It was initially thought to be leptomeningeal disease given his initial CNS metastasis. He improved on a steroid taper. Ultimately, his brain MRI was found to be without any evidence of metastatic or leptomeningeal disease. Immunotherapies was restarted 2 months after this event. He had a similar event 4 months later when he presented to the ED with fatigue, weakness, and altered mental status. He was AOx1 (person) with 3/5 bilateral lower extremity weakness. MRI brain showed widespread perivascular enhancement. Lumbar puncture cytology and infectious work up was unrevealing except pleomorphic lymphocytosis. Given the rapid presentation of symptoms he warranted a steroid challenge. He had minimal improvement after 4 days with methylprednisolone 2mg/kg. He was switched to pulse dose steroids and IVIG with gradual improvement over 4 weeks and then tapered off steroids over 6 weeks. His subsequent CT scans showed continued response with a significant decrease in size of his right suprahilar lymph nodes and right upper lobe mass. His subsequent MRI brain showed no evidence of metastatic or leptomeningeal disease and had complete resolution of his perivascular enhancement.

Discussion: Rechallenging with immunotherapy resulted in recurrence of encephalitis, which was swiftly treated with a steroid taper. This striking pattern of perivascular enhancement is more consistent with encephalitis rather than leptomeningeal disease. This can clinically help distinguish between immunotherapy toxicity from leptomeningeal carcinomatosis. Since then, the patient has remained off any oncologic treatment for over a year and has no evidence of metastatic disease or encephalitis. MRI imaging, lumbar puncture results and clinical signs are crucial to distinguish between immune related encephalitis and leptomeningeal enhancement. MRI findings of perivascular enhancement is an uncommon but when present, key distinguishing feature between leptomeningeal metastasis and immune related encephalitis.

ASSOCIATION BETWEEN PROTHROMBIN 20210 GENE MUTATION AND MYOCARDIAL INFARCTION: A CASE OF A YOUNG MAN

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Introduction: The prothrombin 20210 genetic mutation results in the second most commonly inherited clotting disorder in the world and is associated with an increased risk of myocardial infarction (MI) in young patients. It is characterized by a single nucleotide translational mutation in prothrombin, or factor II, resulting in hypercoagulability. Aspiration thrombectomy (Penumbra Indigo® CAT™ RX) has become increasingly recognized for its success in cases of neurovascular, peripheral vascular, and now coronary arterial thrombotic occlusions. The procedure features sustained mechanical aspiration which has improved both intraprocedural efficacy and reduced embolic risk; thus currently indicated for patients with acute high thrombus burden characterized by fresh and soft thromboembolism. Clinical Case: 31-year-old male with no significant medical history who presented with atypical chest pain. On exam, the patient was obese and normal heart sounds were heard. Electrocardiogram with sinus rhythm with ST elevations in lateral leads. Cardiac catheterization showed 100% occlusion of the left circumflex artery with a heavy clot thrombus burden. Patient underwent mechanical thrombectomy with Penumbra Indigo® CAT™ RX. Post thrombectomy there was no evidence of ruptured plaque or atherosclerotic disease. Hypercoagulable workup was positive for Prothrombin 20210 mutation. Patient was started on oral anticoagulation.

Discussion: A gain-of-function mutation like prothrombin 20210 is presumed to amplify risk of thrombosis; however data on whether that risk conferred to risk of MI is mixed and unclear. A clinical suspicion needs to be raised as this syndrome may remain unrecognized in young patients presenting with MI who have no acquired risk factors. Genetic testing may be necessary. These patients are at an elevated risk of forming a high clot burden during an episode of acute thrombosis. Procedures like sustained aspiration thrombectomy would be profoundly therapeutic and beneficial. Results from the CHEETAH-ACS study recently revealed that the Indigo® CAT™ RX device met primary and secondary endpoints of 30-day freedom from major adverse cardiac events (96.7%) and rates of TIMI 3 flow at final angiography (97.5%), respectively. Larger population studies are needed to validate findings and pathogenesis of genetics predisposing patients to cardiovascular risk and mortality.

PATENT FORAMEN OVALE CLOSURE CAUSING ATRIAL FIBRILLATION: TO BE OR NOT TO BE CONCERNED?

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Background: The prevalence of patent foramen ovale (PFO) in the adult population is approximately 25% and is significantly higher in patients with cryptogenic stroke. Current guidelines recommend PFO closure in eligible patients with cryptogenic stroke after exclusion of other causes. There is a high incidence of new onset atrial fibrillation (AF) after PFO closure.

Case: A 44 year old male with a history of hypertension, diabetes and recent paradoxical embolic stroke was found to have a patent foramen ovale (PFO). Patient presented for an elective PFO closure. He underwent successful placement of a 30 mm Amplatzer Septal Occluder device with no residual leak noted on echocardiography. Post procedure, the patient went into new onset AF with rapid ventricular rate. Decision-making The patient was given intravenous metoprolol with subsequent conversion to normal sinus rhythm. Newly placed septal occluders can irritate the atrium, cause local inflammatory response, and act as an electrical barrier precipitating AF. Post PFO closure AF is mostly transient with a peak incidence of onset at 10-14 days and resolution within 6-8 weeks. The patient was discharged home on a novel oral anticoagulant and an event monitor. While incidence of stroke with AF after PFO closure is low, the duration of anticoagulation is uncertain. Event monitoring for further AF is useful but the evidence for the duration of monitoring and the timing of stopping anticoagulation is limited. These factors make AF management after PFO closure challenging.

Conclusion: Post-procedural AF is frequently transient with low risk of progression to persistent AF. The reported incidence of stroke in new onset AF post PFO closure is 0.1%. AF occurring within 45 days of PFO closure is considered transient and short term anticoagulation is proposed. However, duration of monitoring and timing of stopping the anticoagulation is unclear. Future research can be performed utilizing long term diagnostics like implantable loop recorder or novel wearables to determine the true prevalence and burden of post-closure AF to guide patients subjected to anticoagulation as a result of post PFO closure AF.

NEW ONSET SEIZURE DUE TO PULMONARY EMBOLISM

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Learning objective: The relationship between pulmonary embolism (PE) and seizures has low recognition. Although PE usually presents with the typical respiratory and cardiovascular symptoms, patients can present seizures as well due to transient cerebral hypoxia.

Case Summary: An 80-year-old female with past medical history of Hypertension, Hyperlipidemia, pre-diabetes, CVA, and recent COVID-19 infection presented with a new onset of 2 episodes of generalized tonic-clonic seizures. She had no history of preceding head trauma, alcohol use, or other illicit drug use. On presentation, there were no meningeal signs but the presence of unilateral lower extremity pain and erythema on the physical exam were noted. Labs were unremarkable except for an anion gap of 17, lactate of 8.7, and CK level of 31, likely secondary to lactic acidosis from the seizures. Urine drug screen was negative. The CT head did not demonstrate any acute findings which could explain the new onset of seizures. D-dimer was 6,914. Due to the unilateral lower extremity findings, elevated D-dimers, and new onset seizures with no apparent cause, CT chest PE protocol was obtained, revealing bilateral pulmonary emboli. Transthoracic Echocardiogram revealed some evidence of right heart strain with minimal dilation of right ventricle and borderline reduction in right ventricular systolic function. Appropriate antiseizure medications were administered. EEG revealed no ongoing seizure-like activity. For the submissive PE, heparin thromboembolic nomogram was started. A multidisciplinary evaluation with cardiology, pulmonary and vascular surgery was obtained. The patient continued to improve with conservative medical management, transitioned to oral warfarin and discharged after medical optimization with outpatient follow-up.

Conclusion: Although this patient had a submassive PE, she had no typical signs or symptoms of PE on presentation. The work-up for new onset seizures does not traditionally consist of ruling out PE as one of the causes. Due to this, there could be a higher chance of missing or delay in the diagnosis of a life threatening PE, which can be associated with high fatality rates. Prior literature has reported many cases of PE initially presenting with seizures and subsequent postmortem findings denoting PE, suggesting a delay in diagnosis which could be catastrophic. PE should be a 'never-miss' differential diagnosis in an unexplained new-onset seizure. This will help in the avoidance of treatment delays and decrease poor patient outcomes.

ATYPICAL PRESENTATION OF ACUTE CHOLANGITIS - COUGH AND CHEST PAIN

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Case Summary: An mid-80 year old female with a history of hypothyroidism presents with right-sided chest pain and cough. The day before her presentation she suddenly developed a severe bout of dry cough that lasted for 20 minutes. She then developed right-sided chest pain that lasted for 2-3 hours before it self-resolved. The following night, she woke up with the same right-sided chest pain and cough. This time, the pain and cough persisted for a few hours warranting her to visit the emergency department. On presentation, she was afebrile,tachycardic,tachypneic and normotensive. She had a non-palpable right sided chest pain and no abdominal pain. Labs showed WBC of 25.4 mm^3 (ref. 4500-11,000) with 94.8% segmented neutrophils (ref 54%-62%), 34% bandemia (ref. 3%-5%), total bilirubin of 5.8 mg/dL (ref. 0.1-1.0), and direct bilirubin of 3.6 mg/dL (ref. 0.0-0.3), alkaline phosphatase of 144 U/L (ref. 25-100), AST of 361 U/L (ref. 12-38) and ALT of 201 U/L (ref. 10-40). Acute causes of chest pain were ruled out. A computed tomography (CT) scan of the abdomen revealed common bile duct dilation of 2.9cm (Figure 1). She was diagnosed with acute cholangitis with positive blood cultures of Klebsiella variicola. Endoscopic retrograde cholangiopancreatography (ERCP), revealed two large stones in the lower one-third of the CBD, the largest measuring 20 mm (Figure 2). One stone was successfully removed, and a plastic stent was placed. The patient was prescribed ursodiol and was scheduled for a repeat ERCP after 8 weeks.

Discussion/Conclusion: The classic presentation of acute cholangitis is Charcot's triad (RUQ pain, jaundice, and fever) or Reynold's pentad (Charcot's triad plus altered mental status and hypotension). The sensitivity of Charcot's triad is reported to be as low as 7% to 26% (2). It becomes less reliable in elderly patients, aged greater than 80, who predominantly present with symptoms of malaise and altered mental status (3). In this case report, an elderly female presented with a sudden onset of cough and right-sided chest pain and the patient eventually was diagnosed with acute cholangitis. Cough is a rare symptom of biliary tree pathology as it can irritate cough receptors in the diaphragm mediated by prostaglandin E, histamine and bradykinin (4). Severe bouts of cough in our patient probably led to pleurisy, which manifested as chest pain. It is very important that clinicians are aware of the atypical presentations of acute cholangitis, especially in elderly patients, as they can be life-threatening if there is a delay in the diagnosis or the interventions.

NEW-ONSET RIGHT BUNDLE BRANCH BLOCK IN THE PRESENCE OF ATYPICAL SYMPTOMS AS AN EQUIVALENT TO ST-ELEVATION MYOCARDIAL INFARCTION: A CASE REPORT

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Case Summary: This is a 91-year-old Hispanic female with a past medical history significant for hypertension and mild aortic stenosis who presented from the nursing home to the emergency department (ED) for evaluation of a syncopal episode. The patient had no prior acute coronary events and did not complain of chest pain. Upon arrival in the ED, she was found to be hypotensive (86/69 mmHg) and in acute distress, fluid resuscitation was provided. Her initial EKG revealed normal sinus rhythm with premature atrial complexes, unchanged from prior EKGs one month prior (figure 1). Despite adequate fluid resuscitation, the patient's blood pressure failed to improve, norepinephrine continuous infusion was initiated and the intensive care unit (ICU) was consulted. Repeat EKG during ED encounter revealed a new onset RBBB (figure 2). Laboratory values revealed troponin I level of 0.07 nanograms/liter (ng/L) (normal troponin I reference range <0.05 ng/L) and brain natriuretic peptide (BNP) of 178 picograms/milliliter (pg/mL) (normal BNP reference range <100 pg/mL). Lactic acid was also elevated at 4.9 millimoles per liter (mmol/L) (normal lactic acid reference range 0.5 - 2.0 mmol/L). Shortly after ICU encounter, the patient went into cardiac arrest and advanced cardiovascular life support (ACLS) protocol was activated. The patient underwent two rounds of ACLS with return of spontaneous circulation. Repeat EKG showed a STEMI in leads II, III and aVF (figure 3). At that time, acute coronary syndrome (ACS) protocol was initiated and the transfer center was contacted for emergent catheterization. When the transfer team arrived, the patient again became pulseless. Despite continued ACLS intervention, the patient did not regain pulses and was pronounced deceased.

Discussion/Conclusion: Despite recent advancements in management, acute myocardial infarction continues to be the most deadly manifestation of coronary artery disease. Early detection and immediate reperfusion therapy improves outcomes, but is not always possible when patients present atypically and without classic EKG findings. We presented an unusual case of inferior STEMI in a patient presenting with syncope, without reported chest pain, and with findings of new-onset RBBB on EKG, who may have survived had her impending STEMI been detected early. As with LBBB, RBBB should be recognized as a sign of underlying STEMI, in the appropriate setting, requiring emergent reperfusion therapy; as supported by the European Society of Cardiology 2018 guidelines for management of STEMI. With this case report, we aim to encourage clinicians to include STEMI in the differential diagnosis of patients with new RBBB, with typical or atypical ACS presentation.

MATERNAL CARDIAC ARREST DURING CESAREAN SECTION IN THE SETTING OF SEVERE PREECLAMPSIA AND UNCONTROLLED TYPE I DIABETES

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Background: Maternal cardiac arrest occurs in 1/55,000 to 1/12,000 births in North America. Risk factors include advanced maternal age, African descent, socioeconomic difficulties, obstetric complications, and other maternal morbidities that compromise the cardiovascular system such as diabetes and pre-eclampsia. We present a case of maternal cardiac arrest in the setting of an emergency cesarean section in a patient with several risk factors including preeclampsia with severe features and uncontrolled type I diabetes. A review of relevant literature is included.

Case Description: A 31-year-old G2P1001 at 32 weeks and 1 day of pregnancy presented with recurrent severe range blood pressures, proteinuria, and uncontrolled Type I diabetes. On hospital day 2, the patient was diagnosed with worsening preeclampsia with severe features, and the decision was made to deliver the patient via repeat low transverse cesarean section (RLTCS). Whilst undergoing surgery, the patient became agitated despite sedation and desaturated to 89% on room air. The patient was intubated and asystole was noted, immediately. Return of spontaneous circulation (ROSC) was noted after approximately 30 minutes of advanced cardiac life support (ACLS). Bedside echocardiogram was significant for an ejection fraction of 25-30%, requiring insertion of an Impella device and the use of vasopressors. This patient's condition was most likely exacerbated by her morbidities: preeclampsia with severe features and uncontrolled diabetic disease.

Discussion: Preeclampsia with severe features and diabetes can be considered as independent risk factors for maternal cardiac arrest. Diabetes has a reputation for increasing the risk of heart disease, and may therefore, warrant screening echocardiography in pregnant patients. Screening echocardiography as well as surgical optimization should be promoted in high-risk patients.

FULMINANT PRESENTATION OF BUDD-CHIARI SYNDROME SECONDARY TO COVID-19 INFECTION - A CASE REPORT AND LITERATURE REVIEW

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Case Summary: A 22-year-old male with no past medical history presented with abdominal distension and tenderness with flu-like symptoms for one week. Physical exam revealed scleral icterus and diffusely tender abdomen with a positive fluid wave sign. Laboratory workup revealed white blood count 18.2 x 103/mL (N: 4.5 to 11.0 x 103/uL), platelets 174,000/mL (N: 140 to 450 x 103/uL), total bilirubin 6.5 mg/dL (N: 0.2 to 1.3 mg/dL), alkaline phosphatase 219 U/L (N: 46 to 116 U/L), aspartate aminotransferase (AST) 450 U/L (N: 0 to 34 U/L), alanine transaminase (ALT) 488 U/L (N: 10 to 49 U/L), D-dimer 774 mg/L (N: <=500 ng/mL), and international normalized ratio 1.62 (N: 0.88 to 1.15). Polymerase chain reaction testing was positive for Coronavirus Disease 2019 (COVID-19). Computed Tomography (CT) of the abdomen showed abdominal ascites with varices. Magnetic Resonance Imaging (MRI) of the abdomen showed left lobe hepatomegaly with thrombosis of the intrahepatic portion of inferior vena cava, hepatic veins, and left portal vein. The patient was admitted for a fulminant presentation of Budd-Chiari Syndrome (BCS) and portal vein thrombosis (PVT). Therapeutic and diagnostic paracentesis revealed a transudative outcome, and treatment with enoxaparin sodium was initiated. Complications from hepatic encephalopathy were managed with lactulose. Ultimately, the patient was transitioned to warfarin therapy and discharged. Outpatient follow-up was negative for all causes of liver dysfunction and hypercoagulability. The patient was diagnosed with BCS and PVT secondary to COVID-19 infection. Clinical course consisted of repeated admissions for decompensated liver cirrhosis. Follow up MRI of the abdomen showed persistent BCS with new liver nodules, consistent with chronic BCS-induced cirrhosis. The patient is currently being evaluated for liver transplantation.

Discussion: BCS is a rare condition characterized by obstruction of hepatic venous outflow anywhere along the venous course. It is estimated to affect 1 in 100,000 people worldwide. COVID-19 can induce a hypercoagulable state due to its extensive inflammatory response leading to coagulation abnormalities. While COVID-19 has been reported to cause PVT, it rarely causes BCS. This case presents both PVT and BCS during the acute-phase of COVID-19 infection leading to chronic BCS and cirrhosis. While liver biopsy reveals hepatic congestion, centrilobular fibrosis and hepatocyte loss consistent with BCS; there is a disconnect between clinical presentation and histological features as approximately half of acute BCS patients show evidence of chronic damage and fibrosis. Therefore, biopsy alone is not a reliable indicator of BCS duration. Furthermore, while anticoagulation is mostly successful in management of BCS, our patient had a complicated course despite treatment. We emphasize consideration of liver transplant for fulminant presentations superimposed with evidence of chronic damage and failed improvement.

A RARE PRESENTATION OF TRICUSPID ENDOCARDITIS WITH LARGE VEGETATION AND ASSOCIATED GLOMERULONEPHRITIS: A CASE REPORT

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Introduction- Infective endocarditis is a life-threatening condition that can result in serious complications, including endocarditis-associated glomerulonephritis (EAG)1. EAG is a rare form of glomerulonephritis that occurs in patients with infective endocarditis and is characterized by inflammation of the glomeruli, leading to progressive kidney damage and failure2. This case report describes a rare and interesting case of EAG in a patient with infective endocarditis.

Case presentation- We present a case of a 41-year-old male with past medical history of IV heroin use, hepatitis C, and recent vegetectomy after endocarditis and septic emboli presented with nausea and vomiting. The patient was admitted to the hospital 18 days prior to admission with infective endocarditis, blood cultures were positive for Methicillin sensitive Staphylococcus Aureus and a vegetation of 2.1 x 2.6 cm was attached to the tricuspid valve. Patient received IV Oxacillin for 12 days, underwent vacuum vegetectomy of the tricuspid valve and then left the hospital against medical advice. He returned 5 days later, with 4 episodes of non-bloody, non-bilious vomiting. On initial presentation, he was hemodynamically stable, but ill-appearing with a systolic murmur at left sternal border. A petechial rash was noted on his bilateral lower extremities, unchanged from prior admission. Laboratory values included creatinine of 2.15 mg/dL (normal 0.70-1.30 mg/dL) increased from a baseline of 0.8 mg/dL, urinalysis containing many RBCs and 30 mg/dL of protein (normal 0 protein), urine protein/creatinine 1.6 grams (normal 0 grams). Patient admitted for acute kidney injury of unknown source. Renal ultrasound showed increased echogenicity, consistent with medical renal disease. Since the kidney function was worsening, including an increase in creatinine to 3.74 mg/dL, nephrology was consulted. Antinuclear antibody, anti-neutrophil cytoplasmic antibody, cryoglobulin, glomerular basement membrane antibody, electrophoresis, and serum immunofixation were negative. Complement levels were normal and HCV viral load was undetectable. Patient underwent kidney biopsy which revealed focal necrotizing and crescentic glomerulonephritis with mild mesangial proliferative features and minimal immunofluorescence positivity associated with endocarditis.

Discussion- Despite being a rare condition, the patient's presentation highlights the importance of prompt and appropriate management of infective endocarditis and its complications, including EAG1. This case also underscores the need for a high degree of clinical suspicion and a multidisciplinary approach to the management of patients with infective endocarditis and its complications2.

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IS FISH OIL SAFE FOR ALL PATIENTS ? A RARE PRESENTATION OF LIPOID PNEUMONIA

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A 78 y.o. male with a past medical history significant for throat CA s/p TORS radical tonsillectomy/selective neck dissection and peg placement due to recurrent history of aspiration presented to ED with hemoptysis, fever/chills for a few days prior to the presentation. On physical exam, vitals were within normal limits. The patent was hemodynamically stable, appeared cachetic and sputum with bright blood was noted. Hemoglobin was stable and no leukocytosis. All chemistry labs were within normal limits. Procalcitonin was negative. CT chest showed left lower lobe consolidation with areas of fat attenuation versus cavitary lesion (Figure 1 and 2) which was read as highly suspicious lipoid pneumonia. Given the patient's extensive smoking history and recent significant weight loss, bronchoscopy was performed. Biopsy was negative for malignancy. Patient also had a recurrent history of aspiration pneumonia in the past with swallowing evaluation showing silent aspiration. The patient had been using the PEG for his nutrition feeds, but he usually takes all his medications PO. Cod liver oil is one of the PO medications. Upon further investigation, the patient reported taking a liquid form of Cod liver oil by mouth every day as a dietary supplement. Lipoid pneumonia was clinically diagnosed. Patient was advised to discontinue oil supplements and subsequently discharged home. Lipoid pneumonia is an uncommon lung disease caused by inhalation or aspirating lipid-containing products which leads to an inflammatory reaction. Lipoid pneumonia is usually caused by aspiration of lipid containing agents such as vegetable oils, mineral oils and fish oils like in our patient, or inhalation of nasal applicants rich in lipids. Most patients can be asymptomatic or experience recurring chronic cough with sputum production and dyspnea. Less frequent are weight loss, chills and hemoptysis as in our patient. Chest radiographs and chest CT scans reveal alveolar consolidation, ground glass opacities, and alveolar nodules in bilateral lower lung regions as defining characteristics. However, imaging results can mimic malignancy given opacities can appear poorly defined and mass like, as in our patient's case. Lipoid pneumonia is managed by preventing exposure to the oil source and no additional treatment is necessary. In our case, a patient with risk of aspiration ingested fish oil for one year and presented with hemoptysis and chills which are rare symptoms for lipoid pneumonia. Our objective is to make the medical community aware that hemoptysis and chills can be the only presenting symptoms of lipoid pneumonia which can mimic malignancy and that it has the potential to yield radiological findings comparable to those of lung malignancies. Moreover, we aim to raise awareness of lipoid pneumonia in geriatric population who are exposed to any form of over-the-counter oil supplements.

RARE COMPLICATION OF CONSTIPATION- STERCORAL ULCER COLONIC PERFORATION

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We report a case of a middle-aged female with past medical history of chronic constipation from methadone and GERD who presented with a one-day of diffuse lower abdominal pain with no bowel movement for the last eight days. The patient was afebrile on presentation with blood pressure 112/58 mmHg, heart rate 106/min, and saturating well on room air. On abdominal exam, there was tenderness in the lower quadrants with guarding and dull resonance diffusely. Labs are significant for WBC 16,400/µL (Ref.: 4,500-11,000/µL) with 90% neutrophils (Ref.: 50.0-70.0%) , hemoglobin 12.1 g/dL (Ref.:12.0-16.0g/dL) and platelets 275,000/µL (Ref.: 140,000-450,000/µL) lactic acid 2.2 mmol/L (Ref.: 0.5-2.0mmol/L). CT abdomen and pelvis with contrast initially showed large stool throughout the colon and no acute colonic pathology. The patient was started on Piperacillin/Tazobactam and admitted for sepsis of unknown origin. A day after admission, the patient noted a popping sensation in the right lower quadrant with stabbing pain radiating to the right clavicle. Physical exam revealed a diffusely distended abdomen with positive rebound tenderness, guarding, and tympanic resonance. CT angiogram of abdomen and pelvis was consistent with pneumoperitoneum with localized inflammation and perforation of the sigmoid colon. The patient underwent emergency laparotomy and left colectomy with sigmoid colectomy following intra-operative diagnosis of stercoral ulcer perforation in the rectosigmoid colon with fecalomas protruding through the perforation and the entire length of the left colon. Intra-abdominal cultures were taken during the procedure which grew polymicrobial microorganisms which produced ESBL. The patient completed a course of ertapenem before being discharged. Stercoral ulcer perforation (SUP) is a rare but serious complication of chronic constipation described in less than 150 cases worldwide as of 2018. SUP occurs due to fecal impaction leading to pressure necrosis of the colonic mucosa, resulting in ulcer formation. Chronic constipation is the single greatest risk factor for formation of stercoral ulcer formation, present in 81% of all patients, likely due to chronic opioid dependence in our patient case. The subsequent perforation of these ulcers can result in fecal peritonitis, sepsis, and can be fatal in 30-60% of cases without prompt recognition and surgical intervention. Our patient presented with atypical signs of SUP, with our case being escalated based on her change of symptoms. In our literature review, there have been no cases reported with SUP that did not have radiographic evidence, especially CT Abdomen, of colonic inflammation or fecal impaction. Here, we report a rare case of stercoral perforation without radiographic studies showing stercoral colitis, ulcer, or fecal impaction. This is the first case report with a negative CT abdomen in a patient with SUP with diagnosis made intra-operatively.

CASE OF INFECTIVE ENDOCARDITIS PRESENTING AS ST-ELEVATION MYOCARDIAL INFARCTION AND MULTI ORGAN SEPTIC EMBOLI

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37 year old male, with past medical history significant for iv heroin use presents to the emergency room with worsening mental status and fevers . On presentation , the patient was febrile, hypotensive, tachycardic and tachypneic ,meeting 3/3 criteria for qSOFA . (quick sequential organ failure assessment).On examination , the patient was lethargic and drowsy . Bilateral rhonchi were heard on auscultation of lungs in addition to a diastolic murmur best heard in the aortic area. Patient's lower extremities were edematous with bilateral ecchymosis and vasculitic rash . Laboratory analysis was pertinent for anemia , leukocytosis ,hyperbilirubinemia , transaminitis, lactic acidosis, elevated troponin and elevated creatinine. Urine drug screen was positive for opiates , cannabinoids and amphetamines. Electrocardiogram revealed sinus tachycardia with ST elevation in anterior , inferior and lateral leads. Bedside ECHO showed mildly reduced left ventricular ejection fraction with apical akinesis and a large vegetation on the tricuspid valve . Patient underwent an emergent left heart cardiac catheterization which showed embolic occlusion of apical left anterior descending artery and very distal occlusion of high Obtuse marginal off left circumflex coronary artery . Blood cultures were positive for MRSA. Patient was started on broad spectrum intravenous antibiotics. Chest X-ray revealed bilateral multiple patchy infiltrates .CT of chest , abdomen and pelvis showed areas of nodular opacity with extensive cavitation in bilateral lungs ,multiple renal infarcts , grade 4 laceration of the spleen and small subcapsular hematoma in the right hepatic dome On a repeat ECHO ,severe aortic regurgitation was identified concerning for aortic valve endocarditis although no vegetations were identified .Patient was intubated for acute respiratory failure and started on pressors for multimodal shock . Patient's condition continued to deteriorate , requiring increased vasopressor requirement . Patient was compassionately extubated following which he passed away. In this unique case , the patient presents with infective endocarditis with disseminated septic emboli to the coronary arteries , lungs, kidneys and skin.

A CASE OF CAVITARY MYCOBACTERIUM CHIMAERA

Bracha Robinson • Moiuz Chaudhri • Jeffrey A. Miskoff

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Case summary: Mycobacterium chimaera is a nontuberculous mycobacterium typically associated with heater-cooler units used in cardiac bypass procedures and is usually of low virulence. Here we present a patient with advanced Mycobacterium chimaera infection without typical risk factors. Discussion A 58-year-old male presented to the emergency department on July 30th, 2019, complaining of cough with yellow sputum, left upper abdominal pain, and worsening fatigue over the last three weeks. He also noted a 20-pound weight loss over the previous two months. He has a history of chronic obstructive pulmonary disease (COPD), hypertension, and intravenous drug use (IVDU). The patient admitted injecting heroin almost daily, worked as an electrician and lived alone. He first sought medical attention for his symptoms on May 24th, 2019, when he came to the emergency room complaining of sinus congestion and dyspnea on minimal exertion for one week. At baseline, he could walk one flight of stairs without shortness of breath. He endorsed appetite but denied lower extremity edema, orthopnea, fever, or chills. He was in mild respiratory distress with wheezing and decreased breath sounds at the lung bases on physical examination. On exam, he was afebrile, tachycardic, with a heart rate of 109 beats per minute (bpm), pulse oximetry of 87% on room air, and BMI of 18.5. The emergency physician initially read his chest x-ray as a left upper lobe infiltrate, and he was started on treatment for pneumonia with ceftriaxone, azithromycin, and ipratropium-albuterol nebulizer. The radiologist later interpreted the x-ray as a left upper lobe interstitial and alveolar process that may be chronic in etiology. The patient was called back to the emergency room due to positive blood cultures of Candida parapsilosis. A computed tomography (CT) scan, was remarkable for left upper lobe extensive bullous emphysema and bronchiectasis with significant volume loss in the left hemithorax, which was suggestive of a chronic process. Given history of COPD and IV drug use, there was suspicion of tuberculosis. While testing was in progress, he was started on fluconazole for candidemia. Endocarditis was ruled out by both a transthoracic as well as by trans-esophageal echocardiogram. Subsequent HIV test, the QuantiFERON®-TB Gold test were negative. However, acid-fast bacilli cultures came back positive.

Conclusion: We presented a patient who developed advanced pulmonary Mycobacterium chimaera infection without typical risk factors of the prior cardiac bypass procedure. Instead, his past medical history was significant for COPD and IV drug use. The therapeutic regimen involves clarithromycin or azithromycin and rifampin with ethambutol for a prolonged period, often for at least 12 months. Mycobacterium chimaera infections should be considered in patients with a history of COPD. The association with IV drug use is a potential area for future study.

MYOCARDITIS PRESENTING AS ACUTE CORONARY SYNDROME

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This case describes a 25 y.o. male with a past medical history significant for intermittent asthma and hypertension who presented with chest pain for one day. Patient noted experiencing severe sore throat and myalgias four days prior to presentation. On the day of presentation, he was awakened at 5 am by chest tightness, that was 4/10 in severity, and radiated to the back, and did not alleviate with albuterol nebulization. In the ED, he appeared stable without any acute distress. Patient's temperature was 100.5 F; he was hypotensive to 83/55 mmHg with a HR of 90-100/min. SpO2 was 100% on room air. Labs were remarkable for a troponin of 7 that continually trended up to 9 and 17.30 on serial measurements every 4 hours. CRP was 221, and leukocytosis to 15K was also noted. EKG showed minor ST elevations involving the inferior leads. STAT ECHO showed a normal EF without any wall motion abnormalities. Due to the unremitting nature of his chest discomfort in conjunction with a significant rise in repeat troponin to 18.23, a decision was made to transfer the patient to a higher facility for urgent cardiac catheterization. Coronary angiography did not reveal any stenotic lesions and an outpatient cardiac MRI was advised. Patient re-visited the ED for chest pain about a month post-discharge. Patient could not undergo a cMRI study due to insurance constraints. EKG at that time showed new T-wave inversions in the precordium that were likely evolutionary. Troponin and ESR were negative, but C-reactive protein was still elevated, although to a lesser extent. Patient received supported care that resulted in symptomatic relief, and was advised to avoid exercise, alcohol consumption, NSAID use, and follow-up with a cardiologist in 3 months at the time of discharge. Myocarditis refers to inflammation of the cardiac muscles due to various etiologies that could either be infectious or noninfectious. Patients can be asymptomatic, but can present with cardiac symptoms such as chest pain and shortness of breath as seen in our case. A definitive diagnosis of myocarditis is made by an endomyocardial biopsy, however, to avoid invasive diagnostic testing, most physicians utilize a combination of EKG, echocardiogram, and cardiac MRI to reach this diagnosis. To avoid unnecessary invasive testing, it is crucial to gather a thorough patient history, including all plausible risk factors for a cardiac event, and most importantly questioning about a recent viral illness, especially in younger patients. Viral myocarditis should always be considered one of the differential diagnoses in patients presenting with ACS-like features with a low probability for coronary artery disease, with or without a recent history of upper respiratory tract symptoms, as the latter could be subtle.

A CASE REPORT OF CARDIAC FAILURE IN A PATIENT ON TEDUGLUTIDE FOR HIGH OUTPUT ILEOSTOMY STOMA

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A high volume of ileostomy output in patients with extensive bowel resection can be hard to manage. This leads to extensive loss of fluids and electrolytes along with malabsorption. Medications have traditionally controlled it by delaying intestinal transit and decreasing intestinal and gastric secretion using opiates, loperamide, diphenoxylate, omeprazole, somatostatin, and octreotide. However, many patients depend on parenteral nutrition and fluid and electrolyte infusions, even with optimal drug therapy. Despite the best possible care, they may develop renal failure. Teduglutide is a GLP-2 analog given as a daily subcutaneous injection, and it has been promising in managing short bowel syndrome. It has been effective in decreasing the dependence on parenteral nutrition. However, improving fluid and electrolyte balance can precipitate cardiac failure in some patients, especially those with borderline cardiac functions, hypertension, and thyroid disorders. This usually presents in the first few months of the initiation of teduglutide therapy and may require stopping the medication. We present the case report of an elderly female with high output stoma on parenteral nutrition on teduglutide. There was a significant decrease in stoma output, and parenteral nutritional support could be stopped. However, she presented with worsening dyspnea and was diagnosed with cardiac failure with an ejection fraction of 16-20 %. The baseline ejection fraction was 45%, done six months before this. Coronary angiography showed no stenosis in any vessels, and the decline in left ventricular ejection fraction and fluid overload was attributed to teduglutide therapy.

LINEZOLID INDUCED LACTIC ACIDOSIS: A CASE REPORT

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Case summary: Linezolid is a commonly used antibiotic to treat infections caused by gram-positive bacteria, which are difficult to treat with other antibiotics. It works by inhibiting bacterial protein synthesis by interacting with the ribosomal ribonucleic acid (rRNA). It is a safe antibiotic if used for a short duration in an uncomplicated host. Here, we present a case of a 66-year-old female with extensive orthopedic history who developed a prosthetic knee infection resistant to other antibiotics. With that in mind, she was treated with a prolonged course of linezolid therapy and developed lactic acidosis despite having normal liver and kidney function. A 66-year-old Hispanic female with a past medical history of hypertension osteoarthritis with a very complicated orthopedic history presented to our facility in February 2022. In January 2021, the patient underwent an open reduction internal fixation of the left knee. The patient experienced complications of her prosthetic knee, which was removed in April 2021. Intraoperative cultures and wound cultures grew Mycobacterium abscessus and Candida albicans, respectively. The patient was treated with amikacin, tigecycline, fluconazole, clarithromycin, and linezolid until August 2021. In October 2021, a patient was admitted to the hospital for increasing left knee pain and drainage. The orthopedic team saw the patient, the antibiotic spacer was removed, and a new one was inserted. Intraoperative cultures again grew Mycobacterium abscessus. The patient was started on oral linezolid, clarithromycin, and IV amikacin to treat Mycobacterium abscessus isolate. On February 2nd, 2022, the patient presented to Riverview Medical Center because of an episode of vomiting. The patient was fully vaccinated against COVID-19 infection. On admission, the patient was found to be COVID-19 positive without symptoms. On admission, her blood pressure was 156/72 mmHg temperature 98.7 F, heart rate 90 bpm, respiration 18 bpm, and SPO2 98% on room air. She was found to have lactic acid of 4.9. A computed tomography (CT) of the abdomen and pelvis with contrast and a chest x-ray showed no abnormalities. The patient did not have any symptoms suggestive of ongoing infection and was not septic. Linezolid was discontinued on day 1. Her lactic acid post discontinuation of linezolid and combination with IV fluids improved to 1.6 on day 2

Discussion/Conclusion: Linezolid induced lactic acidosis is multifactorial in etiology. However, the patients diagnosed with lactic acidosis have been treated with a prolonged course of linezolid therapy in the setting of liver and or renal dysfunction. Although our patient did not have pre-existing comorbidities, the duration of treatment played a significant role in the patient developing lactic acidosis. Therefore, it is essential to be aware of linezolid-induced lactic acidosis in patients without hepatorenal dysfunction, mainly if the patient requires a prolonged course of therapy.

A SIGMOID ADENOMA-ENDOCRINE TUMOR IN ULCERATIVE COLITIS

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Learning Objective: 1) Being cognizant about a novel subtype of cancer in Inflammatory Bowel Disease (IBD) - 'Adeno-Endocrine tumor' 2) The importance of frequent surveillance colonoscopies in IBD and maintaining a lower threshold to biopsy any suspicious lesion

Case Summary: A 58-year-old male with a past medical history of Ulcerative Colitis (UC) presented with worsening abdominal and rectal pain. He had a sigmoidoscopy 4 days prior to the presentation during which a rectosigmoid stricture was biopsied. His vital signs were noted to be relatively stable. The general physical exam demonstrated dry mucous membranes, sinus tachycardia, and abdominal tenderness with no signs of peritonitis. ESR and CRP were elevated at 25 and 28.5, respectively and the other routine labs were unremarkable. CT abdomen and pelvis with contrast showed diffuse pancolitis and a focal narrowing of the rectosigmoid junction with irregular wall thickening suspicious for a stricture. MRI of the abdomen revealed minimal wall thickening and edema in the visualized colon which reflected UC with no bowel obstruction. The biopsy from the rectosigmoid stricture denoted poorly differentiated neuroendocrine neoplasm, WHO grade 3/3 with probable mixed large and small cells of GI origin. The subsequent rectal EUS/colonoscopy revealed severe diffuse pancolitis with a circumferential 5cm T3N1 sigmoid mass with high-grade sigmoid obstruction and scattered malignant appearing 5-10 mm lymph nodes. The biopsy from the mass denoted mixed adenocarcinoma and poorly differentiated neuroendocrine carcinoma. The patient then underwent total colectomy with end ileostomy which intra-operatively denoted sigmoid cancer with peritoneal metastasis and UC. The final operative specimen pathology denoted "Invasive poorly differentiated adenocarcinoma with mucinous and neuroendocrine differentiation arising from severely active inflammatory pancolitis with focal low-grade dysplasia". The patient was subsequently medically optimized and discharged with outpatient Oncology follow-up.

Conclusion: This case reinforces the importance of more frequent surveillance colonoscopies in the IBD population. Also, gastroenterologists should also be cognizant that IBD-related colonic neoplasia does not always present with the classic endoscopic findings associated with sporadic colorectal cancers, and closer inspection of the colon, biopsies for any suspicious lesions, and random targeted biopsies should be performed. Furthermore, as more cases of a novel subtype of 'Adeno-Endocrine' tumors are being reported in IBD, larger studies, predominantly at a molecular level are needed to better understand the pathogenesis.

POTENTIALLY INAPPROPRIATE PRESCRIBING LEADS TO TRAUMA WITH IRREVERSIBLE NEUROLOGIC INJURY

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This case describes a 61-year old female with a past medical history of meningioma, diabetes, anxiety, major depression, psychiatric disorder and substance use disorder who was brought in by EMS after an unwitnessed fall and was discovered lying on the floor at her home. She was an unreliable historian at the time of the initial encounter due to acute alteration in mental status post-fall. Her vital signs included a temperature of 36.7C (98.1F), with a heart rate of 77/min, blood pressure of 138/61 mmHg, respiratory rate of 20/min, and SpO2 of 98% on room air. On musculoskeletal exam, she had 3 out of 5 strength in bilateral upper and lower extremities, and her spine was midline without tenderness to palpation and sensation was intact in all her extremities. CT facial bones revealed slightly laterally displaced left nasal bone fracture, probable fracture of the nasal spine of the maxilla. Her urine drug toxicology screen was positive for amphetamines, and benzodiazepines. Additionally, during medication reconciliation it was noted that she was on multiple psychotropic medications including, opiates, benzodiazepines, hypnotic agents, and CNS stimulants. The following day, she had worsening weakness and loss of sensation in upper extremities. An MRI was then done which revealed congenital canal stenosis with signs of myelomalacia. Neurosurgery was consulted who performed cervical laminectomy of the C3 to C6 spinal levels. However, the patient did not fully regain sensation, but showed mild improvement. One of the modifiable risks for fall injuries is polypharmacy, generally defined as use of four or more prescriptions medications daily. More importantly, certain medications are known to increase risk for falls include sedatives, neuroleptics, antipsychotics, antidepressants, benzodiazepines, and opioids. In one study, older adults with polypharmacy with fall risk increasing drugs had almost 50% higher fall injury risk than those with polypharmacy without fall risk increasing drugs. Our patient developed worsening of sensation on day 2 of the hospitalization which prompted MRI which revealed myelomalacia, a rare complication of trauma. Myelomalacia is a condition in which the spinal cord softens due to lack of blood supply due to an acute injury/trauma. Because late stages of myelomalacia can result in irreversible loss of function, it is important to recognize early signs of myelomalacia for early intervention. Hence, it is crucial to recognize early signs of myelomalacia in fall trauma patients with MRI. The case emphasizes the significant relationship between polypharmacy and fall risk. CPS is an essential tool to triage these patients to ensure proper treatment in a timely manner. We also emphasize performing a thorough neurological exam in fall trauma patients to recognize early signs of myelomalacia, hence early intervention can avoid irreversible loss of function in these patients.

CHRONIC PSEUDOHYPONATREMIA IN THE SETTING OF AMYLOIDOSIS

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A 66 y/o male was sent in for dizziness, mild shortness of breath, and bilateral leg edema for the past few days. He has a history of atrial fibrillation, coronary artery disease, hyperlipidemia, cardiomyopathy secondary to wild-type transthyretin amyloidosis, chronic kidney disease stage 3b secondary to cardiorenal syndrome, and pulmonary arterial hypertension. Medications include rivaroxaban, atorvastatin, tafamidis, torsemide, midodrine, selexipag, and macitentan. In recent history, the patient's home torsemide dose was cut in half secondary to chronic hypotension. The patient presented with a temperature of 97.7 F, a blood pressure of 92/56, a pulse of 56, and SpO2 of 94% on room air. On exam, the patient had 2+ pitting edema bilaterally with clear lungs. Initial CBC showed a white count of 4.7, hemoglobin of 8.8, and platelets of 187. CMP showed a sodium of 118, chloride of 78, potassium of 3.0, BUN of 98, creatinine of 2.32, and glucose of 107. BNP was 1750. Troponin was 0.14. Given the patient's history, clinical presentation and laboratory work, it was determined that the patient had an exacerbation of his cardiomyopathy, creating a fluid overloaded state leading to his bilateral lower extremity edema. His fluid overload state and diuretic use were also initially believed to be the causes for his severe hyponatremia. Diuretics were held, potassium was repleted, and a dose of tolvaptan 15 mg was given to create an aquaretic effect to improve his hyponatremia of 118. Repeat sodium the next morning was 119. Because the patient was still edematous and thus clinically hypervolemic, a 2 mg dose of bumetanide was administered and he was also put on a fluid restriction of 1 L for his hyponatremia. Repeat sodium later that day increased marginally to 120. Given the risk of possible complications, hypertonic saline was run for three hours overnight at a rate of 50 mL/hr. The next morning, the patient still remained hyponatremic at 124. His edema, however, was greatly improved and he was no longer short of breath. Further interventions to improve his sodium over the next few days included further fluid restriction to 1.2 L, three additional doses of tolvaptan 15 mg, and additional administration of hypertonic saline at 40 mL/hr over 4 hours. Even after these interventions, the patient's serum sodium did not go above 128 during this admission. Further analysis showed that the patient's serum osmolality at this time was normal at 298mOsm/kg, suggesting that the patient had normal serum sodium, and that the laboratory readings were falsely low. Hyponatremia poses a great risk for respiratory depression and seizures which is the reason for its urgency for correction. This risk of mortality is greater with a sodium of less than 120 (1). However, given the laboratory methods used to measure serum sodium, the recorded reading may not accurately reflect the true serum sodium concentration, especially in conditions that displace serum water, such as hype

THE SILENT CULPRIT: VITAMIN D DEFICIENCY LEADING TO RHABDOMYOLYSIS IN A CIRRHOTIC PATIENT

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Learning Objectives: 1. Rhabdomyolysis can occur spontaneously in patients with liver cirrhosis. 2. Low vitamin D levels are a risk factor for developing rhabdomyolysis. 3. Supplementation of vitamin D can reduce CK levels and improve symptoms in fluid resistant rhabdomyolysis.

Case Summary: A 67-year-old-male with a past medical history of nonalcoholic steatohepatitis cirrhosis, hepatocellular carcinoma, hepatopulmonary syndrome admitted due to 3 days of generalized muscle pain, fatigue, and inability to walk. On admission, laboratory values included a creatinine kinase (CK) level of 12,000 iU/L (normal 30-223 iU/L), aspartate aminotransferase (AST) 660 U/L (normal 13-39 U/L), and alanine transaminase (ALT) 407 U/L (normal 7-52 U/L). His home medication atorvastatin 10 mg was held, and the patient was started on aggressive IV fluids for the management of rhabdomyolysis. Initial CK level decreased to 8,000 but then began to increase to 9,000 even after continued IV fluid resuscitation. Other laboratory workup including infectious and autoimmune causes were negative. The patient was then transferred to his liver transplant facility for further evaluation. He was found to have 25-hydroxyvitamin D <3.4 ng/ml and given 50,000 units of ergocalciferol. He was not given further IV fluids for concern of fluid overload. His symptoms started to improve, and his strength returned. The patient's CK level completely normalized with the sole treatment of vitamin D supplementation.

Discussion: Serum CK level of more than five times the upper limit of normal is diagnostic for rhabdomyolysis, which can result from traumatic, nontraumatic, or medical injury of skeletal muscle cells with or without characteristic sign symptoms or myoglobinuria1. Severe vitamin D deficiency increases the risk of myopathy and rhabdomyolysis, especially in patients taking statins, usually after strenuous physical exertion2. Thus far, to the best of our knowledge, there have only been two prior cases reported in the literature on vitamin D deficiency leading to myopathy and rhabdomyolysis, and one case study was reported on polymyositis and rhabdomyolysis related to hepatocellular carcinoma1. This is the first case report of developing rhabdomyolysis in the setting of severe vitamin deficiency, which was resistant to fluid resuscitation and then corrected after supplementing with vitamin D. It is prudent to follow up the vitamin D level in the patient presenting with Rhabdomyolysis and more studies need to be done to find an association between Rhabdomyolysis and vitamin D deficiency.

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LEMIERRE SYNDROME: STARK REMINDER FOR THE INTERNIST OF A RAPIDLY PROGRESSIVE AND FATAL INFECTION

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20 year old female with no past medical history that presented to the hospital with left sided chest pain for one day. The patient experienced subjective fevers and progressively worsening pharyngitis that began four days prior to admission. The symptoms did not improve with rest and home remedies, thus she sought medical care. On admission, the patient was normotensive but was tachycardic, tachypneic, and had a pulse oximetry of 89% on room air. Biochemistry revealed thrombocytopenia of 66k (reference 150-400 × 109/L) and pro-bovine natriuretic peptide of 1239 pg/mL (reference <300 pg/mL). A computed tomography angiogram of the chest revealed multiple bilateral pulmonary masses of varying sizes in the lower lung fields with central cavitation. Blood cultures grew fusobacterium necrophorum in multiple vials and the antibiotics were adjusted from vancomycin and piperacillin-tazobactam to metronidazole and ampicillin-sulbactam. The patient underwent video assisted thoracic surgery with complete dissection of a fibrinous exudate with pockets of fluid. Visual examination had revealed the presence of nodules, likely septic emboli, but were not engaged. Lemierre Syndrome is a rare disease that is very responsive to antibiotic therapy and surgical intervention when warranted. It occurs more often in young adults with a median age of 18-20 years and a 2:1 male predisposition. Anecdotal reports in the early 2000s suggested that the incidence of Lemierre Syndrome may be on the rise due to pushes for strict antimicrobial stewardship and fewer prescriptions of antibiotics for uncomplicated upper respiratory infections. Most upper respiratory infections remain contained within the pulmonary circuit but rarely can be characterized by hematogenous invasion. Anaerobic oropharyngeal infections account for less than 5% of all anaerobic bacteremias. The most common culprit is an anaerobic, filamentous, gram negative non-spore forming bacilli known as fusobacterium necrophorum. Early recognition is critical as the disease can have a rapidly progressive and often fatal course. A high degree of suspicion in addition to employment of proper imaging modalities can identify individuals sooner. Unfortunately, early in the disease course, the only symptom may include high fevers as well as oropharyngeal soreness and pain. F. necrophorum is an anaerobic pathogen that can take up to 8 days to grow on cultures thus contributing to a significant delay in definitive diagnosis and under treatment. Antibiotic stewardship is an important practice in daily medicine. However, in the cases of infection with a potent and rapidly aggressive pathogen, early antibiotic treatment is crucial to prevent morbidity and mortality. Our report is a stark reminder that infection with Fusobacterium necrophorum is now more prevalent in modern practice. A high suspicion, awareness, and early antibiotic administration will lead favorable patient outcomes with minimal long term complications.

A UNIQUE CASE OF HAIRY CELL LEUKEMIA (HCL)

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Case Presentation: A 39-year-old male with a history of hypertension currently on low dose Amlodipine and recent influenza A and COVID-19 infection presented with new onset pancytopenia. The patient denied any fevers, dyspnea, fatigue, or bleeding. Family history was unremarkable for hemato-oncologic conditions. During his follow up appointment, he was noted to have severe asymptomatic pancytopenia with neutropenia. He was subsequently given a dose of Zarxio which elevated his ANC from 500 to 1100. Physical examination revealed mild splenomegaly 4 cm below the left costal margin. Due to clinical and laboratory abnormalities the patient was referred for bone marrow biopsy. The biopsy was consistent with Hairy Cell Leukemia (HCL) with BRAF positivity. The patient was started on cladribine and rituximab shortly after diagnosis. During chemotherapy induction the patient experienced a fever and thrombocytopenia requiring transfusion and admission. The patient was found to be positive for parainfluenza 3 and cladribine infusions were continued during his hospital stay. He was recommended to follow up with his hematologist and primary care physician.

Discussion: HCL is a rare and indolent B cell leukemia that has a predilection for elderly Caucasian males and is responsible for 2-3% of adult leukemia. Due to neoplastic infiltration of the bone marrow and spleen, patient's commonly present with splenomegaly, pancytopenia, B-symptoms (such as fevers and night sweats), and susceptibility to infection. Diagnosis of HCL is based on clinical, genetic, and histopathological confirmation. BRAF V600E mutations are found in the majority of HCL's. Treatment is multimodal, varied, and can include targeted molecular therapy or chemoimmunotherapy. Commonly employed agents include cladribine, pentostatin, rituximab, vemurafenib and trametinib. Herein we described an incidentally discovered case of HCL and emphasize the importance of HCL. It is prudent for family medicine physicians to recognize this disease entity. Patients may present with nonspecific constitutional symptoms mimicking a post-viral syndrome due to increased risk of viral infections and laboratory abnormalities such as pancytopenia. HCL, unlike other hematological malignancies, does not commonly present with lymphadenopathy. Additionally, HCL can rarely involve the cutaneous, musculoskeletal, hepatic, and nervous system. Our patient's clue to diagnosis was his profound pancytopenia. Pancytopenia is protean and can be incited by many conditions such as infection, drugs, autoimmune disease, and malignancy, therefore it is important to thoroughly investigate and identify a cause of pancytopenia for each patient. HCL demonstrates a survival rate >90% after 5 years. Treatment response is robust and dependent on clinical presentation. Asymptomatic patients may undergo a watch and wait approach, whereas those demonstrating symptoms can be treated with chemotherapy and immunotherapy.

LACERATION OF THE ANTERIOR MITRAL LEAFLET TO PREVENT NEO-LEFT VENTRICULAR OUTFLOW OBSTRUCTION: A CASE REPORT

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Case Summary: A 75 year-old female with chronic diastolic heart failure, paroxysmal atrial fibrillation on warfarin and prior mitral valve repair for severe mitral regurgitation presented for elective transcatheter mitral valve replacement. She had a recent hospitalization for decompensated heart failure exacerbation and underwent right heart catheterization which revealed severe mitral regurgitation. She was ultimately discharged on intravenous milrinone once stabilized. Transesophageal echocardiogram (TEE) confirmed severe mitral regurgitation and tethering of the anterior leaflet with restricted motion without paravalvular leak. A balloon tipped catheter wire was guided across the mitral valve, advanced into the aorta and snared to create a rail. A tip to base laceration of the anterior mitral leaflet to prevent outflow obstruction (LAMPOON) of the A2 segment was performed using TEE guidance and CT fusion followed with the deployment of a 29 mm Edwards Sapien S3 post-dilated with mild residual paravalvular leak along the lateral aspect. Additionally, an iatrogenic atrial septal defect (ASD) was successfully closed using a 14mm Amplatzer septal occluder device with no evidence of pulmonary or systemic venous obstruction or residual leak.

Discussion: Neo-left ventricular outflow tract (LVOT) obstruction is an established complication of transcatheter mitral valve replacement (TMVR) due to the proximity of the LVOT and anterior mitral valve leaflet. Predictable factors include an obtuse aortomitral angle, left ventricular size and septal wall thickness. Alternative techniques such as transatrial leaflet resection and alcohol septal ablation have limitations including the requirement of a cardiopulmonary bypass and risk of myocardium damage, respectively. The LAMPOON technique entails splitting of the anterior mitral valve leaflet using radiofrequency via catheters. It has been shown to yield a LVOT gradient <30 mm Hg in 97% patients with risk of LVOT obstruction that underwent TMVR with 93% survival to discharge in the LAMPOON IDE study. Iterations of this technique and clinical studies are ongoing to yield further outcomes of this technique. We describe a successful case of TMVR post LAMPOON to prevent neo-LVOT obstruction.

RECURRENT INFECTIVE ENDOCARDITIS SECONDARY TO STREPTOCOCCUS MITIS BACTEREMIA IN A PATIENT ABSTINENT FROM INTRAVENOUS DRUG USE

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A 40-year-old male with a history of recurrent Streptococcus (S.) mitis infective endocarditis (IE) requiring aortic valve (AV) replacement (AVR) and re-do, abscesses of the aortic root and mitral annulus, and former intravenous (IV) heroin use presented to the ED with fever, chills, and night sweats for 2 weeks. The patient was first found to have S. mitis IE and peri-aortic valvular abscess in 2018 while actively using IV heroin. At that time he underwent biologic AVR with irrigation and plication of the AV abscess with eventual resolution. In 2020, he suffered a nearly identical recurrence, at which multiple vegetations were found on both the prosthetic aortic and native mitral valves. He underwent re-do AVR (27 mm Inspiris), primary repair of aortic root and mitral annular abscesses, and mitral valve vegectomy. In both encounters, he was treated with 6 weeks of penicillin and ceftriaxone. On this admission, the patient was febrile to 100.6F. Initial labs showed a normal white blood cell count, elevated sedimentation rate of 74 mm/h, and elevated C-reactive protein of 18.6 mg/dl. Urine drug screen was positive only for cannabinoids. However, blood culture was again positive for S. mitis growth. Repeat transesophageal echocardiogram revealed a periaortic abscess between the aortic root and left atrium without evidence of valvular vegetation. Cardiac computed tomography (CT) defined the periaortic abscess and revealed a hypoattenuating leaflet thickening of the prosthetic AV, which was likely due to perivalvular thrombus or pannus. The patient was started on ceftriaxone, vancomycin, and rifampin for empiric treatment of IE. Given that the patient had abstained from intravenous drug use (IVDU), etiology of his bacteremia needed clarification. Unfortunately, workup for causes including a formal dental exam and CT of facial bones was unrevealing. The patient was discharged on 6 weeks of ceftriaxone and 2 weeks of gentamicin with an eventual overall recovery. Recurrent IE is a feared complication of IE. Risk factors like prosthetic heart valve endocarditis, positive valve cultures obtained at time of surgical intervention, persistent postoperative fever, IVDU, prior history of IE, and chronic dialysis. Our patient likely had re-infection with the same pathogen, S. mitis, given multiple risk factors including prosthetic heart valve endocarditis, IVDU history, and prior IE. Our patient presented with a unique case of recurrent IE with the same pathogen, S mitis, despite proper IV antibiotic treatment, valve replacement, valvular abscess repairment, and abstinence from IVDU for 2 years. The infection source remains unclear after thorough workup. This case serves as a reminder that prevention of recurrent IE continues to be challenging even with diagnostic advancement and adequate treatment. Future surveillance and prophylactic guidelines are needed to lower the risks of recurrent IE.

SICKLE CELL DISEASE WITH SUDDEN RETINAL DETACHMENT

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A 43-year-old female with sickle cell disease presented to the hospital for right ankle pain. She had a road traffic accident with a penetrating injury to the right ankle two years ago, following which she had a chronic non-healing wound in her right ankle, which has been worsening for the past week. She had many episodes of wound debridement and received hyperbaric therapy for the same. While being evaluated for her ankle wound, she also reported blurred vision in her left eye and seeing black spots since waking up that morning. She denied eye pain and pain with eye movement. She had homozygous sickle cell disease (HbSS), with hemoglobin electrophoresis done less than 12 months before showing HbS of 90%, HbF of 7%, and HbA2 of 0%. She has had multiple episodes of sickle cell crises; the last one was six years ago. Her last blood transfusion was five years ago. She also had avascular necrosis of both femur necks and total hip arthroplasty more than 20 years ago. She was on hydroxyurea, which she stopped two years ago after the ankle injury. Patient was hemodynamically stable . Laboratory analysis was pertinent for anemia with an elevated reticulocyte count . A computed tomography scan of the head showed no acute intracranial abnormalities .Brain magnetic resonance imaging (MRI) showed no acute intracranial pathology; however, an MRI of the orbits showed mild contrast enhancement identified at the mid-to-anterior left optic nerve suggestive of optic neuritis, bilateral orbital globes, and extraocular muscles appeared unremarkable. A dilated fundus examination of the left eye showed a giant retinal tear with retinal detachment. The patient underwent emergent repair of the retinal detachment . This is a unique case presentation of retinal detachment in a young patient with sickle cell as her only risk factor .

A RARE CASE OF TUMEFACTIVE DEMYELINATING LESION: WHEN MULTIPLE SCLEROSIS MASQUERADES AS MALIGNANCY

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A 29 year-old female with no significant medical history presented to the ED with expressive aphasia, confusion, agitation, anxiety, and odd behavior for the past several months. She had a motor vehicle accident 7 days prior with normal CT head at that time. Social history was notable for a job in cleaning of old homes, kittens as pets, and polysubstance abuse with IV heroin and cocaine. Family history was notable for separate aunts with lupus and cancers including breast, uterine, and ovarian. On admission, patient was vitally stable, however had pseudobulbar affect, was AAOx1, and was unable follow complex commands; otherwise motor exam and labs were within normal limits. MRI brain with contrast showed diffusion restriction and mild enhancement in the left parietal lobe subcortical and periventricular white matter. MR Spectroscopy (MRS) revealed elevated choline: creatine ratio and decreased NAA, suggestive of possible malignancy. Lumbar puncture revealed CSF with negative cytology, positive oligoclonal bands, and elevated IgG index of 0.7. Infectious workup was negative. During hospitalization, the patient had rapidly progressive agitation and confusion, requiring sedation and intubation. Differential diagnoses included autoimmune encephalopathy, however primary CNS malignancy could not be ruled out without biopsy. Left parietal brain biopsy showed histiocytic proliferation with elongated round nuclei, myelin loss, occasional perivascular lymphocytes, rare Creutzfelt cells consistent with "tumefactive" demyelinating lesion (TDL). The patient was started on solumedrol 1g IV qd for 5 days, received 5 sessions of plasma exchange (PLEX) every 48 hours, and 1000mg IV Rituximab. The patient subsequently had improved agitation and behavior however had persistent peripheral vision loss and mild aphasia. She was discharged to rehab, and continues follow-up with neurology. TDL's, or tumefactive multiple sclerosis, are large (>2cm) tumor-like demyelinating lesions in the CNS and are diagnostically challenging due to similar symptomology and appearance to CNS neoplasms or abscesses. TDL are rare variants of MS and often the first presenting neurological event, predominantly in young females with rapidly progressive multifocal CNS symptoms within days to weeks. Pathophysiology is linked to pro-inflammatory cytokines. MRI may reveal closed rings or concentric patterns often in frontal or parietal lobes. CSF analysis and MRS may differentiate primary CNS lymphoma from TDL; an increased choline/NAA ratio may suggest TDS but is also found in CNS malignancies. Histopathology shows demyelination, inflammatory cells, reactive astrocytes with multiple nuclei (Creuztfelt-Peters Cells). Prognosis is favorable if treated early with immune-modulatory agents as above. However, given its rarity, rapid progression, and wide differential, tumefactive MS remains diagnostically challenging and requires close monitoring and collaboration by interdisciplinary medical teams.

TELEPSYCHIATRY: HOW VITAL ARE VITAL SIGNS?

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The patient is a single, employed, domiciled, Caucasian who is in their mid-20s brought in by their family to the emergency room for severe dehydration due to weight loss of 10 pounds in 2 weeks in the setting of chronic Anorexia Nervosa (AN). They were admitted medically with the goal to facilitate a transfer to an inpatient eating disorder unit. Psychiatry was consulted for anorexia in the setting of a body mass index (BMI) of 12. Past medical-psychiatric history is significant for AN with purging since teenage years and generalized anxiety disorder (GAD) resulting from traumatic events. They had multiple visits to various healthcare settings over the course of 5 years due to complaints secondary to AN and worsening BMI. Follow-up care was performed for monitoring. The patient was connected with therapists, nutritionists, and primary care physician (PCP) but did not improve as the patient's BMI remained low (16-17). Their vital signs remained unchanged during these visits and, in some cases, vital signs were not performed. Prior to a telepsychiatry visit in the spring of 2021 for concentration deficit in the context of GAD, they had been prescribed escitalopram by PCP for GAD. The patient was diagnosed with attention deficit hyperactivity disorder (ADHD) by the telepsychiatrist and was prescribed a psychostimulant without undergoing an appropriate physical exam and diagnostic testing. Despite a longstanding history of AN and GAD, they continued to take prescribed stimulants until the fall of 2022 when the patient presented to the emergency room for severe dehydration in the setting of a worsening BMI of 12 and was seen by the consultation psychiatry team. Psychostimulant was discontinued. The patient was treated by a multidisciplinary team involving a psychiatrist, psychologist, nutritionist, hospitalist, bioethics, and pastoral care prior to being transferred to Inpatient eating disorder unit after medical stabilization. The use of stimulants in patients with AN and GAD is a complex area of psychiatric practice that necessitates a comprehensive evaluation consisting of thorough medical history, physical examination, and laboratory tests to identify potential risks and contraindications. Close collaboration with other members of the patient's treatment team is essential as misuse of stimulants in patients with AN and GAD can lead to severe adverse outcomes, including exacerbation of anxiety and eating disorder and even sudden cardiac death. The DEA waived the Ryan Haight Act's in-person exam requirement for prescriptions of controlled substances as a result of the COVID-19 public health emergency, allowing both established and new patients to receive medically necessary prescriptions via telemedicine. This case highlights the importance of adhering to appropriate standards of practice in healthcare settings, especially in telemedicine, when prescribing controlled substances and how failure to adhere to standards can have grave consequences.

A RARE CASE OF STREPTOCOCCUS GORDONII MENINGITIS FROM DENTAL FLOSSING

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Case: 69 year old male with a past medical history of arachnoid cyst who presented with an intractable headache. The headache was described as bitemporal, radiating to his back and neck with associated fever, mild neck stiffness and photophobia. His temperature was 103.3 *F, blood pressure 167/72 mmHg. Neck rigidity was noted on examination. Kernig's sign and Brudzinski's sign negative. Computed tomography head showed a stable arachnoid cyst within the right middle cranial fossa without mass effect. With high suspicion for meningitis, the patient was immediately given intravenous corticosteroids. Blood cultures were obtained and he was started on empiric antibiotics. Cerebral spinal fluid (CSF) analysis from a lumbar puncture was consistent with bacterial meningitis: 1833 white blood cells/mm*3 (reference < 5 per mm*3) with 71% segmented neutrophils, 6% lymphocytes and 13% monocytes; protein 134.8 mg/100mL (15-60mg/100mL); CSF/plasma glucose ratio 0.4 (0.5-0.8). CSF meningitis panel was negative for all typical pathogens. Blood cultures grew streptococcus gordonii, which was believed to be the source of this patient's meningitis. Given suspicion for endocarditis, transthoracic and transesophageal echocardiograms were completed and were negative for any vegetations. On further investigation, the patient reported a habit of dental flossing with occasional bleeding from his gums. He also confessed to re-using the same floss multiple times which raised our suspicion as the potential source of pathogen entry into the bloodstream.

Discussion: Meningitis is inflammation of the meninges, the protective membrane covering the brain and spinal cord. Inflammation is usually associated with bacterial or viral infections. The classic presentation includes fever, headache, and nuchal rigidity. Presentation and severity can vary depending on the causative organism. Streptococcus gordonii is a gram positive bacteria commonly found in the human body, including the skin, oral cavity, and upper respiratory tract. It is often colonized in the oral cavity and if allowed, may act as an opportunistic pathogen, leading to the development of periodontal disease. S. gordonii can also enter the bloodstream through open oral wounds, possibly caused by vigorous flossing, inciting many systemic infections including infective endocarditis, pulmonary empyemas, septic arthritis, and spinal infections. However, there is little to no evidence of this pathogen crossing the blood brain barrier and causing meningitis. Our case depicts a unique presentation of bacterial meningitis caused by an unlikely oral cavity pathogen, S. gordonii. While previous studies have proven transient bacteremia after flossing, there is no known correlation with development of CSF infections. Dental hygiene was likely the etiology of this patient's bacteremia. However, further investigation into possible risk factors that disrupt the blood brain barrier, including an arachnoid cyst, is warranted.

HEPATOCELLULAR CARCINOMA CAUSING CARDIAC COMPRESSION

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Learning Objective: Highlight the importance of hepatocellular cancer (HCC) screening in patients with cirrhosis. Understand progressive effects of hepatocellular carcinoma

Case Description: An 81 year old woman with history of decompensated NASH cirrhosis with varices, portal hypertension, type II diabetes mellitus, hypertension and dementia was referred from a nursing home for hypotension. Her vitals on presentation were significant for blood pressure 94/45, heart rate 102 and temperature 95.6 F. On examination, she was noted to be in altered mental status with scleral icterus and diffuse abdominal tenderness. Her pertinent labs include hemoglobin 8.2 alanine aminotransferase 60, aspartate aminotransferase 16, alkaline phosphatase 245, total bilirubin 6.3 (direct 3.3), INR 1.53, albumin 2.1 and ammonia 28. Initial CT abdomen revealed a cirrhotic liver with new 13.4 x 10.4 cm mass in the right hepatic lobe suggestive of hepatocellular carcinoma with an enlarged possible metastatic thoracic node. The right perihepatic space contained a 12.9 x 2.3 cm fluid collection concerning for hemorrhage. Her subsequent CT angiogram showed hyperdense material suggestive of blood without active extravasation but again seen was a hepatic mass with compression and mass effect on the right atrium. Her AFP level was elevated to >300,000 ng/mL. Further aggressive interventions for the mass was not pursued due to her known comorbidities and complicated hospital course including ventilator dependent respiratory failure and multiple cardiac arrests. The patient died on hospital day 5 due to a cardiac arrest after the family opted to pursue hospice care.

Discussion: HCC is the fifth most common cancer in the world with 80% of patients diagnosed having underlying cirrhosis. HCC surveillance is recommended for all cirrhosis patients with Child Pugh A, B and also Child Pugh C awaiting transplant. We describe a patient with h/o Child Pugh B cirrhosis, with normal AFP and no mass on previous imaging 2 years ago now presenting with probable metastatic HCC. Her presentation was remarkable for a large hepatic mass causing cardiac compression. Although case reports have described cardiac metastasis, right atrium compression by HCC has not been reported to our knowledge previously. It is important to carefully monitor patients with cirrhosis for HCC screening with ultrasound every six months. This case highlights the importance of HCC screening in cirrhotic patients and highlights the possibility of liver tumor burden causing cardiorespiratory compromise due to diminished preload.

YOUNG-ONSET, RAPIDLY PROGRESSIVE LMN-PREDOMINANT ALS

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While generally described as a late-onset fatal neurodegenerative disease involving upper motor neurons (UMN) and lower motor neurons (LMN), ALS presents in a variety of ways in different age groups. In the literature ALS was classified according to 3 categories based on age at onset of symptom: Juvenile onset (<20 years), Young onset (20-45 years) and Classic/Older onset (>45 years). ALS has also been characterized by 3 different phenotypes based on presenting predominant motor neuron signs: Classic Charcot (combined UMN & LMN), UMN-predominant and LMN-predominant phenotypes. In this report, we describe a rapidly progressive case of ALS presenting with LMN symptoms in a 33-year-old male with less than 1 year survival since onset of symptoms. Physical examination findings on initial evaluation were remarkable for flaccid weakness with muscle atrophy without associated UMN symptoms. Laboratory studies and imaging studies including CT Head and MRI studies of cervical and thoracic spine were unremarkable. EMG studies were conducted and showed evidence of generalized motor axonal condition involving cranially innervated as well as cervical and lumbosacral innervated muscles with intact sensory nerve studies, after which a diagnosis of ALS was established. We review the available literature and highlight a rare presentation of sporadic LMN-predominant ALS in the young-onset age group of ALS patients. Our case highlights a rare presentation of ALS with regards to clinical manifestations in young-onset age group. These features should be investigated to further characterize sporadic ALS in young-adult patients. While there are studies that show that young-onset ALS patients tend to have spinal onset ALS, more research is needed to characterize the phenotypes (UMN-predominant vs LMN-predominant) that these patients present with. As it pertains to family medicine, ALS should be considered in younger patients presenting with LMN symptoms even in the absence of classic UMN symptoms. This might help facilitate quicker definitive diagnosis and treatment initiation, given the rapidly progressive nature of ALS that these patients may present with.

"COULD IT BE KIKUCHI? : ASEPTIC MENINGITIS AND LYMPHADENOPATHY AS A PRESENTING CLINICAL FINDING OF KIKUCHI DISEASE"

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Case Presentation: A 36-year-old female with a past medical history of lymphocytic colitis and recent hospitalization for aseptic meningitis presented with a 3-week history of non-specific symptoms including fever and fatigue. She reported a recent sick contact of a niece with mononucleosis. In the emergency department, vitals were within normal limits and physical examination was only significant for cervical, axillary and inguinal lymphadenopathy. Labs were significant for EBV PCR 4483 copies/ml. Her CSF analysis showed WBC 14, 74% PMN, negative biofire meningitis panel, which was consistent with aseptic meningitis. A CT scan showed retroperitoneal, iliac, and inguinal lymphadenopathy. Bone marrow biopsy showed hypercellular bone marrow without any concern for neoplasia or lymphoproliferative process. Left axillary lymph node biopsy showed a benign lymph node with reactive changes, which was not considered typical pathology in Kikuchi syndrome, however it did show focal paracortical nodular hyperplasia. Remaining work up was completely negative for any other alternate etiology. Given the clinical presentation with lymphadenopathy, aseptic meningitis, actively replicating EBV with EBV infection being a known trigger for Kikuchi syndrome, the patient was empirically treated with steroids. Within a few days she reported considerable improvement in her headache and fevers, and was discharged on oral steroids with outpatient follow up.

Discussion: Kikuchi disease also known as Kikuchi-Fujimoto disease (KFD) is a rare disease which can manifest with persistent fevers and lymphadenopathy. One of the unusual manifestations of this disease is aseptic meningitis, which our patient was seen to present with. KFD is thought to be due to an autoimmune reaction generated by the body in response to triggers like viral infections. EBV is one of the commonly implicated viruses, which was seen actively replicating in our patient as well. Due to the similarity of its manifestations to other common conditions, including infections and lymphomas, a high degree of suspicion is needed to diagnose KFD. A lymph node biopsy helps with definitive diagnosis. The histopathological changes seen are dynamic and variable. They can be divided into three types based on progression of the disease: proliferative, necrotizing and exanthematous. KFD is usually a self-limited disease however in patients with severe symptoms or neurological manifestations, glucocorticoids have been proven to be extremely effective. We believe that increasing awareness about this condition is critical to help diagnose more patients and provide appropriate treatment.

ATYPICAL PRESENTATION AND SEQUELAE OF GROUP A STREP BACTEREMIA

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A 26 year old male with Type 1 diabetes presented with upper respiratory symptoms and right knee pain and swelling for one week. He was afebrile and had normal vitals. Physical exam, including the cardiopulmonary exam, was normal except for the right knee which was swollen and tender but non-erythematous. He had a leukocytosis of 13.9 10*3/uL (4.5 - 11.0 10*3/uL). ESR and CRP were 94 mm/h (0-15 mm/h) and 26.88 mg/dL (0.00-0.74 mg/dL) respectively. Arthrocentesis showed a white count of 36,930 /µL (0-200 /µL) and no crystal or organism growth. HbA1C was 11.5% (<5.7%). A chest x-ray revealed an incidental cavitary mass in the right upper lobe measuring 6.5 x 5.5 cm with central cavitation measuring 2.4 x 2.3 cm and mediastinal adenopathy. The patient denied having any lower respiratory symptoms, history of smoking or drug use, recent travel, episodes of pneumonia, or history of incarceration. A further work-up for mycobacteria, HIV antigens and antibodies, and vasculitis antibodies were negative. Blood cultures grew positive for Group A streptococcus (GAS), prompting treatment with IV Unasyn. An echocardiogram showed no valvular lesions or vegetations. A bronchoalveolar lavage (BAL) was performed and yielded positive cultures for Candida Albicans. Cytology and gram stain were negative for malignancy, acid fast bacilli, and virulent bacteria. The patient's knee pain improved after aspiration, drainage, and antibiotics. He was sent home with a midline catheter for treatment of IV ceftriaxone for three weeks for necrotizing pneumonia. This patient had incidental GAS bacteremia, and he should be evaluated and treated promptly for pathological sequelae, such as acute rheumatic fever especially with joint pain. However, he had a monoarthritis without other major Jones criteria, making his presentation most likely post-strep reactive arthritis. Necrotizing pneumonia caused by Streptococcus pyogenes is rare. However, in immunocompromised patients, such as those with uncontrolled diabetes, active strep infection can present with such probable morbidities. Necrotizing pneumonia also presents acutely and is thus atypical to be asymptomatic. The Candida in lavage cultures was most likely normal respiratory flora as antibiotics were started prior to the procedure. The more common etiologies of cavitary lung lesions including mycoplasma, neoplasms, autoimmune, and granulomatous diseases were ruled out with blood work and BAL. Treatment for necrotizing pneumonia involves a prolonged course of antibiotics and debridement in cases of extensive necrosis. This case demonstrates the importance of routine follow up in patients, particularly in the immunocompromised, as they may house subclinically invasive disease which, if left untreated, can develop into significant infection. This case also brings to light the importance of strict follow up with GAS infections as there is potential for great harm and significant sequelae if treatment is delayed.

CLINICAL SIGNIFICANCE OF HYPERCALCEMIA PRESENTING AS INITIAL MANIFESTATION OF T-CELL/HISTIOCYTE-RICH LARGE B-CELL LYMPHOMA IN AN UNCOMMON PATIENT DEMOGRAPHIC

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T-cell/histiocyte-rich large B-cell lymphoma (THRLBCL) is an extremely rare and aggressive subtype of diffuse large B-cell lymphoma (DLBCL) that typically presents in middle-aged patients and carries a poor prognosis. Hypercalcemia presenting as the initial manifestation of the disease is rare, with only one other case reported in the literature. We report a case of a 90-year-old male who presented with progressive lethargy and unintentional weight loss. Initial workup showed elevated serum calcium 14.6 mg/dL, corrected for albumin, and creatinine of 1.51 mg/dL. He had a suppressed intact parathyroid hormone (PTH, 6.3 pg/mL) and normal parathyroid hormone-related peptide (PTHrP, 13 pg/mL). CT scan of the abdomen and pelvis was performed to rule out underlying malignancy, which showed splenomegaly and enlarged retrocrural and porta hepatis lymph nodes. Bone marrow biopsy was performed to evaluate for hematological malignancy, which revealed findings diagnostic of THRLBCL. While Rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP) is one of the mainstay therapies for DLBCL and has been shown to have comparable outcomes in THRLBCL, there are documented concerns with its toxicity profile limiting the ability of older patients (60 years and older) to complete therapy. Our patient was treated with R-mini-CHOP, which is much better tolerated in this patient demographic. R-mini-CHOP features decreased doses of cyclophosphamide, doxorubicin, vincristine, and prednisone (CHOP) with the conventional dose of rituximab. This case discusses a rare subtype of non-Hodgkin's lymphoma presenting with a unique manifestation of hypercalcemia. We highlight the importance of thorough investigation for causes of hypercalcemia as well as the efficacy and tolerability of R-mini-CHOP in this elderly patient demographic.

DUODENAL DIEULAFOY'S LESION-ARISING AWARENESS OF THIS RARE CAUSE OF GASTROINTESTINAL BLEED

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We report a case of an older-aged male with past medical history of atrial fibrillation on rivaroxaban, hypertension, chronic nonsteroidal anti-inflammatory medication (NSAID) for back pain who presented with dizziness, nonbloody nonbilious vomiting and multiple episodes of hematochezia. Vitals were blood pressure 156/73 mmHg, heart rate 125/min, afebrile, and saturating well on room air. On exam, the patient has orthostatic hypotension. Lab values are significant for Prothrombin Time 26.2 sec (10.1-13.3 sec), International Normalized Ratio 2.28 (0.88-1.15), hemoglobin 10.6g/dL (Ref.: 12.0-16.0g/dL), WBC 12,500/µL (Ref.: 4,500-11,000/µL), 79% neutrophils (50-70%), blood urea nitrogen 61mg/dL (Ref.: 9-23 mg/dL) and creatinine 1.59mg/dL (Ref.: 0.55-1.02mg/dL). CT Angiogram of abdomen and pelvis revealed extravasation into the duodenum from a branch of the gastroduodenal artery. The patient was started on a proton pump inhibitor drip, rivaroxaban stopped, 2 units of packed red blood cells (PRBCs) were given, and the patient was transferred to the ICU. He continued to have hematochezia, and hemoglobin dropped to 7.9g/dL. Another 3 units of PRBCs and 2 units of fresh frozen plasma were given. The patient underwent emergent esophagogastroduodenoscopy (EGD) which showed a single Dieulafoy lesion (DL) with active bleeding in the second portion of the duodenum. Bleeding was successfully managed with epinephrine, cauterized with bipolar probe, and hemostatic clip placement. Hemoglobin was stable following the procedure. The patient was discharged on PPI twice daily and restarted on Rivaroxaban seven days after EGD. Patient was stable at his 4-week outpatient follow-up without signs of active bleeding. Duodenal Dieulafoys (DLs) account for only 1-2% of acute gastrointestinal (GI) bleeding characterized by abnormal dilations and exposed blood vessels in the submucosal layer of the GI tract, protruding through a small puncture in overlying normal mucosal tissue. DLs are important to recognize as potentional causes of GI bleeding given their high mortality rate of up to 80%. Given our patients history of chronic NSAID use it was important to distinguish between DL and peptic ulcer disease for appropriate management. DLs are primarily in the stomach, within 6cm of the gastroesophageal junction. 15% of cases are in the duodenum, as in our patient. Recent literature has demonstrated multiple endoscopic attempts are often needed to identify and treat DLs. However, the patient in our case was successfully treated on the first attempt aided by CTA prior to endoscopy. A combination of endoscopic therapies was utilized and contributed to the successful control of the DL and prevented rebleeding. This paper emphasizes the importance of imaging prior to endoscopy, particularly if the patient is clinically stable, to increase the likelihood of successful first-attempt management of the bleeding DL.

A RARE CASE OF SEIZURES SECONDARY TO HYPOCALCEMIA IN AN INFANT WITH DIETARY-INDUCED RICKETS DISEASE

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Case Summary: A 16 month-old unimmunized male with a recent diagnosis of Rickets disease presented approximately a week later following his diagnosis with three new-onset tonic-clonic seizures associated with perioral cyanosis and foaming at the mouth. His seizures lasted approximately 1 minute in duration followed by a brief post-ictal period. The parents also endorsed feeding the patient a vegan diet. The physical examination of the patient was performed while the patient was post-ictal following the third tonic-clonic seizure. It demonstrated profound hypotonia in the upper and lower extremities as well as decreased brachial and patellar reflexes. Following the patient's post-ictal period and return back to baseline, his physical examination was within normal limits with return of his tone and reflexes. Initial laboratory studies revealed evidence of hyperparathyroidism, hypovitaminosis D, and iron deficiency based on the following results: Parathyroid hormone (PTH) of 269.0 pg/mL (18.4-88 pg/mL); Ionized calcium of 0.62 mmol/L (1.15-1.29 mmol/L); Serum calcium of 6.6 mg/dL (9.0-11.0 mg/dL); Vitamin D 25-hydroxy level of 10 ng/mL (30-100 ng/mL); Iron level of <2 mcg/dL (65-175 mcg/dL). Imaging studies that were performed included head CT that resulted within normal limits, bone survey that demonstrated long bone metaphyses synonymous with hypophosphatemic rickets, and MRI of the pituitary that was within normal limits. He also underwent video EEG (VEEG) that resulted within normal limits and a lumbar puncture with CSF studies that demonstrated aseptic meningitis. The patient was diagnosed with Secondary Hyperparathyroidism causing hypocalcemia and hypovitaminosis D with deficiency in iron and was started on calcium, vitamin D, and ferrous sulfate supplementation. Patient was discharged with close follow up with endocrinology, neurology, and the developmental pediatrician.

Conclusion: Alternative dietary habits, such as vegetarian and vegan diets, exclude and replace specific foods in order to maintain nutritional benefits. The case discussed, highlights potential negative consequences if appropriate nutritional supplementation is not provided. Infants may be prone to metabolic derangements, which may lead to irreversible long-term consequences, such as developmental delay and irregular bone formation. Furthermore, collecting a thorough social history is vital to diagnose this uncommon pediatric endocrinopathy.

A RARE CASE OF DOXYCYLINE-INDUCED AUTOIMMUNE HEPATITIS

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Case Summary: A 71-year-old Southeast Asian female presented to an outpatient family medicine clinic with a four-day history of abdominal pain and jaundice. She also described nausea, anorexia, recent weight loss, pruritus and dark urine. Physical exam was remarkable for jaundice, scleral icterus and epigastric tenderness. The patient had been taking doxycycline 100 mg twice daily for 30 days every other month for the past two years for a prosthetic knee joint infection. Other medications include amlodipine 10mg daily and calcium-vitamin D supplement. She denied herbal supplements alcohol. She was sent from the clinic to the emergency department for further n. At admission, alanine aminotransferase (ALT) was 500 IU/L and aspartate aminotransferase (AST) was 932 IU/L. Alkaline phosphatase was 162 IU/L. Total bilirubin was 18.3 mg/dL. Antinuclear antibody was negative, smooth muscle antibody was positive >20U, IgG levels were elevated at 213 and lipase was elevated. Serologic testing for viral hepatitis was negative. Right upper quadrant ultrasound revealed hepatic cirrhosis and steatosis, with no definitive gallstones. Magnetic resonance cholangiopancreatography suggested peripancreatic edema. A 5 mm common bile duct stone was removed during endoscopic retrograde cholangiopancreatography. Liver biopsy showed panlobular hepatitis and marked cholestasis suggesting drug-induced liver injury (DILI) or autoimmune hepatitis (AIH). By discontinuing doxycycline, a reduction of ALT and AST by 47% and 43.6% respectively within 4 days of admission. The patient was subsequently started on prednisone 40 mg and azathioprine daily. Liver enzymes on follow-up in 76 days.

Discussion/Conclusion: DILI is an important cause of hepatotoxicity, with significant morbidity and mortality. Establishing a diagnosis, however, is a challenge because DILI can mimic all forms of liver disease. It is estimated that up to 9% of suspected cases of AIH are drug-induced. Although drug-induced autoimmune hepatitis has been commonly associated with minocycline, doxycycline has rarely been implicated despite structural similarities. This may be because, unlike minocycline, doxycycline is often used in a low-dose long-term regimen. With no serological markers available, it remains a diagnosis of exclusion requiring prompt clinical action. In the present case, the histologic findings as well as the dramatic reduction in liver enzymes within 4 days of withdrawal of doxycycline favor DILI with autoimmune features. Given the severity of symptoms and liver injury, the patient was also treated with immunosuppressants inducing remission. With the widespread use of doxycycline, it is important for physicians to recognize the possible role of doxycycline-induced liver injury.

CANAL OF NUCK HYDROCELE LOCATED IN THE SUPRAPUBIC FAT PAD: UNIQUE CASE PRESENTATION & REVIEW OF THE LITERATURE

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Case Summary: A 33 y/o female with a history of undifferentiated autoimmune disease, HPV and HSV presented for a painless right inguinal mass of a 2 month duration. History is significant for intermittently swollen axillary and inguinal lymph nodes, originally attributed to her autoimmune disease. She denied unintentional weight loss, fatigue, malaise, fevers, recent illness or trauma. Physical exam revealed 2 x 2 cm hard mass to the deep right inguinal region. Ultrasound of the right groin showed an elliptical 2.1 x 0.7 x 1.2 cm hypoechoic almost anechoic mass of unclear etiology with no hilum noted to indicate an abnormal lymph node. Due to the patient's history of an autoimmune disease and the 2 month duration of the mass, surgical excision was recommended. Operative examination revealed a fluid filled, broad based mass in the suprapubic fat pad superficially with an unusual fluid filled stalk extending toward the internal inguinal ring. The ring appeared intact and no indirect or direct hernia defects were identified. As a result, high ligation of the stalk was completed and the cystic mass along with its stalk were excised. Final pathology revealed benign fibromuscular tissue with multiloculated cystic spaces lined by flat to cuboidal cells containing serous fluid compatible with a hydrocele of the Canal of Nuck (HCN).

Discussion: The canal of Nuck is a small invagination of the parietal peritoneum which is attached to the uterus by the round ligament through the internal inguinal ring into the inguinal canal. In normal development, this structure obliterates within the first year of life, however its patency, homologous to a patent processus vaginalis in men, can predispose women to the development of a Canal of Nuck hydrocele later in life, most commonly during the 4th decade. The formation of a hydrocele is often due to idiopathic imbalances of fluid secretion and absorption. Due to its limited prevalence in adult females, these hydroceles represent a diagnostic challenge for surgeons when addressing groin masses in women. Nearly two dozen cases of HCN have been reported in the literature, with the majority of these hydroceles identified at various points throughout the inguinal tract. We present a rare case of HCN in an unusual location, the suprapubic fat pad. The location of HCN outside of its usual tract in the inguinal canal serves as an important reminder that there is a wide breadth of pathology which may arise from the suprapubic and inguinal region in women. While the inguinal region is well characterized in men, its relative lower pathologic frequency in women leaves a large gap in the literature which reported observations of unique pathology help to fill. This unique case further helps us to characterize the uniqueness of pathology in the female suprapubic and inguinal region.

IDIOPATHIC PRIMARY RENAL MAGNESIUM WASTING SYNDROME

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INTRODUCTION: Hypomagnesemia is commonly encountered in hospitalized patients, accounting for 12 % of cases .Leading causes associated are with diuretics, gastrointestinal losses, alcohol, medication-induced and less typically familial Renal Magnesium Wasting such as Gitelman/Bartter syndrome . A rare entity is Primary Renal Magnesium Syndrome with disorders in renal tubular defects resulting in electrolyte imbalance. We describe a patient who presented with severe hypomagnesemia and urinary magnesium wasting multiple times to hospital with extensive work up negative for common causes of hypomagnesemia

CASE REPORT: A 33-year-old male came to the ED with non-specific symptoms of headache and generalized malaise for several months. Physical examination findings were unremarkable except for an elevated BP of 148/88. Initial lab work revealed severe hypokalemia (K 3.5mmol/L),hypomagnesemia (Mg 1.1mg/dL) and Na of 125 mmol/L. All the history pertaining to vomiting, diarrhea, polyuria, prior use of any laxative or hypertensive including diuretic and alcohol abuse was negative. Review of the system was positive for headache and vertigo. Blood Alcohol level was negative. This was the patient's third visit with similar electrolyte abnormality within 2 months. The patient's electrolyte abnormality prompted additional lab testing with results significant for high urinary Mg at 335 mg/g with FeMg 23% (normal <2%)but with normal rest of the urine electrolytes. Rest of the lab work was also unremarkable with negative metanephrines, Normal ACTH, normal renin and aldosterone. CT scan abdomen to rule out adrenal pathology was also negative. Throughout the admission , his BP stayed under control. As medical therapy aims at correcting electrolyte abnormality ,the patient was started on oral potassium and magnesium supplements. Patient had regular follow up with us in the clinic where his lab abnormalities gradually improved with clinical improvement in his symptoms, with continuation of oral magnesium oxide daily.

DISCUSSION: Primary Renal Magnesium Syndrome is a rare cause of hypomagnesemia. If no etiology is apparent, the distinction between GI and renal losses can be made by measuring either 24 hr urinary Mg excretion or FeMg. To diagnose primary renal magnesium syndrome, a daily excretion of more than 10-30 mg in 24 hour specimen or fractional excretion of 3- 4% is indicative. The cases reported are heterogeneous. Several cases have affected siblings or parents representing familial disease. Our literature review revealed that likely the patient had a tubular defect in renal absorption of magnesium demonstrated by high urinary excretion while in a state of deficiency . Further case studies revealed if oral magnesium fails to improve levels, addition of Potassium sparing diuretic especially amiloride use can help hypomagnesemia.

THE PRESENTATION OF POST-NATAL HSV INFECTION IN INFANTS

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History: 7 week-old male with no significant history presents with 2 days of a worsening rash, described as redness on his buttocks extending to the thighs and scrotum with overlying blisters/ulcers. He had a tactile fever for 1 day. Stools had been looser than usual. Tolerating feeds. No lethargy, vomiting, cough, or congestion. Mom denies any history of STDs or genital lesions. Patient was born at 39w0d by repeat c-section. Prenatal history significant only for hepatitis C and methadone use. In the newborn nursery, patient was monitored for NAS but never required treatment. Exam Erythema along buttocks crease, inner thighs, and scrotum, with punched-out lesions and satellite lesions 1 vesicular lesion on right thigh Few inguinal lymphadenopathy Labs White blood cells: 16.8 10*3/uL (6.0-17.5) C-reactive protein: 18.03 mg/L (0.00-3.00) Rectal herpes culture: positive CSF (cerebrospinal fluid): clear, no xanthochromia CSF WBCs: 4 /uL (0-5) CSF RBCs: approx. 45-150 /uL (0) CSF glucose: 53.2 mg/dL (60.0-80.0) CSF protein: 43.9 mg/dL (15.0-45.0) Meds Cholestyramine/mineral oil/aquaphor ointment Nystatin cream ampicillin/sulbactam Acyclovir

Discussion: Postnatal HSV- infants exposed after birth to active HSV lesions of household or caregiver contacts. Incidence of neonatal HSV is 3 to 30 per 100,000 live births world wide In the US 8 to 10 cases per 100,000 live births. There are an estimated 14,000 cases of neonatal HSV infections per year worldwide. Based on the appearance of the patient's rash and worsening of the patient's rash over a prolonged period of time, suspicion for HSV infection was high despite negative maternal history of HSV. Lumbar puncture performed to rule out CNS infection. 30% of neonatal herpes infections present as CNS disease, so it was important to rule out herpes meningitis. Patients with neonatal herpes typically present within the first month of life, but our patient presented at 7 weeks which is atypical. The patient was thus treated for 10 days, because HSV was most likely acquired postnatally based on the patient's age, > 6 weeks. For infections like HSV, it is also important to perform a full workup to rule out life threatening sequelae such as HSV meningitis, thus performing a LP, obtaining blood, urine, and wound cultures of the lesions as well as testing for both HSV 1+2 PCR and IGG antibodies. Although 10% of neonatal HSV infections are acquired postnatally it is important to take a detailed maternal and family history as well as recognize a HSV rash. It is also important to initiate antiviral treatment and provide anticipatory guidance in parents who have HSV. Although post natal HSV infection does not have significant effects on neurodevelopment of the infant, if it was acquired perinatally then prompt initiation of antiretrovirals is important to prevent disseminated disease which could result in long term complications and even death.

THE USE OF THE STRYKER SPY CAM ELITE SYSTEM FOR PREOPERATIVE PLANNING OF FILLET OF TOE FLAP PROCEDURES IN PATIENTS WITH DIABETES AND PERIPHERAL ARTERIAL DISEASE: A CASE REPORT

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Peripheral arterial disease (PAD) and diabetes are significant medical conditions that are commonly associated with lower extremity ulcers and amputations. In patients with both conditions, the incidence of lower extremity amputation is particularly high. One potential surgical approach to primarily close large soft tissue deficits that would otherwise require healing via secondary intent is the use of a fillet of toe flap. Fillet of toe flaps are a type of axial pattern flap that can be harvested from non-functioning or unsalvageable osseous and soft tissue structures. These flaps can be utilized as pedicles, islands, or microvascular free flaps for reconstruction. The Stryker Spy Cam Elite is a valuable tool for the preoperative planning of this procedure through the use of a fluorescent dye and specialized scanner that permits precise, real-time evaluation of perfusion through the microvasculature of soft tissues. We present a case report of a 67-year-old man with a past medical history significant for uncontrolled type 2 diabetes, serial amputations ultimately resulting in an an above the knee amputation (AKA) of the right lower extremity, and severe PAD who underwent a fillet of toe flap on his left foot. The Stryker Spy Cam Elite provided a high-quality, real-time video feed as the dye perfused through the microvasculature; this resulted in precise excision of non-viable tissues not yet exhibiting clinical evidence of necrosis through demarcation. The viable tissues of the 4th digit provided a well-perfused flap that was transposed to cover a large soft tissue deficit over metatarsal heads two through four following digital amputation. The patient followed up bi-weekly in the wound care center; he attained full healing of the surgical site without any post-operative complications. The use of the Spy Cam Elite System in conjunction with the fillet of toe flap improved this patient's surgical outcome by significantly decreasing the overall risk of post-operative complications.

A RARE AND UNUSUAL CAUSE OF ISCHEMIC STROKE TO BE AWARE OF

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A 45-year-old male, with a past medical history significant for previous cerebrovascular accident (CVA), hyperlipidemia, hypertension, type 2 bipolar disorder, prior deep vein thrombosis on apixaban, obesity and schizophrenia presented to the emergency department (ED) with neurologic changes of weakness. The patient reported new-onset left-sided weakness, left-hand tingling sensation, and left eye blurriness that started early in the morning. He stated that since the weakness started it had been getting progressively worse. Patient denied any headaches, dizziness, syncope, seizures, dysphagia, memory impairment, chest pain, palpitations, shortness of breath or lower extremity pain. He was sent to the ED by his facility but endorsed that his symptoms resolved prior to arrival. Patient also endorsed prior CVA and residual right lower extremity weakness. He was non-adherent to his medications and stated that he missed a few doses of his aspirin and apixaban but endorsed taking them the morning prior to his admission. Due to concern for an acute stroke or transient ischemic attack, a computed tomography (CT) scan imaging of the head without contrast was performed and the results revealed multifocal areas of encephalomalacia and gliosis within the left parietal/cerebellar lobes, as well as the right occipital lobe, and tortuosity of the basilar artery (Figure 1). He was unable to tolerate magnetic resonance imaging due to claustrophobia. A CT angiogram of the head and neck revealed non-visualization of the right internal carotid artery, suggestive of congenital absence of this vessel (Figure 2). Additionally, right anterior circulation appeared to be supplied by collateral branches of the distal basilar artery and imaging revealed no carotid artery stenosis. Additional work-up for stroke etiology was completed which involved an unremarkable electrocardiogram. A transthoracic echocardiogram revealed an ejection fraction of 55-60% with no left atrial thrombus. The patient was seen by the neurology team and after a comprehensive workup that was negative for other causes of the patient's ischemic stroke, it was concluded that the patient's absent right ICA was the underlying etiology. It was believed that his right-sided ICA absence put a strain on his collateral circulation resulting in primarily left-sided sensory and motor symptoms. The data surrounding the clinical significance of ICA agenesis is scarce likely due to the incredibly rare nature of this condition. Typically congenital absence of an ICA is often diagnosed incidentally during imaging of the cerebral vessels, it is important for clinicians to be aware of the findings and the potential implications of the anomaly. While ICA agenesis alone can be harmless, it is important for clinicians to be aware of the concurrent structural vascular abnormalities that are often seen including cerebral aneurysms. This case report hopes to provide an overview of ICA agenesis.

DOUBLE-TROUBLE: PEMBROLIZUMAB INDUCED ACUTE MYOCARDITIS AND THYROIDITIS

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Case: A 69-year-old female with past medical history of hypertension, hyperlipidemia, anemia, diabetes mellitus, recently diagnosed triple-negative breast cancer status post lumpectomy, neoadjuvant chemotherapy and immunotherapy, presented to the emergency department (ED) with a two-week history of generalized weakness and anasarca. Symptoms of weakness, swelling, and fatigue started after chemotherapy was initiated. Patient was receiving carboplatin/paclitaxel and cyclophosphamide/doxorubicin for chemotherapy and pembrolizumab for immunotherapy. The patient last received chemotherapy four months and immunotherapy two months prior to presentation. The patient was hemodynamically stable with elevated d-dimer of 2069 ng/mL, hemoglobin 7.7 g/dL, leukopenia of 3.1, and an elevated high sensitivity troponin I of 83 ng/L (ref range: <34 ng/L). Electrocardiogram was significant for sinus rhythm with first-degree atrioventricular block and low voltage QRS, <5 mm in leads II and III. A chest computed tomography angiogram revealed pulmonary venous congestion with trace pericardial effusion. Echocardiography showed a reduced ejection fraction of 51-54%, physiologic pericardial effusion, and global longitudinal strain of -14. Further investigation with cardiac magnetic resonance imaging (MRI) revealed findings consistent with myocarditis based on 2018 Lake Louise criteria. Thyroid stimulating hormone was elevated at 87.08 ulU/mL and free T4 was decreased at 0.14 ng/dL, with previous values being 1.365 ulU/mL and 1.37 ng/dL respectively. Hypothyroidism was suspected to be secondary to pembrolizumab and thyroid peroxidase antibodies were found to be elevated. The patient was started on five days of prednisone 80 mg daily for myocarditis and levothyroxine 125 mcg daily for thyroid hormone replacement. The patient's symptoms resolved and she was discharged with outpatient follow-up.

Discussion: Mortality of 25-50% is associated with ICPi myocarditis and sequelae, including arrhythmias and cardiomyopathy, making this an important adverse effect to recognize [4]. Recognizing these potentially fatal side effects of ICPis may increase patient safety, and also have additional clinical importance as the rate of response to immunotherapy was found to be higher in patients with reported immune-mediated adverse reactions [5]. While immune checkpoint inhibitors have served as a major breakthrough in managing a multitude of cancers, it is important to be aware of the increasing incidence of immune-related adverse events. To our knowledge, this is the first reported case of concurrent myocarditis and thyroiditis associated with pembrolizumab. Patients may benefit from cardiac and thyroid function screening before and during the initiation of ICPis. Further studies are needed to assess for prevalence and timely treatment of complications to help better patient outcomes.

TWO L'S: LINEZOLID INDUCED LACTIC ACIDOSIS

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Patient is a 70-year-old female with a past medical history of epilepsy, liver cirrhosis, diabetes mellitus, prior hepatic encephalopathy, morbid obesity, and uterine cancer who presented with confusion and shaking from home after her concerned husband called emergency medical services. In the emergency department (ED) the patient had a Glasgow coma scale of 4 and was intubated for airway protection. Workup at the time of admission revealed septic shock secondary to Escherichia coli urinary tract infection (UTI) and bacteremia. Patient was started on ceftriaxone for the UTI and moved to the neurological intensive care unit for multifactorial encephalopathy and further work-up including video EEG for potential seizures. Patient was eventually extubated and transferred to medicine floors after a course of antibiotics. The patient's hospital course was complicated by multiple rapid responses for hypotension and altered mental status that ultimately lead to her care being escalated to the medical intensive care unit (ICU) due to intubation. Patient was found to have toxic metabolic encephalopathy and also found to be bacteremic with vancomycin-resistant enterococcus faecium (VRE) and Candida. Patient was started on fluconazole and linezolid. After six days of linezolid, the patient was found to have elevated lactic acid of 7.8 mmol/L from a previous lactic acid of 2 mmol/L and an anion gap of 18. Linezolid was stopped and there was a significant improvement of the lactic acid to 6.3 mmol/L and anion gap to 15. Lactic acid continued to downtrend after discontinuation of linezolid and without any other significant intervention. Patient was not hypoxemic, anemic or in a low cardiac output state during this time. The patient's condition continued to deteriorate, however, and the decision was made to transition to comfort care.

Discussion: The first line agent for VRE infections and bacteremia in the majority of cases is linezolid although it is a bacteriostatic drug [2]. Lactic acidosis from linezolid use results from interactions between linezolid and mitochondrial ribosomes causing a decrease in aerobic energy production and increasing anaerobic glycolysis and generation of lactate, despite no hypoxia [3]. In a review of case reports, it was found that the incidence was ~6.8%, mortality associated with linezolid lactic acidosis was 25.5% and found that male gender may be related to increased mortality [4-5]. Due to the highly lethal nature of this adverse reaction, close monitoring and prompt discontinuation of linezolid is paramount in lactic acidosis. Further studies on risk factors and interactions that may exacerbate lactic acidosis in patients on linezolid may potentially lead to better patient outcomes.

A RARE CASE OF METACHRONOUS SQUAMOUS CELL CARCINOMA OF THE ESOPHAGUS AFTER RESOLUTION OF PRIOR ADENOCARCINOMA.

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Esophageal cancer is a major cause of cancer-related deaths worldwide. This cancer has two primary forms: adenocarcinoma and squamous cell carcinoma. In oncology, the term "metachronous" describes the occurrence of two or more independent primary malignancies when the second malignancy arises more than six months after diagnosing the first malignancy. This article presents a unique case of esophageal adenocarcinoma followed by metachronous squamous cell carcinoma, which has not been well documented in the literature. The patient was a 67-year-old male with a medical history of smoking and T2N0Mx esophageal adenocarcinoma. He presented with complaints of progressive dysphagia and one episode of hematemesis three years after his initial diagnosis. He had previously undergone chemoradiation and a follow-up esophagogastroduodenoscopy (EGD), revealing no signs of active disease. However, a recent EGD showed a medium-sized, non-bleeding, partially obstructing, and ulcerating mass in the lower third of the esophagus, which was biopsied and diagnosed as moderately differentiated squamous cell carcinoma. Multiple primary malignant tumors (MPMT) are described as multiple malignancies that develop from different tissues with distinct morphologies. Malignancies that develop within six months are defined as "synchronous," while those that develop after six months are defined as "metachronous." The histological subtypes found in our patient did not surprise us, considering squamous cell carcinoma and adenocarcinoma are the two most prevalent types of esophageal cancer worldwide. Upon extensive review, studies suggest that the metachronous changes seen in our patient are more likely secondary to thermal injury from radio-frequency ablation, as the epithelial origins of columnar and squamous epithelium share common progenitors. For these reasons, eradicating the adenocarcinoma with radio-frequency ablation could have predisposed the tissue to squamous cell proliferation. Multiple primary malignant tumors have an incidence rate of 0.52% to 11.7%, making it crucial for providers to screen for recurrence and the development of second primary malignancies. Clinicians must be made aware of this risk, and appropriate screening is necessary for patients during and following treatment for the timely diagnosis and management of metachronous lesions.

A RARE CASE OF CARDIAC METASTASES FROM RENAL CELL CARCINOMA WITHOUT IVC INVOLVEMENT

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Case Summary: A 66-year-old man with a history of stage III renal cell carcinoma (RCC) status post right nephrectomy, was found to have a cardiac mass during surveillance imaging at one-year follow-up. Patient denied any cardiac symptoms including chest pain, palpitations or syncope. Imaging Findings: Transthoracic echocardiogram (TTE) showed a large mass in the pericardial space adjacent to the tricuspid valve annulus measuring 5.1 x 5.3 cm. The mass appeared to externally compress the right atrium and ventricle with no clear evidence of intracardiac invasion, tricuspid valve obstruction by Doppler and no pericardial effusion. Cardiac computed tomography (CT) showed an ill-defined mass in the right atrioventricular groove that was avidly enhancing with extensive neovascularity supplied by the right coronary artery (RCA). No other masses were identified in the chest or abdomen. Pre-surgical planning cardiac catheterization which showed nonobstructive coronary artery disease and confirmed extensive neo-vascularity of the mass supplied by the RCA. The patient underwent successful resection of the mass. Intraoperative transesophageal echocardiogram showed severe tricuspid insufficiency that was subsequently repaired with a tricuspid valve annuloplasty ring. Histopathology revealed renal cell carcinoma (RCC) and chemotherapy was initiated. Role of Imaging in Patient Care: Cardiac metastases are more common than primary cardiac tumors. Routine surveillance with echocardiography was able to identify this pericardial mass in a patient with no cardiovascular symptoms. RCC most commonly metastases to lung, liver, bones or central nervous system. It is rare to metastasize to the heart however when it does, hematogenous spread occurs from the renal vein into the inferior vena cava (IVC) and ultimately into the right heart. Metastasis such as with our patient without IVC involvement is exceedingly rare.

Discussion/Conclusion: Cardiac metastasis from RCC usually occurs from direct extension from the IVC into the right heart. Although uncommon, RCC may present as a solitary mass in the pericardial space without IVC involvement.

GIANT LEFT VENTRICULAR OUTflOW TRACT PSEUDOANEURYSM

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Case Summary: A 60 year-old man with a history of aortic valve replacement (AVR) subsequent Streptococcus mitis endocarditis who required redo mechanical AVR, presented for a routine outpatient visit and a new murmur was heard. Imaging Findings: Transthoracic echocardiogram (TTE) revealed new mildly reduced left ventricular ejection fraction, a mechanical AVR with severe aortic regurgitation and paravalvular leak. A transesophageal echocardiogram (TEE) showed a left ventricular outflow tract (LVOT) pseudoaneurysm (PSA) with a clear communication of blood flow from the left ventricle into the PSA by color Doppler. The PSA extended along the ascending aorta to the level of the right pulmonary artery. The anatomical lateral leaflet of the AVR was restricted in motion leading to severe valvular regurgitation. Cardiac computed tomography (CT) scan confirmed a large outpouching of contrast arising from the right posterior aspect of the LVOT consistent with PSA. The neck of the outpouching measured 2.4 x 2.0 cm and the sac 6.0 x 3.3 x 5.3 cm. Role of Imaging in Patient Care: TTE imaging is often the first line method used to assess a patient with prior AVR and new murmur. Depending on the PSA location, the ostium and extent of the sac may be challenging to visualize and multimodality imaging may be required. On TEE you can see flow into the PSA by color Doppler with expansion in systole secondary to the entrance of high velocity left ventricular blood flow. Cardiac CT can also measure the extent of the PSA, locate its ostium and determine the size.

Discussion/Conclusion: LVOT PSA is rare and can have potentially life-threatening complications. It can occur after endocarditis related AVR suture dehiscence or from continued aortic root dilation after AVR. As in our patient, it can have a subtle clinical course and detection may occur from routine TTE surveillance with a multimodality approach. Surgical intervention remains the preferred treatment.

TERRIBLE THREES: THREE CASES OF INFANTS WITH HYPERKALEMIA AND HYPONATREMIA

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Here we review three cases of infants who share similar clinical presentations and electrolyte disturbances, each with a unique diagnosis. Patient 1 was a 4 month-old who presented with two weeks of poor weight gain. Labs revealed leukocytosis, hyponatremia (124 mmol/L) and hyperkalemia (8.3 mmol/L) (ref. 4.1-5.3mmol/l) with moderate hemolysis (repeated to 5.8 mmol/l without hemolysis). A urinalysis revealed 30-50 white blood cells and large leukocytes. Patient 2 was a 6-day old male who presented with poor oral intake, emesis and lethargy. Electrolytes were significant for hyponatremia (124mmol/L) and hyperkalemia (9.4mmol/L). Patient 3 was a 6 week-old presenting with constipation and abnormal labs from an outside hospital with hyponatremia (132mmol/L) and hyperkalemia (9.1mmol/L). Prior to transfer, he received furosemide, albuterol and intravenous saline. Physical exam revealed a thin appearing infant with a mildly sunken fontanelle, dry mucous membranes and scleral icterus. Hyponatremia (130 mmol/L) and hyperkalemia (7.4mmol/L) persisted on repeat labs. Electrolyte abnormalities in infancy require prompt diagnosis and correction to avoid life-threatening complications including cardiac arrhythmias, seizures, and in severe cases, mortality. Calcium gluconate will allow for myocardial stabilization. Extracellular to intracellular shifting of potassium can be achieved by albuterol, insulin and sodium bicarbonate. Acute excretion of potassium can be achieved by intravenous furosemide and more long term, through kayexalate, or dialysis if severe. Patient 1 was found to have transient pseudohypoaldosteronism (PHA) secondary to a urinary tract infection. Elevated plasma renin of 32.83 ng/dL (0.25-5.82 ng/dL) and elevated aldosterone of 190 ng/dL (2-70 ng/dL) in the setting of the infant's UTI confirmed this diagnosis. PHA results from decreased or absent response to aldosterone. Mineralocorticoid supplementation and treatment of the underlying etiology, i.e. antibiotics, should result in normalization of electrolytes. Patient 2 was found to have a rare condition, X-linked adrenal hypoplasia congenita. This diagnosis was made in the context of a normal newborn screen, normal 17-OHP and absence of 21-hydroxylase antibodies. Furthermore, an ACTH stimulation test revealed a poor response and inadequate cortisol production. Our patient was started on hydrocortisone and fludrocortisone with improvement in electrolytes. Our third patient's diagnosis emphasizes an importance of mineralocorticoid synthesis in electrolyte homeostasis. An elevated renin (57 ng/dL (0.25-5.8ng/dL)), a normal corticosterone level with insufficient 18-hydroxylase corticosterone (<5ng/dL) (5-220ng/dL) and aldosterone levels <1ng/dL (2-70ng/dL), aided in the diagnosis. Corticosterone-methyl oxidase deficiency, is an autosomal recessive condition resulting in inability to produce aldosterone. Our patient was treated with sodium supplementation and fludrocortisone.

ROLE OF ECHOCARDIOGRAPHY IN PERCUTANEOUS RIGHT VENTRICULAR MECHANICAL CIRCULATORY SUPPORT DEVICE (IMPELLA RP flEX) IMAGING

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Case Summary: A 60-year-old man with a history of diabetes presented with nausea and epigastric pain and was found to be in sustained ventricular tachycardia requiring emergent cardioversion. Afterwards, an electrocardiogram showed ST elevations in the inferior leads and he was taken for cardiac catheterization. There he required placement of percutaneous right ventricular (RV) mechanical circulatory support device (Impella RP flex) to support his cardiogenic shock and acute RV failure. Angiogram found 100% mid RCA occlusion, 90% proximal LAD occlusion with collaterals to the RCA. Intervention on his RCA was unsuccessful thought to be a chronic total occlusion; however, a drug-eluting stent was placed in the LAD. Initial transthoracic echocardiogram (TTE) showed acute RV failure with a dilated and hypokinetic RV and mildly reduced left ventricular systolic function. Using fluoroscopy and TTE an Impella RP flex was guided into the right heart and across the pulmonic valve into the main pulmonary artery (PA). Next day follow up TTE images showed improved biventricular systolic function and the Impella RP flex was weaned. Acute right heart failure may lead to cardiogenic shock and emergent placement of Impella RP flex may be needed. The device is guided under fluoroscopy but TTE is usually the first line imaging test ordered to confirm placement. It is important to assess the location of the inlet (usually in the right atrium) and the outlet (in the main PA) of the device. The tip of the device is usually directed towards the left PA and a PA catheter positioned in the right PA. The Impella RP flex is easily visualized by TTE with turbulent flow by Doppler seen in the areas of the inlet and outlet.

Discussion/Conclusion: In cases of acute RV failure, placement of percutaneous RV mechanical circulatory support devices may be needed and TTE imaging is often ordered to help with guidance and confirms positioning.

A CASE OF TUMORAL PULMONARY HYPERTENSION RESULTING IN RIGHT VENTRICULAR FAILURE

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Introduction: Tumoral pulmonary hypertension (PH) is a rare complication of metastatic malignancy that can mimic acute pulmonary embolism however it is difficult to diagnose antemortem. It occurs when tumor cells trigger a coagulation cascade in the pulmonary artery vasculature leading to vessel hypertrophy and fibrosis. Subtypes include pulmonary tumor microembolism (PTE), pulmonary tumor thrombotic microangiopathy (PTTM), and tumor macroembolism. We present a patient with metastatic lung cancer who developed acute right ventricular heart failure with no sign of acute pulmonary embolism (PE), hypothesized to be tumoral pulmonary hypertension.

Case Presentation: A 44 year-old female with metastatic lung adenocarcinoma, deep vein thrombosis and pulmonary emboli on therapeutic enoxaparin, presented with worsening dyspnea and hypotension. On arrival, she was afebrile (97.4°F; 36.3°C), hypotensive (81/44 mmHg), tachycardic (129 beats per minute), and tachypneic (31 respirations per minute) with accessory muscle use. Laboratory findings were remarkable for a troponin-I of 0.03 ng/mL and beta-natriuretic peptide of 851 pg/mL. Computed tomography angiogram (CTA) of the lung was negative for acute PE. Transthoracic echocardiogram (TTE) revealed a severely dilated and hypokinetic right ventricle with right ventricular systolic pressure (RVSP) of 87.9 mmHg, significantly worse than her TTE from one month prior (RVSP 46.0 mmHg). Right heart catheterization revealed a cardiac output of 2.84L/min, pulmonary artery pulsatility index of 5.1, pulmonary capillary wedge pressure of 6 mmHg, and pulmonary vascular resistance of 12.7 dynes/sec/cm^5. Pulmonary angiogram was aborted due to elevated right atrial pressure. Despite treatment with intravenous (IV) anticoagulation, vasopressors and IV treprostinil, she developed worsening cardiogenic shock and died despite resuscitative efforts.

Discussion: Tumoral PH should be suspected in patients with metastatic malignancy, particularly adenocarcinomas, who present with acute right ventricular failure in the setting of a negative PE study or persistent RV failure despite treatment with anticoagulation. CTA and a ventilation-perfusion scan may show multiple small filling defects therefore modalities that allow for sampling and analysis via cytology including pulmonary artery wedge aspirate, transbronchial biopsy or open lung biopsy are warranted for definitive diagnosis. Due to rapid progression of cor pulmonale in these patients, aggressive management is necessary. Anecdotal reports of endothelin receptor antagonists, glucocorticoids, chemotherapy and growth-factor targeted therapy such as tyrosine kinase inhibitors have been shown to have anti-inflammatory and anti-remodeling effects.

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