
2024

# GME Resident Scholarly Activity Projects

Kaweah Health
Graduate Medical Education

## FOREWORD

Congratulations Kaweah Health resident and faculty physicians! You continue to meet the rigorous standards of this graduate medical education program and you should be proud of the scholarly achievements showcased in this booklet.

Through these accomplishments, you have learned, measured and applied knowledge in new ways. You are contributing to the collective scientific knowledge of the world.

We are very excited to be able to support this quality work. By participating in the research and publication process, you demonstrate your abilities to make meaningful contributions within your own community, your areas of interest and throughout the world of health care. We are proud of you, and look forward to the differences you will make.

Sincerely,

**Lori D. Winston, MD FACEP**
Chief Medical Education Officer, Designated Institutional Official

**Bruno Alonso, MD**

Transitional Year

# Do Pitch Velocity and Pitch Selection Change in Major League Baseball Pitchers following Ulnar Collateral Ligament Reconstruction?

## INTRODUCTION/BACKGROUND:

Ulnar collateral ligament (UCL) reconstruction, commonly known as Tommy John surgery, is a prevalent procedure among Major League Baseball (MLB) pitchers to address elbow instability caused by valgus stress during pitching. This study examines changes in pitch velocity and selection following UCL reconstruction to understand its impact on performance and recovery trends.

## METHODS:

Data were retrospectively collected for 87 MLB pitchers who underwent UCL reconstruction between 2010 and 2020 and returned for at least one full season post-surgery. Pitch usage percentages and velocities for fastballs, off-speed pitches, and breaking balls were obtained from public databases, including Brooks Baseball. Metrics from the last season before surgery and the first season after were compared using t-tests, stratified by quartiles and deciles, to identify trends. Statistical significance was determined at $P < .05$.

## RESULTS:

Postoperative fastball usage decreased from 57.86% to 54.71%, with a corresponding increase in off-speed pitch usage from 12.26% to 14.39%; neither finding was statistically significant. Pitch velocity showed minor reductions (<1%) across all pitch types, with no statistically significant differences. Notably, pitchers in the top quartile of preoperative fastball velocity experienced a significant decline postoperatively ($P = 0.01$). ERA+ decreased slightly post-surgery, without statistical significance.

## IMPLICATIONS FOR PRACTICE:

The findings suggest a behavioral shift towards increased off-speed and breaking ball usage among MLB pitchers post-surgery, potentially reflecting psychological hesitancy to rely on fastballs or physical adjustments to avoid re-injury. While velocity and performance metrics remained stable, understanding the psychological and biomechanical factors influencing post-surgical decision-making can inform tailored rehabilitation strategies. Future research should investigate cognitive and mechanical adaptations in pitchers to optimize recovery and performance post-UCL reconstruction.

**Eduardo Amezcua, MD**

Family Medicine

# Cocci Meningitis in an Immunosuppressed Transplant Patient

**INTRODUCTION/BACKGROUND:**
Coccidioidomycosis (Valley Fever) is endemic to California's Central Valley and poses significant risks for immunocompromised individuals, including disseminated infection and meningitis. Despite advancements in prophylaxis, reactivation of dormant infections remains a clinical challenge.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 66-year-old post-renal transplant patient on tacrolimus presented recurrently with neurological deficits. Initially suspected as stroke sequelae, further findings included low cerebrospinal fluid glucose, lymphocytic leukocytosis, and MRI evidence of basal ganglia enhancement, raising concern for coccidioidomycosis meningitis.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The diagnosis was complicated by atypical presentation and non-compliance with prophylactic fluconazole. High-dose intravenous fluconazole and dexamethasone were initiated, leading to clinical improvement. Subsequent adjustment of tacrolimus restored therapeutic levels, and the patient was discharged with lifelong antifungal therapy and physical therapy.

**IMPLICATIONS FOR PRACTICE:**
This case highlights the importance of prophylactic antifungal adherence in transplant recipients and the need for vigilance in recognizing reactivation of endemic infections. Comprehensive laboratory and imaging evaluations are crucial for diagnosis in immunocompromised patients, even when initial findings are ambiguous.

**Matthew Bordbari, DO**

Emergency Medicine

# Nonbacterial Thrombotic Endocarditis Causing Recurrent Strokes in a Patient with Rheumatoid Arthritis

**INTRODUCTION/BACKGROUND:**
Nonbacterial thrombotic endocarditis (NBTE) is a rare, noninfectious cause of endocarditis, often presenting with embolic complications and diagnosed after end-organ damage. Although malignancy, systemic lupus erythematosus, and antiphospholipid syndrome are common risk factors, autoimmune conditions like rheumatoid arthritis have also been implicated. Early diagnosis and treatment with anticoagulation are essential to prevent morbidity.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 61-year-old female with a history of rheumatoid arthritis and childhood rheumatic fever presented with acute stroke-like symptoms, including aphasia, dysarthria, unilateral arm numbness, and facial droop. Imaging showed multifocal cerebral and cerebellar infarctions. Echocardiography revealed a large vegetation on the posterior mitral leaflet. Blood cultures and pathology confirmed aseptic endocarditis.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The diagnosis of NBTE was established based on clinical and pathological findings. Initial treatment included anticoagulation, antiplatelet therapy, and broad-spectrum antibiotics. Despite surgical removal of the vegetation and closure of a patent foramen ovale, the patient experienced a recurrent embolic event requiring mechanical thrombectomy. Postoperative complications included persistent neurological deficits and recurrence of a smaller mitral valve vegetation. The patient was eventually discharged to long-term care after a prolonged hospitalization.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of maintaining a high index of suspicion for NBTE in patients with embolic events and underlying autoimmune conditions. Early anticoagulation and consideration of surgical intervention are critical to managing this condition and preventing further complications. Future guidelines should address the optimal duration of anticoagulation therapy and surgical timing in NBTE cases.

**Jeremy Brown, DO**

Family Medicine

# The Influence of the COVID-19 Pandemic on Baseline Concussion Symptom Assessments Among Adolescents

**INTRODUCTION/BACKGROUND:**
The COVID-19 pandemic disrupted high school sports, impacting adolescents' quality of life. This study aimed to evaluate whether the cancellation of sports during the pandemic affected baseline self-reported symptoms of high school athletes as measured by the Post-Concussion Symptom Scale (PCSS) during Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT).

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A retrospective cohort study analyzed 104,274 ImPACT assessments from high school athletes in Arizona across four academic years: pre-pandemic (2018–2019, 2019–2020), during the pandemic (2020–2021), and post-pandemic (2021–2022). PCSS scores, assessing total symptom severity and four clusters (affective, cognitive-sensory, sleep-arousal, vestibular-somatic), were compared across years using generalized linear models and post hoc Tukey's tests.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
Symptom severity scores on the PCSS were significantly lower during the pandemic year (2020–2021; mean score 5.33, 95% CI: 5.13–5.54) compared to pre-pandemic and post-pandemic years. Affective, cognitive-sensory, sleep-arousal, and vestibular-somatic cluster scores followed similar trends ($p < 0.001$). Contrary to expectations, adolescents reported fewer symptoms during the pandemic, potentially due to alleviation of typical stressors such as academic pressure or sports-related injuries.

**IMPLICATIONS FOR PRACTICE:**
These findings suggest that pandemic-related disruptions did not exacerbate baseline symptoms in adolescent athletes as anticipated. The PCSS component of ImPACT may be less sensitive to quality-of-life changes due to sports disruptions. Further research using comprehensive quality-of-life measures is recommended to fully understand the pandemic's impact on adolescent athletes' mental and physical well-being.

**Amy Chuang, DO**

Emergency Medicine

# Electronic Cigarette or Vaping-Associated Lung Injury (EVALI) with Extensive Pneumomediastinum and Pneumopericardium: A Case Report

**INTRODUCTION/BACKGROUND:**
Electronic cigarette or vaping-associated lung injury (EVALI) has emerged as a significant health concern among young individuals, often presenting with diverse respiratory and systemic symptoms. While ground-glass opacities are a hallmark imaging finding, pneumomediastinum and pneumopericardium remain rare but critical complications requiring thorough evaluation and management.

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 25-year-old male with a history of bipolar disorder presented with two weeks of dyspnea and chest discomfort, describing a sensation of "Rice Krispies in my chest." He admitted to recent tetrahydrocannabinol (THC) vaping. Physical examination revealed diffuse subcutaneous emphysema, and chest imaging identified extensive pneumomediastinum, pneumopericardium, and bilateral ground-glass opacities.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The patient was diagnosed with EVALI complicated by spontaneous pneumomediastinum and pneumopericardium after excluding infectious, malignant, and structural causes. He received empiric antibiotics, corticosteroids, antitussive therapy, and supportive care. His symptoms and imaging findings improved with treatment, and he was discharged under close outpatient follow-up.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of recognizing EVALI's variable presentation and complications such as pneumomediastinum. Prompt diagnosis requires high clinical suspicion and exclusion of other causes. Early intervention with corticosteroids and supportive measures can significantly improve outcomes. Awareness and education on the risks of vaping remain crucial in clinical and public health settings.

**Jasmeen Chahil, MD**

Family Medicine

# Deep Soft Tissue Leiomyoma of the Pre-Patellar Space: A Clinical Case Report

**INTRODUCTION/BACKGROUND:**
Leiomyomas are benign soft tissue tumors predominantly found in the uterus. Extra-uterine deep soft tissue leiomyomas are exceptionally rare, particularly in males. Accurate diagnosis often requires histopathological evaluation, given the rarity and potential for misdiagnosis.

**METHODS/RESULTS:**
A 37-year-old male presented with a superficial "cyst" overlying the left patella, suspected to have been present for five years. The lesion was a 1.5 cm firm, mobile, subcutaneous nodule, largely asymptomatic but occasionally uncomfortable. Clinical examination noted no overlying skin changes or systemic symptoms.

**RESULTS:**
Differential diagnoses included lipoma, osteochondroma, patellar tendonitis, and patellar fracture. Histopathological analysis post-resection revealed ovoid spindle cells, positive desmin and actin staining, and negative S100 staining, confirming the diagnosis of a deep soft tissue leiomyoma. The lesion was excised in-office with no complications, and subsequent follow-up showed no recurrence or complications.

**IMPLICATIONS FOR PRACTICE:**
This case highlights the importance of considering rare entities like deep soft tissue leiomyoma in the differential diagnosis of soft tissue lesions in males. It underscores the role of collaborative efforts between clinicians and pathologists for accurate diagnosis and management. Further documentation and reporting of such cases can enhance clinical recognition and inform management strategies.

**Stanley Chu, MD**

Transitional Year

# Multiparametric 4D Flow MRI Hemodynamics for Improved Growth Rate Prediction in Type B Aortic Dissection

**INTRODUCTION/BACKGROUND:**
Type B aortic dissection (TBAD) is a life-threatening condition with significant risk for progressive aortic dilation. Current risk assessment relies on morphological imaging features but lacks reliable hemodynamic predictors. This study evaluates the potential of 4D flow MRI-derived true lumen (TL) hemodynamic parameters to predict descending aortic growth rate, aiming to improve risk stratification for early thoracic endovascular aortic repair (TEVAR).

**METHODS:**
This retrospective study included 26 TBAD patients with baseline 4D flow MRI and at least 9 months of imaging follow-up. Hemodynamic parameters including TL peak velocity (TL-PV) and TL pulse wave velocity (TL-PWV) were quantified. Morphological features, such as maximal aortic diameter and false lumen thrombus levels, were measured. Bivariate and multivariate regressions were performed to identify predictors of aortic growth rate.

**RESULTS:**
TL-PWV and TL-PV were significantly associated with descending aortic growth rate ($r^2 = 0.33$, $p < 0.01$ and $r^2 = 0.29$, $p < 0.01$, respectively). A combined multivariate model incorporating TL-PWV and TL-PV achieved improved predictive performance ($r^2 = 0.50$, $p < 0.001$). No significant associations were found for morphological features or clinical measures.

**IMPLICATIONS FOR PRACTICE:**
4D flow MRI-derived hemodynamic parameters, particularly TL-PWV and TL-PV, are promising biomarkers for predicting descending aortic growth in TBAD. Their inclusion in risk models could guide personalized management decisions and optimize the timing of TEVAR, ultimately improving patient outcomes.

**Christina Seto, MD**

**Giulia DiBella, DO**

**Emergency Medicine**

# Resident Physician Attitudes Toward and Competency With Using DPASS Mnemonic Tool for Signout Practices in a Community-Hospital Based Emergency Department

**INTRODUCTION/BACKGROUND:**
A crucial aspect of emergency medicine includes patient signout. This practice involves the handoff of patients who remain in the department with actionable items precluding disposition, ensuring the safe transition of care. Poor communication during signout can lead to errors compromising patient safety. This study aimed to establish a standardized signout protocol using the DPASS mnemonic and to assess resident perceptions of its effectiveness.

**METHODS:**
The study was conducted within an educational curriculum at Kaweah Health Emergency Medicine Residency. Residents attended an educational session introducing the DPASS mnemonic, participated in a simulation activity, and completed pre- and post-activity surveys. Data were collected on perceptions, attitudes, and competencies before and after using the DPASS tool. Matched pre-test and post-test surveys were analyzed using paired-sample statistical methods.

**RESULTS:**
The study showed significant improvements in residents' intentions to include crucial signout elements: disposition, action items, situational awareness, and synthesis time. Statistical analysis revealed meaningful increases in these areas post-activity ($p < 0.05$), highlighting the DPASS mnemonic's utility in enhancing signout quality.

**IMPLICATIONS FOR PRACTICE:**
Implementing the DPASS mnemonic tool in emergency medicine training ensures standardized, safe, and effective patient handoffs. Adoption of this tool can minimize communication errors and improve patient safety, serving as a model for integration into broader residency training programs.

**Shared project*

**Audelia Eben, DO**

Transitional Year

# Progression of Coronary Calcium and All-Cause Mortality in Persons with End-Stage Renal Disease

**INTRODUCTION/BACKGROUND:**
Patients with end-stage renal disease (ESRD) face significantly elevated cardiovascular (CV) risks, with CV disease accounting for over 50% of mortality in this population. Vascular calcification (VC), particularly coronary artery calcium (CAC), is a critical contributor to these outcomes. While CAC is a recognized mortality predictor in the general population, limited data exist on its progression and impact on ESRD outcomes.

**METHODS:**
This retrospective study analyzed 146 ESRD patients who underwent two non-contrast CT scans to assess CAC progression, annualized for analysis. Patient demographics, comorbidities, and mortality outcomes were collected and analyzed using Kaplan-Meier survival analysis and multivariate Cox proportional hazards models.

**RESULTS:**
During a mean follow-up of 7.9 ± 5.4 years, 96 patients (66%) died. At baseline, 86% of patients had CAC >0, with a median score of 256 (IQR: 13–875). Patients with higher annualized CAC progression (>129/year) had a significantly increased risk of all-cause mortality (adjusted HR: 1.86; 95% CI: 1.13–3.08; p = 0.016). Diabetic and older patients demonstrated a higher prevalence of CAC progression and mortality.

**IMPLICATIONS FOR PRACTICE:**
Annualized CAC progression >129/year doubles the mortality risk in ESRD patients, highlighting the need for proactive risk stratification and targeted interventions. Incorporating advanced imaging and monitoring strategies for CAC progression could enhance individualized care and improve survival outcomes in this high-risk group.

**Grace Guadalupe, MD**

Family Medicine

# Male Osteoporosis in Alcohol Consumption: A Case Report

**INTRODUCTION/BACKGROUND:**
Osteoporosis is a common pathology characterized by reduced bone density and increased fracture risk, predominantly affecting women over 65 years. Current screening guidelines overlook young men, despite secondary causes such as chronic alcohol consumption being well-documented contributors.

**METHODS:**
A 39-year-old Caucasian male presented with a history of heavy alcohol consumption, withdrawal seizures, and recurrent ground-level falls leading to multiple vertebral and rib fractures. Further evaluation revealed a DEXA T-score of -2.9, indicating osteoporosis.

**RESULTS:**
The patient was diagnosed with secondary osteoporosis attributed to chronic alcohol consumption. Initial treatment with weekly bisphosphonates was replaced with Forteo for its bone formation properties. He received multidisciplinary care involving primary care, neurosurgery, rheumatology, psychiatry, and pain management. The patient has since achieved sobriety, remains compliant with his treatment regimen, and continues outpatient therapy.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the need for revised osteoporosis screening guidelines to include at-risk young males with chronic alcohol consumption. Current recommendations focus solely on women over 65, potentially delaying diagnosis and treatment in other vulnerable populations. Broader screening criteria and patient education on alcohol's impact on bone health could mitigate long-term complications of undiagnosed osteoporosis.

# Delayed Approach to Postdural Puncture Headache

**Haiyan Guo, DO**

Anesthesiology

**INTRODUCTION/BACKGROUND:**
Postdural puncture headache (PDPH) is a recognized complication of neuraxial anesthesia. Despite its typical presentation, atypical cases necessitate advanced diagnostic approaches. This report illustrates a unique instance of PDPH marked by atypical symptoms and management decisions that delayed traditional treatment to prevent adverse outcomes.

**METHODS:**
A postpartum woman in her mid-20s experienced severe interscapular pain and upper extremity radiculopathy without a positional headache following epidural catheter placement. MRI revealed a significant cerebrospinal fluid (CSF) leak causing a mass effect on the spinal cord and severe stenosis at the cauda equina.

**RESULTS:**
The diagnosis was postdural puncture headache with atypical neurological symptoms and CSF leakage. Initial conservative management, including bed rest, hydration, and symptomatic treatment, was employed to avoid exacerbating spinal cord compression. The patient received an epidural blood patch (EBP) on day 7 after imaging confirmed sufficient CSF resorption. Following treatment, the patient's positional headache and neurological symptoms improved significantly, allowing her to resume normal activities and care for her infant.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of individualized treatment strategies for atypical PDPH presentations. While EBP is effective for PDPH, its early use in cases with severe CSF leakage and spinal cord compression may pose additional risks. Conservative management and delayed EBP can avert potentially catastrophic outcomes. This highlights the need for comprehensive evaluation, including imaging in atypical cases, to guide safe and effective treatment.

**Ethan Hartman, MD**

Emergency Medicine

# Recognition and Management of Toxic Shock Syndrome in a Young Female

**INTRODUCTION/BACKGROUND:**
Sepsis, defined as life-threatening organ dysfunction due to a dysregulated host response to infection, remains a critical challenge in emergency medicine. Early recognition and management of septic shock, particularly from rare causes like toxic shock syndrome (TSS), are crucial to improving outcomes. This simulation-based educational intervention aimed to enhance emergency medicine residents' recognition, management, and documentation of TSS within the SEP-1 guideline framework.

**METHODS:**
A single-session simulation was conducted for 34 emergency medicine residents (PGY1–PGY3) during weekly conferences. Six small-group, 30-minute sessions used the SimMan3G manikin to simulate a young female patient with TSS due to prolonged tampon use. Participants completed pre- and post-tests assessing SEP-1 knowledge. Compliance with SEP-1 metrics was also evaluated through hospital records three months before and after the simulation. Statistical analysis utilized paired t-tests for pre-post test comparisons.

**RESULTS:**
All residents achieved 100% on both pre- and post-tests, indicating no measurable change in knowledge. SEP-1 compliance metrics, including timely antibiotic administration, lactic acid measurement, and fluid resuscitation, showed no statistically significant differences pre- and post-intervention ($p > 0.05$). Post-simulation debriefing provided rich discussions on barriers to SEP-1 compliance and the potential for system-level changes, such as updated order sets.

**IMPLICATIONS FOR PRACTICE:**
Although no immediate improvements in SEP-1 compliance or knowledge were observed, the simulation fostered meaningful discussions on improving guideline adherence and addressing clinical challenges, such as fluid management in patients at risk for overload. Key outcomes included the adoption of new order sets by the Sepsis Committee to streamline care processes. Future efforts should focus on repeated simulation sessions, multidisciplinary training, and broadening the participant pool to enhance the impact on SEP-1 compliance and patient outcomes.

**Arturo Hernandez, MD**

Transitional Year

# PCR Positive, CSF Cell Count Negative Varicella Zoster Encephalitis

**INTRODUCTION/BACKGROUND:**
Varicella Zoster Virus (VZV) encephalitis, although rare, is the third most common viral cause of meningitis and encephalitis, with significant morbidity and mortality despite timely treatment. Its presentation can be atypical, posing diagnostic challenges.

**METHODS:**
A 70-year-old female with a complex medical history including ESRD, CHF, and diabetes presented with stroke-like symptoms of weakness, arm drooping, and altered mental status. Initial workup revealed an NIH score of 18, leukocytosis, and elevated CRP but negative imaging studies. CSF analysis was notable for elevated protein but no pleocytosis. PCR testing identified VZV in the CSF.

**RESULTS:**
The patient was diagnosed with VZV encephalitis and concomitant Moraxella catarrhalis pneumonia. Treatment included ceftriaxone for pneumonia and IV acyclovir with adjusted dosing due to ESRD. Despite management, the patient experienced prolonged respiratory failure requiring tracheostomy and PEG tube placement. Neurologic recovery was minimal, and the patient was discharged to long-term care with severe functional deficits.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of considering VZV encephalitis in atypical neurological presentations, especially with associated risk factors. PCR testing is a critical tool in the diagnosis and initiation of early antiviral therapy, which may mitigate severe outcomes. Tailored dosing for comorbidities such as ESRD is essential for effective treatment. Despite these measures, the prognosis for VZV encephalitis remains guarded, emphasizing the need for thorough goals-of-care discussions with families.

# Mastectomy Same Day Discharge Versus Overnight Observation: Comparison of Readmission, Reoperation, Surgical Site Infection, and Deep Vein Thrombosis

**Natalie Joumblat, MD**

Surgery

**INTRODUCTION:**
The decision to admit patients or discharge them on the same day following mastectomy remains varied across practices. The 2022 American Society of Breast Surgeons guidelines endorse same-day discharge for eligible patients, but recent comprehensive analyses are lacking. This study evaluates whether same-day discharge patients experience different rates of complications, such as readmission, reoperation, surgical site infection (SSI), and deep vein thrombosis (DVT), compared to patients retained overnight.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
This retrospective cohort study utilized data from the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) from 2014 to 2019. Patients were categorized by inpatient versus outpatient status and same-day discharge versus overnight retention. Exclusions included male patients and those undergoing concurrent bilateral oophorectomy or plastic surgery. Quadruples matched on procedure year, BMI, age, and comorbidities were analyzed for each outcome. Hazard ratios for complications were calculated using Cox proportional hazards models, supported by conditional Poisson and multi-level Weibull analyses.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
Outpatients retained overnight had higher incidences of unplanned reoperation (HR 1.65, 95% CI [1.00, 2.73]) and DVT (HR 3.00, 95% CI [0.56, 16.23]) compared to same-day discharge outpatients. Readmission rates were also slightly higher (HR 1.13, 95% CI [0.71, 1.81]). Conversely, same-day discharge patients demonstrated increased SSI rates (HR 1.50, 95% CI [0.93, 2.41]), possibly linked to insufficient post-operative wound care education.

**IMPLICATIONS FOR PRACTICE:**
Findings suggest same-day discharge may result in fewer complications, including reoperation and DVT, though enhanced patient education on wound care is critical to address the higher SSI rates. These results support adopting same-day discharge protocols with structured post-operative support to optimize patient outcomes.

**Michael Kastner, MD**

Emergency Medicine

# Bilateral Quadricep Tendon Rupture in a Healthy Male Following a Ground-Level Fall

**INTRODUCTION/BACKGROUND:**
Bilateral quadriceps tendon rupture is an exceedingly rare and potentially catastrophic injury, often associated with predisposing factors such as chronic kidney disease or secondary hyperparathyroidism. This case highlights an atypical presentation in a previously healthy individual.

**METHODS:**
A 47-year-old healthy male presented to the emergency department with an inability to bear weight or extend either knee following a ground-level fall while intoxicated. Physical examination revealed absent quadriceps tendon reflexes, ecchymosis above the patellae, and inability to extend the knees, with neurovascular integrity preserved.

**RESULTS:**
Initial radiographs were unremarkable for fractures but raised suspicion for tendon rupture due to knee effusions and enthesophyte avulsion. MRI confirmed complete bilateral quadriceps tendon ruptures with significant hemorrhage. The patient also presented with mild rhabdomyolysis (CK 3,978), managed with intravenous fluids. Early surgical intervention included debridement and primary repair of the tendons. Post-surgery, the patient underwent rehabilitation and achieved full recovery, walking unassisted five months post-operatively.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of maintaining a high index of suspicion for tendon rupture in patients presenting with inability to extend the knee, especially when plain radiographs are unremarkable. Early diagnosis and prompt surgical intervention are crucial to achieving optimal outcomes. Providers should also be aware of risk factors, though cases without traditional comorbidities, as in this patient, may still occur..

**Rebecca Kawagoe, DO**

Family Medicine

# Neuroleptic Malignant Syndrome: Recognition, Management, and Prognosis

**INTRODUCTION/BACKGROUND:**
Neuroleptic malignant syndrome (NMS) is a rare but potentially life-threatening condition associated with the use of neuroleptic medications, characterized by muscular rigidity, hyperthermia, autonomic dysregulation, and altered mental status. Although the incidence has decreased with the use of atypical antipsychotics, early recognition remains critical for preventing severe complications.

**METHODS:**
A comprehensive review was conducted to identify and summarize the clinical features, diagnostic challenges, and management strategies for NMS. Published literature and guidelines were synthesized to establish current best practices for clinicians.

**RESULTS:**
NMS incidence ranges from 0.02–3.23%, predominantly affecting males under 40 years. Diagnosis is challenging, relying on exclusion and recognition of symptoms such as elevated creatine phosphokinase and autonomic instability. Key risk factors include high-potency neuroleptics, rapid dose escalation, and withdrawal from dopaminergic agents. Treatment focuses on immediate discontinuation of causative agents, supportive care, and pharmacological interventions like bromocriptine, dantrolene, and benzodiazepines. When recognized early, prognosis is favorable, with recovery typically within 15 days. Complications, including rhabdomyolysis and acute renal failure, increase mortality rates.

**IMPLICATIONS FOR PRACTICE:**
Heightened awareness of NMS's clinical presentation and early intervention protocols are essential for reducing morbidity and mortality. This report underscores the importance of systematic monitoring and a multidisciplinary approach, particularly in high-risk populations. Future efforts should focus on improving diagnostic criteria and refining treatment strategies for broader clinical applicability.

**Melissa Kemp, DO**

Melissa Kemp

# EKG Bootcamp—A Novel Emergency Medicine Small Group Session

**INTRODUCTION/BACKGROUND:**
Electrocardiogram (EKG) interpretation is a critical skill for emergency medicine (EM) residents, yet few EM residency programs provide standardized EKG curricula or competency assessments. This gap underscores the need for innovative teaching strategies. "EKG Bootcamp" utilizes gamification—a proven method to enhance learner engagement—to deliver EKG education in a collaborative, interactive environment.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
The program involved post-graduate year (PGY) 1-4 EM residents and medical students, who participated in six team-based stations, including simulation and various games such as EKG Jeopardy and Who Wants to Be a Millionaire. Educational objectives focused on critical EKG competencies, such as identifying emergent findings and applying Advanced Cardiovascular Life Support (ACLS) algorithms. Participants completed an anonymous survey post-session to assess educational quality and efficacy.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
Of the 46 participants, 18 responded to the survey, with all rating both the game sessions and simulation case as highly effective (10/10). Feedback highlighted spaced repetition and varied teaching methods as instrumental in solidifying EKG concepts. While most participants found the sessions engaging, some noted challenges with game rules, suggesting pre-session preparation may improve outcomes.

**IMPLICATIONS FOR PRACTICE:**
The EKG Bootcamp demonstrates that gamification effectively enhances EKG education for EM residents. Key success factors include maintaining adequate faculty ratios and integrating spaced repetition. The program's adaptable format can serve as a model for other EM training programs, potentially expanding into additional critical topics within graduate medical education.

**Jacob Kirkorowicz, MD**

Surgery

## Acute Care and Trauma Surgery, Kaweah Health Medical Center

**INTRODUCTION/BACKGROUND:**
Methamphetamine use is prevalent in California's Central Valley, a region designated by the DEA as a high-intensity drug trafficking area. The study addresses whether methamphetamine (meth) positivity among trauma patients affects their clinical outcomes at a Level III Trauma Center.

**METHODS:**
Using a case-control design, the study analyzed trauma outcomes in meth-positive patients (n = 221) matched to meth-negative controls (n = 334) from September 2018 to April 2020. Propensity score matching controlled for variables like age, sex, race, and socioeconomic factors. Outcomes included ICU admission, mechanical ventilation, injury severity, and mortality.

**RESULTS:**
Meth-positive patients exhibited higher injury severity scores ($p < 0.001$), longer hospital stays ($p = 0.011$), and increased ventilation time ($p = 0.05$). They were more likely to require ICU admission ($p < 0.001$) and mechanical ventilation ($p < 0.001$). No significant differences were observed in mortality rates or ICU length of stay. Meth positivity did not significantly impact the need for laparotomy.

**IMPLICATIONS FOR PRACTICE:**
Trauma centers in high meth-use areas must allocate resources for prolonged ICU care, mechanical ventilation, and extended hospital stays. Addressing meth-related trauma requires a multidisciplinary approach, emphasizing substance use intervention and tailored clinical management strategies.

**Kinh-Vy Nguyen, MD**

Anesthesiology

# Intraoperative Management of an Atypical Undiagnosed Pheochromocytoma

**INTRODUCTION/BACKGROUND:**
Pheochromocytomas are rare catecholamine-secreting neoplasms with an estimated annual incidence of 8 per million. These tumors are often undiagnosed and can lead to catastrophic intraoperative complications such as hypertensive crises. Management involves preoperative alpha blockade, but undiagnosed cases present unique challenges. This case report highlights the anesthetic management of an undiagnosed pheochromocytoma discovered intraoperatively.

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 78-year-old female presented with moderate abdominal pain exacerbated by eating. Preoperative vitals showed a heart rate of 78 and blood pressure of 143/84. The patient underwent laparoscopic removal of a mesenteric cyst. Intraoperatively, manipulation of the tumor caused severe hypertension (SBP 220–270 mmHg) resistant to vasodilatory agents. Removal of the cyst, later identified as a pheochromocytoma, resulted in hypotension requiring vasopressor support.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The cyst was identified as a cystic pheochromocytoma based on pathology findings. During surgery, hemodynamic instability was managed with multimodal antihypertensive agents, increased anesthetic depth, and post-resection vasopressor support. Despite the complications, the patient had an uneventful recovery and was discharged from the intensive care unit the next day.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of considering undiagnosed pheochromocytoma in patients with hypertensive crises during intra-abdominal surgeries. Future protocols should include readiness for intraoperative management with fast-acting antihypertensive drips and alpha-blockade. Providers should be vigilant in recognizing refractory hypertension as a potential indicator of neuroendocrine tumors, with a low threshold for preoperative biochemical workup in suspicious cases.

**Steven Lacombe, DO**

Transitional Year

# Recurrent Chylous Ascites Post-Retroperitoneal Nephrectomy: A Rare Complication in an Elderly Male

**INTRODUCTION/BACKGROUND:**
Chylous ascites, an accumulation of triglyceride-rich peritoneal fluid, is a rare complication of retroperitoneal nephrectomy. While typically linked to trauma, malignancy, or lymphatic disorders, its incidence in post-surgical settings, especially nephrectomy, remains exceedingly rare. This report highlights the diagnostic and therapeutic challenges of managing recurrent chylous ascites in an elderly patient.

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
An 82-year-old male with comorbidities, including chronic kidney disease and prostate cancer, presented with acute shortness of breath and significant abdominal distention. He had recurrent ascites without liver disease and no prior history of similar issues before undergoing a left retroperitoneal nephrectomy five months earlier. Diagnostic paracentesis revealed chylous ascites.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The diagnosis of recurrent chylous ascites was attributed to lymphatic disruption following nephrectomy. Initial management included peritoneal drainage of 1300 cc of chylous fluid. Medical therapy with Octreotide, a somatostatin analog, was initiated at 100 mcg subcutaneously three times daily, alongside a low-fat, high-protein diet. This combination resulted in a substantial reduction in ascitic fluid drainage from 4600 cc on day one to 400 cc per day by day six. The patient was discharged to a skilled nursing facility with plans for outpatient management and consideration of surgical repair of the thoracic duct.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of interdisciplinary collaboration in managing rare post-surgical complications. It supports the growing evidence for Octreotide therapy and dietary modifications in the management of refractory chylous ascites. Future research should explore standardized protocols for treating this condition and evaluating long-term outcomes associated with conservative and surgical interventions.

**Ashley Lau, DO**

Transitional Year

# Unique Presentation of a Life-Threatening Cactus-Related Complication

**INTRODUCTION/BACKGROUND:**
This case highlights an unusual yet critical medical presentation involving a cactus-related injury leading to severe complications. Such cases are rare and necessitate heightened awareness for timely diagnosis and management.

**METHODS:**
The patient presented with a progressive inflammatory response and pain localized to the site of a puncture wound caused by a cactus spine. Key findings included significant localized erythema, swelling, and systemic signs of infection, including fever and elevated inflammatory markers.

**RESULTS:**
The primary diagnosis was a deep soft tissue infection with secondary systemic inflammatory response. The patient underwent surgical debridement to remove foreign material, combined with broad-spectrum intravenous antibiotics. Postoperatively, the patient showed marked improvement in symptoms and returned to baseline function with no residual complications.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of thorough evaluation of puncture wounds caused by plant material, particularly in immunocompromised patients or those with delayed presentations. Early surgical intervention and targeted antimicrobial therapy can prevent severe systemic complications. Awareness of such presentations may guide clinicians in similar scenarios..

**Kevin Lieu, MD**

Emergency Medicine

# Reversal of Severe Dialysis Disequilibrium Syndrome in the ICU Using IV Mannitol

**INTRODUCTION/BACKGROUND:**
Dialysis disequilibrium syndrome (DDS) is a rare but severe neurologic complication associated with rapid electrolyte correction and urea removal during hemodialysis. It leads to osmotic imbalances and cerebral edema, with symptoms ranging from headaches and nausea to severe neurological impairment.

**METHODS/RESULTS:**
The patient, undergoing initial dialysis for acute renal failure, developed severe DDS, presenting with fixed, dilated pupils, an absent gag reflex, and neurologic decline. This life-threatening presentation required immediate cessation of dialysis and critical intervention.

**RESULTS:**
The diagnosis of DDS was made based on the rapid onset of symptoms during hemodialysis. Intravenous Mannitol was administered as an osmotic agent to mitigate cerebral edema. The patient experienced a remarkable recovery, with neurologic function restored fully. This intervention demonstrated potential efficacy in stabilizing the condition, though the independent effect of discontinuing dialysis cannot be ruled out.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the critical need for vigilance when initiating dialysis, especially in dialysis-naive patients. It highlights IV Mannitol as a possible therapeutic option for severe DDS, offering a pathway for rapid neurologic recovery. Further studies are warranted to validate its efficacy and to develop robust management protocols for DDS.

**Sparghai Sahar Ludin, MD**

Family Medicine

# Intrahepatic Cholestasis of Pregnancy: Implications for Fetal and Maternal Outcomes

**INTRODUCTION/BACKGROUND:**
Intrahepatic cholestasis of pregnancy (ICP) is the most common pregnancy-specific liver disorder. It is characterized by pruritus and elevated serum bile acids, leading to significant fetal and maternal complications. These include fetal death, preterm labor, and maternal gallstone disease. The study addresses the incidence, etiology, and risk factors of ICP to guide improved clinical outcomes.

**METHODS/RESULTS:**
The study is a review of literature evaluating the epidemiology, etiology, and risk factors of ICP. Data on the genetic, environmental, and hormonal influences were analyzed, emphasizing the role of bile acid transport mechanisms.

**RESULTS:**
ICP has a prevalence ranging from 0.1% to 25%, influenced by genetic and environmental factors. It is most common in the third trimester, with increased risks in multiple gestations and certain ethnic groups. Complications include fetal arrhythmias, preterm delivery, and maternal morbidity, linked to bile acid accumulation.

**IMPLICATIONS FOR PRACTICE:**
Recognizing ICP's risk factors and pathophysiology is crucial for early diagnosis and management. Monitoring bile acid levels and optimizing maternal-fetal care can mitigate adverse outcomes, improving perinatal and maternal health.

**Shant Malkasian, MD**

Transitional Year

# Relationship of Shape and Intra-Plaque Embeddedness of Low-Density Non-Calcified Plaque with Future Acute Coronary Syndromes

**INTRODUCTION/BACKGROUND:**
Acute coronary syndrome (ACS) remains a significant challenge in cardiovascular disease prevention. While low-density non-calcified plaque (LD-NCP) has been associated with ACS, the specific roles of LD-NCP shape and degree of embeddedness (DOE) in predicting ACS risk have not been fully explored.

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS :**
This post-hoc analysis utilized data from the ICONIC study, a nested case-control study of patients undergoing coronary CT angiography (CCTA). A total of 456 patients (234 with ACS and 234 controls) were analyzed. LD-NCP morphology was assessed using advanced imaging software, categorizing shape (lobular, bean, sphere, crescent) and DOE (≤90°, 91–180°, 181–270°, 271–360°). Multivariable Cox regression models adjusted for plaque burden and stenosis evaluated the association between LD-NCP morphology and ACS.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
Adverse LD-NCP morphology (ALM), defined as lobular, bean, or sphere shapes or >180° DOE, was significantly more prevalent in patients with ACS. ALM conferred a 1.68-fold increased risk of ACS (adjusted hazard ratio [aHR], 1.68; 95% CI, 1.16–2.44; $p < 0.001$). Patients with ALM experienced ACS approximately 2.82 years earlier than those without. Importantly, ALM provided additional prognostic value beyond plaque burden and stenosis.

**IMPLICATIONS FOR PRACTICE:**
ALM, characterized by distinct shapes and embeddedness levels, is an independent predictor of ACS and may enhance risk stratification strategies. Incorporating LD-NCP morphology into clinical assessments could improve early identification of high-risk patients, informing preventive and therapeutic interventions.

**Mithun Medagangoda, MD**

Psychiatry

# Tardive Syndrome: A Rare and Complex Presentation

**INTRODUCTION/BACKGROUND:**
Tardive syndrome (TS) is a debilitating movement disorder induced by dopamine receptor blockers, including antipsychotic medications. TS encompasses various motor symptoms, such as dyskinesia, dystonia, akathisia, and myoclonus. This case highlights an atypical presentation of TS in a young male with schizophrenia, emphasizing the complexities in diagnosis and management.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 28-year-old male with a history of schizophrenia presented to the emergency department with abnormal movements, including buccolingual dyskinesia, chorea-like extremity movements, sustained dystonia, and muscle spasms. Symptoms onset followed the discontinuation of intramuscular Invega Trinza and initiation of oral Paliperidone and Zyprexa. Initial interventions, including Benadryl and Cogentin, yielded minimal improvement.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The diagnosis of tardive syndrome was confirmed based on the patient's clinical history and presentation. Treatment included discontinuation of Zyprexa and initiation of Ingrezza (valbenazine), propranolol, and Cogentin. Over several weeks, the patient's regimen was adjusted, leading to significant symptom improvement. He regained his previous level of functionality without resurgence of psychosis, despite being off antipsychotic medications.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the necessity of judicious use of dopamine receptor blockers and the importance of early recognition and tailored treatment for tardive syndrome. The successful management of this patient highlights the potential for symptom resolution with appropriate pharmacological interventions, including VMAT2 inhibitors and GABAergic agents. The case also emphasizes the critical need for individualized care to optimize outcomes for patients with complex psychiatric and neurological conditions.

**April Ngoy, DO**

Transitional Year

# The First-Reported Presentation of Quadruple Locations of Elastofibroma Dorsi

**INTRODUCTION/BACKGROUND:**
Elastofibroma dorsi (EFD) is a rare benign tumor of mesenchymal origin typically found in the subscapular region of middle-aged women and the elderly. While bilateral and triple EFD are well-documented, the presence of quadruple lesions has not been previously reported.

**METHODS:**
A 50-year-old female custodian presented with progressively worsening left shoulder pain (7/10), accompanied by swelling over the scapular area. The pain, exacerbated by movement and improved with rest and ibuprofen, impacted her ability to work. Physical examination revealed a firm, mobile mass on the superomedial border of the left scapula, with pain during shoulder abduction beyond 75°.

**RESULTS:**
CT and MRI revealed bilateral suprascapular and subscapular soft tissue masses with alternating soft tissue and fat density components, consistent with EFD. A biopsy confirmed the diagnosis, showing dense collagenous stroma, bland fibroblasts, and dystrophic elastic fibers. The patient underwent arthroscopic surgical excision of the left suprascapular mass. Postoperative outcomes were favorable, with significant pain reduction (to <2/10) and restoration of full range of motion in the left shoulder, enabling her return to work.

**IMPLICATIONS FOR PRACTICE:**
This report highlights the importance of MRI for the accurate diagnosis of EFD, particularly in cases involving multiple masses with poorly defined margins. The findings underline the need for imaging to distinguish EFD from more aggressive soft tissue tumors. Surgical excision remains an effective treatment for symptomatic relief and functional recovery, tailored to patient preferences and clinical impact.

This is the first documented case of quadruple EFD lesions, expanding the understanding of this rare condition. The study emphasizes the diagnostic value of advanced imaging and the role of surgical intervention in improving quality of life for patients with symptomatic EFD.

**Ellie Ok, DO**

Transitional Year

# Emphasis on Managing Weight and Early Respiratory Intervention in Patients Diagnosed with Thoracic-Onset Amyotrophic Lateral Sclerosis

**INTRODUCTION/BACKGROUND:**
Thoracic-onset ALS is a rare variant of amyotrophic lateral sclerosis (ALS) presenting with restrictive pulmonary disease and rapid respiratory decline. Early weight loss and respiratory failure are hallmark concerns, requiring timely intervention to improve quality of life and survival.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
Two male patients presented with thoracic-onset ALS, a rare subtype affecting approximately 3% of ALS cases. Patient A experienced severe diaphragmatic weakness and significant weight loss (60 lbs) over one year, alongside progressive dyspnea and dysphonia. Patient B exhibited fasciculations and respiratory symptoms, initially losing 30 lbs but later regaining weight through nutritional interventions.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
Both patients were diagnosed with thoracic-onset ALS through electromyography, pulmonary function tests, and clinical assessments. Patient A, with intermittent non-invasive ventilation (NIV) use, declined rapidly and passed away one year post-diagnosis. Patient B, who consistently used NIV and maintained weight, survived seven years post-diagnosis, succumbing to respiratory failure secondary to myocardial infarction.

**IMPLICATIONS FOR PRACTICE:**
Early recognition of thoracic-onset ALS is critical for optimizing outcomes. Proactive pulmonary interventions, including early NIV use, alleviate ventilatory burdens, reduce energy expenditure, and improve survival. Weight management strategies, such as high-caloric diets and enteral feeding when necessary, counteract malnutrition and improve quality of life. This case series underscores the need for prompt, multidisciplinary care to slow disease progression and enhance patient outcomes.

**David Castro Palomino, DO**

Emergency Medicine

# Wound Care for Vulnerable Populations: The Happy Feet Program

**INTRODUCTION/BACKGROUND:**
The increasing prevalence of homelessness in Visalia, CA, has highlighted significant podiatric challenges among unhoused individuals. Walking 5-10 miles daily without proper footwear or hygiene access often leads to foot conditions, including infections and injuries, which can escalate to severe complications. The Happy Feet Program, modeled after UCLA's Happy Feet Clinic, was established to address these issues through education, care, and resources.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
This quasi-experimental study evaluated the impact of foot health education on participants at the Happy Feet event. The study included 21 adult participants who completed pre- and post-tests assessing foot care knowledge. Educational interventions included pamphlets and professional guidance. Outcomes were measured via changes in knowledge scores and participant satisfaction.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
Participants reported marginally significant improvement in self-rated foot care knowledge (mean score 2.7 vs. 3.4, p=0.058) and median correct answers post-intervention (p=0.074). Satisfaction rates were high, with mean scores of 4.9 for education and care and 4.8 for resources. Participants expressed a strong likelihood of attending future events, educating others, and seeking medical care for foot conditions.

**IMPLICATIONS FOR PRACTICE:**
The study demonstrates that foot health education can positively influence knowledge and attitudes among underserved populations, promoting preventive care and medical engagement. Expanding similar programs with larger sample sizes and follow-up strategies may enhance outcomes, reducing the burden of preventable foot conditions in vulnerable populations.

**Shashvat Patel, DO**

Psychiatry

# Comprehensive Review of Antisocial Personality Disorder

**INTRODUCTION/BACKGROUND:**
Antisocial Personality Disorder (ASPD) is a pervasive condition characterized by disregard for others' rights, associated with criminality, substance abuse, and interpersonal dysfunction. Despite its significant societal impact, ASPD remains underdiagnosed, particularly in institutionalized populations. This review synthesizes current knowledge to provide a holistic understanding of ASPD's diagnostic criteria, epidemiology, neurobiology, and management strategies.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
The study integrated data from authoritative sources, including DSM-5 criteria, genome-wide studies, neuroimaging research, and psychotherapeutic trials. Diagnostic tools like the MMPI and PCL-R were analyzed for their role in assessing ASPD. The review emphasized findings from the NESARC study and highlighted gender differences and environmental influences.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
ASPD affects 3.6% of the U.S. population, predominantly men (5.5% vs. 1.9% in women). Neurobiological insights revealed abnormalities in the prefrontal cortex and amygdala, correlating with impulsivity and impaired moral reasoning. Gender-specific behaviors and treatment challenges were identified, with men exhibiting higher aggression levels and women facing relational instability. Pharmacotherapy, including second-generation antipsychotics and SSRIs, showed limited but targeted efficacy in managing symptoms such as aggression.

**IMPLICATIONS FOR PRACTICE:**
Accurate diagnosis of ASPD necessitates comprehensive history-taking and objective assessment tools. While severe cases may resist conventional therapy, integrated approaches combining pharmacotherapy and psychosocial interventions could improve outcomes. Preventative strategies, particularly during childhood, and further research into ASPD's neurobiological underpinnings are essential for advancing treatment efficacy and societal impact reduction.

# Giant Solitary Fibrous Tumor of the Pleura: A Case Report and Literature Review

**Julia Ruffo, DO**

Surgery

**INTRODUCTION/BACKGROUND:**
Solitary fibrous tumors of the pleura (SFTP) are rare mesenchymal neoplasms, typically benign and representing less than 5% of all pleural-based tumors. SFTPs are often asymptomatic and incidentally discovered. We report the case of a giant SFTP exceeding 27 cm, successfully resected, and review relevant literature to emphasize diagnostic and management approaches.

**METHODS:**
A 47-year-old male presented with progressive left-sided chest pain, dyspnea, orthopnea, and fatigue for four months. Significant findings included a massive pleural effusion on chest X-ray, mediastinal shift, and a computed tomography scan revealing a large pleural mass occupying 85% of the hemithorax. Immunohistochemistry confirmed SFTP with Vimentin+, CD34+, CD99+, and STAT6+ markers.

**RESULTS:**
The patient underwent left posterolateral thoracotomy with complete resection of the mass, removal of affected lung segments, and diaphragmatic implants. Pathology confirmed a benign SFTP. Postoperative recovery was uneventful, with discharge on day seven. Follow-up recommendations include regular imaging due to recurrence potential.

**IMPLICATIONS FOR PRACTICE:**
Giant SFTPs pose significant diagnostic and therapeutic challenges, given their size, symptomatology, and recurrence risk. Surgical excision remains the treatment of choice, with long-term monitoring necessary for detecting recurrences, even in benign cases. Early recognition and multidisciplinary management are essential for favorable outcomes.

**Aubtin Saedi, DO**

Emergency Medicine

# Myocardial Infarction and Coronary Artery Dissection in a 15-Year-Old Male

**PURPOSE OF THIS CASE REPORT, WHAT DOES IT CONTRIBUTE TO SCIENTIFIC LITERATURE?:**
Chest pain in pediatric patients is uncommon and rarely of cardiac origin, with myocardial infarction (MI) in adolescents being an exceptionally rare occurrence. This report highlights the case of a 15-year-old male presenting with acute chest pain later diagnosed as MI with coronary artery dissection, emphasizing the need for vigilance in pediatric cardiac emergencies.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
The patient, a 15-year-old athletic male with a history of mild intermittent asthma and daily inhaled marijuana use, presented with sudden-onset substernal chest pain, shortness of breath, and nausea. Clinical findings included sinus bradycardia, abnormal cardiac rhythm (ventricular bigeminy), and progressively elevated troponin levels. ECG abnormalities and imaging findings were consistent with inferior and posterior myocardial ischemia.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The patient was diagnosed with acute MI secondary to coronary artery dissection. Initial management included thrombolysis via microcatheter, restoring blood flow. Subsequent imaging revealed dissection and occlusion of the left circumflex artery, necessitating placement of three coronary stents. Despite comprehensive workup, the etiology of the dissection remains unclear, potentially related to prior minor trauma, marijuana use, and underlying cardiovascular risk factors. The patient was discharged on antiplatelet, beta-blocker, ACE inhibitor, and statin therapy with a reduced left ventricular ejection fraction (49%).

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of a thorough history, physical examination, and diagnostic evaluation in pediatric chest pain, especially in identifying red flags that warrant advanced workup. Risk factors such as substance use, recent infection, and minor trauma should be carefully considered. Multidisciplinary collaboration is critical for optimal management and improved outcomes in such complex presentations.

# Inferior Shoulder Dislocation: A Case Study

**Thomas Shomaker, DO**

Transitional Year

**INTRODUCTION/BACKGROUND:**
Shoulder dislocations are the most common joint dislocations, accounting for 50% of all cases presenting to the emergency department. Anterior dislocations are predominant, while inferior dislocations, like the one presented in this case, are rare (0.5%). These injuries often result from hyperabduction or forceful loading of the abducted arm, as seen in this study.

**METHODS:**
A 26-year-old male presented with an inferior shoulder dislocation following a rock-climbing fall. The arm was hyperabducted during the incident. Clinical findings included severe pain, reduced arm mobility, and vascular symptoms such as a weak radial pulse, delayed capillary refill, and cold extremity in the affected arm.

**RESULTS:**
The patient was diagnosed with inferior shoulder dislocation. Due to progressive vascular symptoms and patient discomfort, reduction was performed urgently without pre-reduction imaging. Axial traction with countertraction resulted in successful reduction, immediate symptom relief, and improved vascular perfusion. Post-reduction imaging confirmed the absence of fractures. The patient underwent a three-week immobilization period followed by six weeks of physical therapy. At 12 weeks post-injury, he had regained most of his pre-injury function with some limitations.

**IMPLICATIONS FOR PRACTICE:**
This case highlights the importance of prompt clinical intervention in shoulder dislocations with vascular compromise. While imaging before reduction is standard, clinical judgment must guide deviations in emergencies. Rehabilitation plays a critical role in preventing complications such as re-injury or adhesive capsulitis. Emergency department clinicians should be vigilant for vascular or neuropathic symptoms in shoulder dislocation cases, as these require immediate management to optimize outcomes.

**Dorathea Smith, DO**

Family Medicine

# Unveiling Grave's Disease in Primary Care: A Case Report of Subtle Presentation and Multifaceted Management

**INTRODUCTION/BACKGROUND:**
Grave's disease often presents with varied and subtle clinical signs, posing a diagnostic challenge in primary care. This report underscores the importance of vigilant history-taking and physical examination in identifying autoimmune thyroid disorders, particularly in asymptomatic patients.

**METHODS:**
A 43-year-old male presented to primary care with no acute complaints apart from his wife's observation of bulging eyes. Physical examination revealed mild exophthalmos, tachycardia, and episodic hypertension. Laboratory results showed a suppressed TSH <0.010, elevated T4 (29), free T4 (8.3), and T3 (>8), alongside positive thyroid receptor and TPO antibodies, confirming Grave's disease.

**RESULTS:**
The patient was diagnosed with Grave's disease and initiated on methimazole and atenolol. This intervention normalized his vital signs, mitigated symptoms, and facilitated weight gain. Despite patient reluctance for specific treatments, such as Tepezza for exophthalmos, regular monitoring ensured stability without agranulocytosis or hepatotoxicity. Thyroid function normalized progressively under endocrinology care, although imaging studies were delayed due to insurance constraints.

**IMPLICATIONS FOR PRACTICE:**
This case highlights the critical role of primary care physicians in detecting subtle presentations of Grave's disease, emphasizing early diagnostic workup and patient-centered management in rural healthcare settings. It demonstrates the value of a multidisciplinary approach, patient education, and proactive intervention to optimize outcomes in autoimmune thyroid disorders.

**Morgan Stanley, DO**

Psychiatry

# Improving Appropriateness of TPN Utilization

**INTRODUCTION/BACKGROUND:**
Anorexia nervosa (AN) is a severe psychiatric disorder with the highest mortality rate among all psychiatric illnesses. This case highlights the complexities of diagnosing and managing extreme AN in an acute care setting.

**METHODS:**
A 20-year-old female presented to the emergency department after a ground-level fall, accompanied by family concerns of severe malnutrition. Notable clinical findings included cachexia (BMI 9.4), bradycardia (heart rate 32-50), and electrolyte abnormalities suggestive of refeeding syndrome risk. Physical examination revealed parotidomegaly, lanugo, and dental erosion. Lab findings confirmed significant organ dysfunction, including elevated liver enzymes and hypophosphatemia.

**RESULTS:**
The patient was diagnosed with extreme AN, fulfilling DSM-5 criteria for restricting-type anorexia nervosa. Initial management prioritized medical stabilization and prevention of refeeding syndrome with monitored caloric reintroduction, thiamine supplementation, and electrolyte correction. Psychiatric interventions included daily psychotherapy to address cognitive distortions, normalize eating behaviors, and reduce weight-related anxiety. Pharmacologic support included mirtazapine to improve mood and promote weight gain. Despite these measures, limitations in the inpatient setting necessitated transfer to a specialized eating disorder unit for continued care. Over the course of hospitalization, the patient's weight improved from 24.3 kg to 27.2 kg, with corresponding stabilization of vital signs and laboratory parameters.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of early detection and interdisciplinary collaboration in managing severe anorexia nervosa. It also highlights the need for specialized inpatient units to provide comprehensive care for extreme cases. Effective treatment requires addressing both medical and psychiatric dimensions of the disorder, building therapeutic alliances, and ensuring continuity of care through appropriate transitions to specialized facilities.

**Maria Tobar, MD**

Emergency Medicine

# Acute Binocular Vision Loss in a Patient with Recent COVID-19 Infection

**INTRODUCTION/BACKGROUND:**
Vogt-Koyanagi-Harada (VKH) disease is a rare autoimmune condition affecting the nervous system, often triggered during the recovery phase of viral syndromes. It can lead to significant vision and hearing impairments if not promptly diagnosed and treated.

**PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 41-year-old unvaccinated female presented with headache and progressive bilateral vision loss following a COVID-19 infection. Ocular ultrasound revealed bilateral retinal detachments. Clinical findings and history were consistent with VKH disease, confirmed by ophthalmology.

**PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The patient was diagnosed with VKH disease secondary to immunologic dysfunction post-COVID-19. High-dose corticosteroids and immunomodulatory therapy were promptly initiated, resulting in substantial vision recovery within weeks without further complications.

**IMPLICATIONS FOR PRACTICE:**
Clinicians should maintain a high index of suspicion for VKH disease in patients presenting with vision loss post-viral infection. Early multidisciplinary involvement, including ophthalmologists and rheumatologists, is crucial for timely intervention and favorable outcomes. This case underscores the importance of recognizing rare autoimmune phenomena linked to COVID-19 and highlights the role of emergency providers in facilitating rapid diagnosis and treatment to preserve patient quality of life.

**Alex Tsai, DO**

Emergency Medicine

# Fixing Burnout: Is it as Easy as Taking a Break?

**INTRODUCTION/BACKGROUND:**
Burnout among Emergency Department (ED) providers is a critical issue, characterized by physical, emotional, and mental exhaustion from prolonged engagement in demanding environments. High rates of burnout in ED providers are linked to factors like alternating sleep cycles, documentation pressures, and limited resources. This study investigates the relationship between ED provider schedules and burnout levels, challenging the prevailing belief that increased time off mitigates burnout.

**METHODS:**
Survey data from 1594 ED providers collected in 2020 by a nationwide staffing organization was analyzed. Providers were categorized into two groups: those reporting high burnout and those without significant burnout. A subanalysis examined correlations between burnout and variables such as total shifts, night shifts, consecutive shifts, shift hours, and days off.

**RESULTS:**
Of the surveyed providers, 27% (n=424) reported high burnout levels. Contrary to expectations, no significant differences were found between the groups regarding the examined scheduling factors. This suggests that common interventions emphasizing increased time off may not effectively address burnout.

**IMPLICATIONS FOR PRACTICE:**
Findings emphasize the need for alternative strategies to reduce burnout. Behavioral interventions such as structured 5-minute breaks during shifts, promoting workplace recognition, managing interruptions, and fostering fulfillment through tailored professional opportunities can improve workplace wellness. Healthcare leaders should adopt these evidence-based recommendations to enhance provider satisfaction and mitigate burnout, ultimately benefiting both providers and patient care.

**Edmund Wang, DO**

Anesthesiology

# Anesthetic Management for Dental Extraction in a Patient With Catecholaminergic Polymorphic Ventricular Tachycardia Syndrome

**INTRODUCTION/BACKGROUND:**
Catecholaminergic polymorphic ventricular tachycardia (CPVT) is a rare genetic condition causing arrhythmias during physical or emotional stress. Managing CPVT patients in the perioperative setting is particularly challenging due to heightened sensitivity to stressors that may precipitate life-threatening tachyarrhythmias.

**METHODS:**
A 16-year-old male with CPVT, a history of Ehlers-Danlos syndrome, and prior pectus excavatum repair presented for elective dental extraction. Preoperative evaluation demonstrated sinus bradycardia and suppressed ventricular arrhythmias controlled with nadolol therapy.

**RESULTS:**
The anesthetic plan emphasized minimizing emotional and physical stressors. Preoperative anxiolysis was achieved with midazolam. Induction was performed using lidocaine, propofol, and rocuronium, followed by maintenance with sevoflurane and dexmedetomidine infusion. Additional precautions included avoidance of epinephrine and prophylactic application of cardiac defibrillator pads. Perioperative tachycardia was managed with esmolol. Postoperative recovery was uneventful, with no arrhythmic events observed.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of individualized anesthetic strategies for CPVT patients. Key interventions include avoiding catecholamine surges, ensuring continuous beta-blockade, and employing sympatholytic agents like dexmedetomidine. Multidisciplinary collaboration and adherence to tailored anesthetic protocols can ensure safe outcomes in this high-risk population.

**Adrian Yabut, DO**

Anesthesiology

## Coronary Artery Bypass Graft Surgery for Spontaneous Coronary Artery Dissection in Early Pregnancy: Medical and Ethical Decision-Making Issues

**INTRODUCTION/BACKGROUND:**
Spontaneous coronary artery dissection (SCAD) is a rare but severe condition predominantly affecting postpartum females. Its occurrence during early pregnancy is exceptionally uncommon, presenting significant medical and ethical challenges due to the risks to both the mother and fetus. This case study aims to add to the limited database of SCAD during early pregnancy, emphasizing medical management and ethical considerations.

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 36-year-old multiparous woman presented with sudden-onset chest pain radiating to her shoulder, arm, and back. Initial findings included elevated troponin levels peaking at 18.39 ng/mL, sinus tachycardia with ischemic changes on ECG, and left anterior descending artery (LAD) wall motion abnormalities with a reduced ejection fraction of 38.4%. Early pregnancy was confirmed with an hCG level of 32 mIU/mL, later increasing to 402 mIU/mL.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
The diagnosis of SCAD was confirmed via coronary angiography, revealing severe LAD and right coronary artery disease. Conservative management was not feasible, necessitating a three-vessel coronary artery bypass graft (CABG). The surgical procedure included a left internal mammary artery graft to the LAD and saphenous vein grafts to distal LAD and diagonal branches. Postoperatively, fetal viability was observed, but maternal health risks prompted the decision to terminate the pregnancy. The patient was discharged with improved cardiac function and a recommendation against future pregnancies.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of interdisciplinary collaboration in managing SCAD during pregnancy, balancing maternal and fetal outcomes. It highlights the need for high clinical suspicion in younger patients with acute coronary syndrome symptoms, even during early pregnancy. The case provides valuable insights into surgical interventions, postoperative care, and ethical considerations, contributing to the development of guidelines for managing SCAD in similar contexts.

**Derek Yuan, DO**

Transitional Year

# Abdominal Wall Ulcer as a Result of Calciphylaxis: A Case Report

**INTRODUCTION/BACKGROUND:**
Calciphylaxis is a rare and challenging diagnosis, often delayed due to the esoteric nature of its clinical presentation. It poses a particular diagnostic and therapeutic challenge in resource-limited settings. This report highlights an unusual presentation of calciphylaxis in the form of a large abdominal wall ulcer, alongside significant risk factors, unique pathology findings, and complex antibiotic management in a patient with multiple allergies.

**DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**
A 62-year-old woman presented to the emergency department with a 14 cm x 7 cm foul-smelling, firm, black ulcer on the right lower quadrant of her abdomen. She reported a gradual onset of symptoms over 1.5 months. Her medical history was significant for Milroy's disease with a left above-knee amputation, end-stage renal disease on hemodialysis, obesity, diabetes, and lifetime anticoagulation for unprovoked pulmonary embolism. Examination revealed necrotic tissue surrounded by erythema and induration, with dystrophic calcifications and amyloid deposition identified on pathology.

**DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**
An initial clinical diagnosis of a necrotizing soft tissue infection (NSTI) was made, necessitating incision and debridement. Pathological analysis suggested calciphylaxis as the primary etiology, complicated by a secondary bacterial superinfection with Klebsiella pneumoniae and Parabacteroides. Antibiotic management was complicated by the patient's extensive allergies, requiring trial and error to identify a tolerable regimen of levofloxacin and metronidazole. The wound was managed with a combination of surgical intervention, wound vacuum-assisted closure, and daily dressing changes, ultimately showing progressive healing. The patient was discharged home with continued wound care support.

**IMPLICATIONS FOR PRACTICE:**
This case underscores the importance of recognizing calciphylaxis in atypical presentations and locations, particularly in resource-limited settings. Early recognition, accurate diagnosis, and individualized management can improve outcomes in this complex and often fatal condition. Documenting such cases can enhance awareness and guide future management strategies.