POCUS OPUS

Compendium of Abstracts from MEGA EM SONO 2025

Editors:

Dr. Vijay Chanchal A B
Dr. Siju V Abraham

POCUS OPUS

Compendium of Abstracts from MEGA EM SONO 2025

Editors

Dr. Vijay Chanchal A B
Dr. Siju V Abraham

POCUS OPUS
Compendium of Abstracts from Mega EM Sono 2025

Extended abstracts of research papers presented

ISBN: 978-81-989687-8-4

DOI: 10.5281/zenodo.16747845

Price: ₹100

Published by:
Jubilee Centre for Medical Research (JCMR)
Thrissur, Kerala, India 680005

Editors
Dr. Vijay Chanchal A B
Dr. Siju V Abraham

FOREWORD

POCUS OPUS celebrates the spirit of academic curiosity and the practical innovation that defines the evolving landscape of Emergency Medicine ultrasound in India. Compiled from the proceedings of Mega EM Sono 2025, this collection features a wide array of case reports, original research, and systematic reviews that underscore the critical role of Point-of-Care Ultrasound (POCUS) in acute care settings.

The abstracts presented here represent the collective efforts of residents, fellows, and faculty members who came together to share their insights and experiences. They reflect the growing integration of POCUS into real-time clinical decision-making, showcasing its impact across diverse emergency scenarios.

We hope this volume serves not only as a record of academic excellence but also as an inspiration for ongoing research and collaboration among POCUS practitioners nationwide.

Our sincere thanks to all the contributors, peer reviewers, and the organizing committee whose dedication and hard work made this initiative possible.

Dr. Babu Urumese Palatty
Professor & Head, Department of Emergency Medicine
Jubilee Mission Medical College & Research Institute,
Thrissur

INTERNATIONAL NETWORK FOR CRITICAL ULTRASOUND (INCUS)

The International Network for Critical Ultrasound (INCUS) was formalised in 2010 and, by 2015, became an integral initiative of the World Academic Council for Emergency Medicine (WACEM). INCUS is a coalition of global academic leaders dedicated to the advancement of science, education, and innovation in acute care sonography, particularly in emergency and critical care settings.

With leadership from experts across Europe, the Middle East, Asia, and the United States, INCUS now serves as a global platform for collaborative research, training, and curriculum development in bedside ultrasound. It conducts a wide range of internationally recognised educational programmes, including:

- Advanced Ultrasound in Trauma and Life Support (AUTLS)
- Emergency Sonography Course (EM SONO)
- Procedural Ultrasound
- Ultrasound-Guided Regional Anaesthesia in Emergency Care
- Disaster Ultrasound
- Sono-CPR

DEPARTMENT OF EMERGENCY MEDICINE, JUBILEE MISSION MEDICAL COLLEGE & RESEARCH INSTITUTE

Established in 2011, the Department of Emergency Medicine at Jubilee Mission Medical College & Research Institute (JMMC & RI) comprises a committed team of physicians, nurses, emergency medical technicians, and allied healthcare professionals who provide round-the-clock medical care to the diverse population of Thrissur and neighbouring districts. The department is equipped with 36 dedicated emergency beds and caters to approximately 54,000 patients annually, averaging 150 patient visits per day.

The department runs a fully recognised MD Emergency Medicine residency programme, initiated in 2012, with an annual intake of three postgraduate trainees. Over the years, this programme has grown into a cornerstone of academic and clinical excellence in emergency medicine in South India.

As the Southern Regional Training Hub for INCUS, the Department of Emergency Medicine at JMMC & RI is proud to play a leading role in strengthening point-of-care ultrasound training in India and beyond, fostering a culture of hands-on excellence and academic rigour.

CONTENTS

POCUS-GUIDED IDENTIFICATION OF CONTRAST-INDUCED NON-CARDIOGENIC PULMONARY EDEMA IN A CHRONIC PANCREATITIS PATIENT : A CASE REPORT

Cecil Maria Jose
Amrita Institute of Medical Sciences, Kochi, Kerala

Background
Contrast-induced non-cardiogenic pulmonary edema (NCPE) is a rare, unpredictable reaction to iodinated contrast agents. Unlike cardiogenic pulmonary edema, it results from increased alveolar-capillary permeability and often mimics anaphylaxis or acute heart failure. Point-of-care ultrasound (POCUS) enables rapid bedside differentiation through evaluation of lung and cardiac function.

Case Description
A 60-year-old female with chronic calcific pancreatitis, diabetes, hypertension, coronary artery disease, and hypothyroidism underwent contrast-enhanced CT abdomen (100 mL iohexol). Within minutes, she developed acute dyspnea, hypoxemia (SpO_2 59% on room air), and tachypnea. In the emergency department, her vitals were: BP 160/100 mmHg, HR 123 bpm, RR 28/min.

Lung POCUS showed diffuse bilateral B-lines without pleural effusion, suggestive of interstitial pulmonary edema. Cardiac POCUS demonstrated preserved left ventricular function with no right heart strain. ECG and high-sensitivity troponin were normal. A diagnosis of contrast-induced NCPE was made. She received IV furosemide (60 mg bolus, 6 mg/h infusion) and BiPAP (10/5 cm H_2O). Her oxygenation improved over 24 hours, allowing weaning from ventilatory support. She was transferred in stable condition.

Discussion
This case emphasizes the diagnostic value of POCUS in rapidly distinguishing NCPE from cardiogenic pulmonary edema and anaphylaxis. Identification of diffuse B-lines alongside preserved LV function directed appropriate diuretic and respiratory support, avoiding mismanagement.

Key Learning Points

- NCPE can mimic anaphylaxis or cardiogenic edema post-contrast exposure
- POCUS enables timely bedside differentiation of pulmonary causes
- Bilateral B-lines with normal LV function support NCPE diagnosis
- Early, targeted therapy improves outcomes
- Consider NCPE in any acute respiratory distress post-contrast administration

STROKE OF SUSPICION: UNMASKING INFECTIVE ENDOCARDITIS BEHIND THE VEIL OF MENINGITIS

Jerin Antony
Amrita Institute of Medical Sciences, Kochi, Kerala

Introduction
Infective endocarditis(IE) is a multisystem disease that may present with a wide spectrum of neurological manifestations. Stroke is a common initial presentation, but meningitis as a consequence of IE is rare and often misdiagnosed. Focused Cardiac Ultrasound (FOCUS), a bedside extension of the clinical examination, has emerged as a vital tool in the emergency department. In this case, FOCUS was instrumental in shifting the diagnostic focus from isolated central nervous system infection to a systemic embolic phenomenon secondary to IE.

Case Description
A 66-year-old male patient, who is k/c/o Systemic hypertension, Type2 DM,CAD presented to the ER with fever since 2 days and altered sensorium for 1 day.He was febrile & disoriented.Initial investigations revealedTC: 11000/mm³,CRP & ESR: Elevated,deranged RFT.In view of sepsis to assess cardiac status FoCUS was performed:Echogenic mobile structure seen attached to Atrial side of the PML suggesting of vegetation.In view of suspected IE empiric IV antibiotics were started.Later MRI Brain contrast:Multiple acute infarcts.Blood cultures:MSSA Lumbar puncture:15 cells(Lymphocytic),CSF Culture: No growth. Modified Duke Criteria (A diagnosis of infective endocarditis with secondary meningitis and multiple embolic strokes was made) were fulfilled.

Discussion
Neurological complications are seen in up to 35-45% of IE cases. Embolic strokes are common, but meningitis is a rare complication—often under-recognized. In elderly patients with fever and altered sensorium, CNS infection is a frequent initial concern, but a high index of suspicion should be maintained for systemic causes like endocarditis, particularly when imaging shows multiple infarcts in different vascular territories.Bedside echocardiography in the emergency setting proved pivotal in this case.

Key Learning Points

- Infective endocarditis can masquerade as primary CNS infection, particularly when presenting with fever and altered mental status.
- Multiple infarcts on MRI in different vascular territories should raise suspicion of an embolic source.
- Bedside ECHO is a critical tool in the early diagnosis of IE, especially in undifferentiated febrile illnesses.

“HOCUS – POCUS”- AN ABDOMINAL MYSTERY UNRAVELED BY THE PHASE ARRAY PROBE : A CASE REPORT

Aby Thomas
Kasturba Medical College, Mangalore, Karnataka

Introduction
Thoracic aortic dissection is a rare but critical emergency, often presenting with vague or misleading symptoms, especially in elderly patients. Prompt diagnosis is crucial but frequently delayed due to atypical presentations. Point-of-care ultrasound (POCUS) can aid early identification of subtle signs of vascular catastrophe in such settings.

Case Description
A 79-year-old male with an existing nerve sheet tumor of the right thigh presented to the Emergency Department with epigastric pain (NPS 8/10), dysphagia, throat irritation, and two episodes of melena over the past five days. On arrival, he was hypotensive, tachypneic, and clinically dehydrated, with asymmetrical pulse amplitude in the upper limbs. Bedside resuscitation included oxygen support, IV fluids, and analgesia.

Physical examination revealed abdominal distension, tenderness in the epigastric and right hypochondriac regions. POCUS of the abdomen revealed no free fluid, but cardiac POCUS (PLAX and PSAX views) showed a dilated aortic root, aortic regurgitation, and concentric left ventricular hypertrophy. Blood investigations showed metabolic acidosis (pH 7.26, HCO_3^- 14.9 mmol/L), elevated lactate (4.5 mmol/L), and raised troponin (60 ng/mL). A provisional diagnosis of thoracic aortic dissection was considered alongside pulmonary embolism and septic shock.The patient underwent CT aortogram and pulmonary angiography, which confirmed thoracic aortic dissection with a flap distal to the aortic root. He was referred for cardiothoracic surgical care.

Discussion
This case demonstrates the diagnostic challenges of aortic dissection, particularly in elderly patients presenting with gastrointestinal symptoms. The use of POCUS was instrumental in identifying cardiovascular pathology and prompted timely definitive imaging. Given the wide spectrum of differentials, early application of focused cardiac ultrasound significantly narrowed down the diagnosis.

Key Learning Points

- Atypical symptoms in elderly patients can mask life-threatening vascular events.
- POCUS is a valuable tool in the rapid bedside assessment of undifferentiated shock.
- Aortic dissection should be considered in patients with unexplained hypotension and asymmetric pulses.
- Early cardiac imaging can change the diagnostic trajectory in emergency care

A RARE BEAT: SUPRAVENTRICULAR TACHYCARDIA AS AN INITIAL PRESENTATION OF THORACIC ANEURYSM

Arshad P C, Renjith T P, Nirmal Peter Abraham, Sanal Dev, Noorjahan V A, Vinayak M S
IQRAA International Hospital and Research Centre, Kozhikode, Kerala

Introduction
Supraventricular tachyarrhythmia is a common emergency department presentation, often attributed to structural heart disease, electrolyte imbalances, or idiopathic triggers. We present a unique case where a paroxysmal arrhythmia unmasked a silent thoracic aortic aneurysm, highlighting the hidden diagnostic potential of early bedside imaging in arrhythmia evaluation.

Case Description
A 79-year-old female who is having no comorbidities presented with palpitations, generalised tiredness. An electrocardiogram (ECG) showed rapid supraventricular tachyarrhythmia. Transthoracic echocardiography showed pseudoaneurysm distal to aortic arch and moderate pericardial effusion. Managed with adenosine and reverted to sinus rhythm. A computed tomography (CT) scan of the chest confirmed the Thoracic aortic aneurysm.

Discussion
Thoracic aortic disease presents in many different ways, often incidentally after a chest X-ray is performed for other reasons. The guidelines for the management of supraventricular tachyarrhythmia do not specify the timing of performing echocardiography. We think that during the assessment of a patient who is in the emergency room with paroxysmal tachyarrhythmias, performing echocardiography early can be very useful.

Key Learning Points

- Thoracic aneurysms can present atypically with arrhythmias.
- Early use of bedside echocardiography in ED may reveal life-threatening pathologies even when symptoms are non-specific.
- Integrating echocardiography early in emergency algorithms enhances diagnostic accuracy in atypical presentations.

RARE ISN'T IMPOSSIBLE, FROM STEMI TO SLIT

Manasi, Saikrishna
Government Medical College, Thiruvananthapuram, Kerala

Introduction
Acute myocardial infarction (AMI) requires evidence of myocardial injury—troponin values above the 99th percentile—combined with clinical signs, symptoms, and ECG changes consistent with ischemia. ST-elevation myocardial infarction (STEMI) is a type of acute coronary syndrome resulting from complete occlusion of a coronary artery. Despite advances in reperfusion therapy, STEMI continues to carry significant morbidity and mortality, particularly due to its mechanical, electrical and thrombotic complications. Early recognition and prompt management of these life-threatening complications remain crucial in improving clinical outcomes.

Case Description
A 59-year-old man with smoking, hypertension, type 2 diabetes, and dyslipidemia presented ~2 h after with central chest pain radiating to the left arm with diaphoresis. He arrived at MCH ~ 6½ h post pain onset. ECG confirmed an inferior wall MI; POCUS – ECHO showed regional wall abnormalities. Due to financial constraints, percutaneous coronary intervention (PCI) was declined; thrombolysis with tenecteplase was administered at 04:50 am, ~6h 50m after symptom onset. Ninety minutes later, persistent ST elevation indicated failed reperfusion. The patient remained stable, rescue PCI could not be done due to financial issues. Two hours later, he went into ventricular fibrillation; CPR initiated as per ACLS protocol and ROSC achieved. Point-of-care ultrasound revealed pericardial effusion and echocardiographic signs of free-wall rupture. Planned pericardiocentesis could not be proceeded as the patient progressed to asystole and expired despite advanced resuscitation.

Discussion

Free wall rupture is a rare but lethal complication of MI, more often seen in anterior infarcts. Its occurrence in IWMI is unusual and often unsuspected, particularly when the patient appears clinically stable. Risk factors in this case—including age, comorbidities, delayed reperfusion, and failed thrombolysis—likely contributed. The sudden shift from stability to fatal arrhythmia underscores the unpredictable course of mechanical complications. This case calls for heightened clinical suspicion and bedside echocardiographic readiness even in low-risk infarcts.

Key Learning Points:

- Inferior wall infarctions can cause free-wall rupture—remain vigilant with any transmural MI, especially with delayed reperfusion.
- Failed thrombolysis and high-risk patient profiles demand aggressive monitoring.
- Early signs of tamponade (JVD, hypotension, muffled heart sounds, pulsus paradoxus) warrant immediate echocardiographic assessment.
- The critical period for rupture risk is typically days 1–5 post-MI due to collagen breakdown; remain watchful.
- Initial management includes hemodynamic stabilization, emergent pericardiocentesis, and mechanical support, followed by surgical repair when feasible.

A CASE OF URINOMA AFTER URETEROSCOPIC REMOVAL OF RENAL CALCULI - CASE REPORT

Gokula Raman K, Anas M, Amrithanand VT, U Amaravathi
Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

Introduction
Urinoma is a rare pathological condition characterized by the extravasation of urine due to disruption in the urinary collecting system. It usually presents with loin pain and leads to complications like hydroureteronephrosis, electrolyte imbalance, ileus and retroperitoneal abscess formation. Iatrogenic injuries resulting from genitourinary, retroperitoneal, or gynaecologic surgery are the main contributors to ureteral urinoma. So, an early identification of Urinoma is important in the Emergency department to prevent complications.

Case description
This case report describes a 27-year-old male who presented to the Emergency Department (ED) with complaints of left-sided loin pain, fever and vitals were unstable (shock). He underwent Ureteroscopic Thulium Fiber Lithotripsy (TFL) for renal calculi 1 week back. His initial presentation suggested complicated pyelonephritis secondary to renal calculi, accompanied by septic shock. A RUSH (Rapid Ultrasound for Shock and Hypotension) protocol was performed, which revealed free fluid in the perinephric region, raising suspicion for hemorrhagic shock potentially related to a recent ureteroscopic procedure. Although blood transfusion was initially considered, the patient's overall clinical condition led to a decision to defer it.

Point-of-care ultrasound (POCUS) focused on the left kidney demonstrated perinephric fluid with mild HUN and doubtful communication with ureter, prompting an urgent NCCT KUB. Imaging confirmed the presence of a large urinoma. A prompt urological consultation was obtained and was managed with intravenous fluids, broad-spectrum antibiotics, and image-guided percutaneous drainage, which yielded approximately 300 mL of urine. Definitive management included placement of a double-J (DJ) stent. The patient had an uneventful hospital course and was discharged after 7 days. This case highlights the utility of clinical assessment combined with bedside POCUS in the emergency department to identify a rare diagnosis—urinoma. Early recognition and multidisciplinary intervention were pivotal in achieving a favourable outcome

Discussion
Urinoma is defined as a collection of urine outside the renal system due to a leak or rupture in the renal parenchyma, renal pelvis, ureter and bladder. Diagnosis of urinomas primarily relies upon strong clinical suspicion with point of care ultrasonography and the presentation can be variable with most commonly fluid around perinephric areas. Hence further imaging with intravenous Urography, CT or MRI is recommended.

Key Learning Points

- Urinoma being one of the under-reported presentations in ED following ureteroscopy procedures, genitourinary surgeries and trauma.
- Clinicians should have a strong suspicion, and a bedside POCUS aids in screening the cases immediately.
- Early identification and treatment of Urinomas prevent various complications and reduce morbidity and mortality.

IMPACT OF POCUS ON DIAGNOSTIC TIME AND EMERGENCY DEPARTMENT STAY IN SUSPECTED DVT: A SYSTEMATIC REVIEW AND META-ANALYSIS

Jency P John
Daya Royal Hospital and Trauma Centre, Kunnamkulam, Thrissur, Kerala

Background
Early diagnosis and treatment of deep vein thrombosis (DVT) are crucial to prevent thrombus propagation and subsequent pulmonary embolism. Point-of-care ultrasound (POCUS), using a two-point or three-point compression technique, is a non-invasive method for diagnosing DVT in the emergency department (ED).

Objectives
To systematically evaluate whether the use of Point-of-care compression ultrasound performed by emergency physicians reduces time to diagnosis and length of stay in the emergency department in adults presenting with suspected DVT, compared to radiology department-performed duplex ultrasound.

Methods
A systematic literature search was conducted in PubMed, Google Scholar and Cochrane Library using the keywords such as “POCUS”, “Point-of-care ultrasound”, “Deep vein Thrombosis”, “DVT” and “emergency department”. From an initial 2297 results, 23 studies were shortlisted after screening titles and abstracts. After removing duplicates and applying the inclusion criteria, five studies were included in the final analysis. Four studies reported on time to diagnosis, and two on emergency department (ED) length of stay, with one study addressing both outcomes. Meta-analysis was performed using JASP software.

Results
Among four studies reporting time to diagnosis, POCUS reduced time to diagnosis by a mean of 121.1 ± 62.9 minutes. The pooled standardised mean difference (SMD) was -1.66 ($p = 0.004$), indicating a large and statistically significant time-saving effect. Two studies evaluated the impact of POCUS on ED length of stay, with a mean reduction of 247.5 ± 56.5 minutes; however, this finding did not reach statistical significance due to high heterogeneity.

Conclusion
POCUS significantly reduces time to diagnosis in suspected DVT cases in the ED setting and may improve patient flow and operational efficiency.

WHEN PNEUMONIA ISN'T THE WHOLE STORY: UNMASKING CONCURRENT PULMONARY EMBOLISM USING POINT-OF-CARE ULTRASOUND

Diya Tesla Thomas
Government Medical College, Thiruvananthapuram, Kerala

Introduction
Pulmonary embolism (PE) can coexist with pneumonia, presenting a diagnostic challenge in patients with respiratory distress. Point-of-Care Ultrasound (POCUS) is increasingly recognized as a valuable bedside tool in rapid assessment of undifferentiated respiratory distress, especially in critically ill patients.

Case Description
A 30-year-old female presented with fever, pleuritic chest pain, and dyspnea. She was initially treated for lobar pneumonia at a peripheral hospital based on chest X-ray findings and clinical presentation, receiving antibiotics for four days. Due to worsening symptoms, she was referred to the Medical College Hospital, Thiruvananthapuram, and admitted to the Emergency Medical ICU on non-invasive ventilation. POCUS performed on admission revealed right atrial and right ventricular dilatation, along with a positive D-sign suggestive of right heart strain. D-dimer was elevated, and CT pulmonary angiography confirmed the diagnosis of pulmonary embolism. Thrombolytic therapy was initiated, leading to significant clinical improvement. The patient was discharged in stable condition after one week.

Discussion
This case underscores the need to consider PE in patients with pneumonia who show clinical deterioration despite appropriate treatment. POCUS enabled rapid bedside assessment, identifying signs of PE and guiding further imaging and timely intervention. Recognition of dual pathology in acute respiratory presentations is crucial for improving patient outcomes.

Key Learning Points

- PE and pneumonia can coexist and may complicate the clinical picture.
- POCUS is a valuable tool for bedside evaluation of dyspnea and right heart strain.
- Timely diagnosis and management of PE can be life-saving in critically ill patients.

FOCUS UNMASKS THE ATAK: A RARE CARDIAC CONUNDRUM IN ANAPHYLAXIS

Abin Thomas
Amrita Institute of Medical Sciences, Kochi, Kerala

Background
The ATAK complex—a convergence of Anaphylaxis, Takotsubo Cardiomyopathy, Adrenaline, and Kounis Syndrome—presents a rare but life-threatening diagnostic dilemma in the Emergency Department (ED). Focussed Cardiac Ultrasound (FoCUS) serves as a visual stethoscope, providing rapid bedside cardiac insights critical for time-sensitive decisions.

Case Description
A 23-year-old female with dengue and thrombocytopenia underwent platelet transfusion at 4:30 PM. Within 10 minutes, she developed a urticarial rash prompting cessation of transfusion. At 4:45 PM, she received two intramuscular doses of adrenaline for suspected anaphylaxis. Shortly thereafter, she developed chest pain and hypotension (BP 70/40). ECG revealed ST elevation in aVR with positive cardiac enzymes.
FoCUS demonstrated apical ballooning suggestive of Takotsubo cardiomyopathy, and the IVC was noted to be in the “grey zone.” A ΔVTI (Velocity Time Integral) <10% indicated fluid non-responsiveness. The clinical context of allergen exposure, exogenous catecholamine, and echocardiographic findings confirmed the diagnosis of ATAK complex. The patient was managed with vasopressors and cautious initiation of beta-blockers, avoiding further adrenaline administration.

Discussion
ATAK involves a cascade of mast cell activation, coronary vasospasm, and stress cardiomyopathy, compounded by exogenous adrenaline.
Why FOCUS Mattered?

Differentiated between ACS, anaphylactic shock, and cardiac dysfunction in real time.The IVC was in the grey zone underscoring it’s limitations.In context of multifactorial shock.The FoCUS Protocol done showed ΔVTI <10% revealed fluid unresponsiveness.This enabled immediate, targeted treatment, avoiding adrenaline overdose.

Conclusion
The ATAK complex, though rare, must be considered in post-anaphylactic hemodynamic instability. FoCUS should be integrated routinely into ED protocols to enhance diagnostic precision and treatment outcomes in complex shock states.

PREDICTING FLUID RESPONSIVENESS WITH ΔVTI USING FOCUSED CARDIAC ULTRASOUND: A PRACTICAL TEACHING MODEL FOR EMERGENCY MEDICINE

Abin Thomas
Amrita Institute of Medical Sciences, Kochi, Kerala

Background
Intravenous fluid resuscitation is a cornerstone in managing hypotension and shock, yet predicting fluid responsiveness remains a clinical challenge. Static markers such as central venous pressure and IVC variability are often unreliable, especially in spontaneously breathing patients or those with altered compliance. Over-resuscitation carries risks of organ edema and worsened outcomes. Focused Cardiac Ultrasound (FoCUS) allows real-time, physiologic assessment at the bedside, enabling more precise volume management.

Innovations
This educational model introduces a Doppler-based FoCUS technique utilizing Left Ventricular Outflow Tract Velocity Time Integral (LVOT VTI) before and after a passive leg raise (PLR). The ΔVTI is calculated as:
ΔVTI = (VTIpost-PLR − VTIpre-PLR) / [(VTIpost-PLR + VTIpre-PLR)/2] × 100

A ΔVTI ≥10–15% predicts fluid responsiveness. Unlike IVC measurements, this method directly assesses stroke volume response and is lessaffected by respiratory effort, obesity, or elevated intra-abdominal pressures. The educational intervention includes structured teaching on image acquisition, Doppler alignment, and waveform analysis, grounded in the JAMA March 17, 2025 publication.

Impact
ΔVTI-based assessment enhances resident proficiency in hemodynamic ultrasound and improves diagnostic accuracy in fluid management.Compared to IVC measurements, it provides a more reproducible and physiologically relevant indicator of preload responsiveness. Learners reported greater confidence and utility with VTI-guided assessments during critical resuscitations.

Lessons Learned
Teaching VTI-focused fluid responsiveness is feasible and effective in the ED. Residents can acquire Doppler skills quickly with structured feedback. Integrating dynamic cardiac ultrasound into training empowers clinicians to move beyond static surrogates and make more individualized, data-driven resuscitation decisions.

MIMICKING OPACITIES

Anagha V
Government Medical College, Thiruvananthapuram, Kerala

Introduction
Distinguishing between massive pleural effusion and a lung mass can be clinically challenging, especially in patients with underlying pulmonary disease. Radiological findings such as unilateral opacity may mimic either condition. In high-risk individuals with a history of COPD, smoking, or tuberculosis, both diagnoses must be considered early to guide timely intervention.

Case Description
A 57-year-old male, chronic smoker (40 pack-years), with COPD, uncontrolled type 2 diabetes, and past pulmonary tuberculosis (treated 4 years prior), presented with breathlessness for one month and hemoptysis for one week. He was found unconscious at home and brought to the emergency department. On arrival, he had a GCS of E2V1M1 and was intubated. Examination revealed reduced air entry and dullness on percussion on the left side. Chest X-ray showed complete left-sided opacity with blunting of the costophrenic angle, raising suspicion of pleural effusion or hemothorax. Initial management followed the ABC protocol. Differential diagnoses included hemothorax, lung carcinoma, reactivation TB, and metastatic disease. POCUS revealed a predominant lung mass with only mild pleural effusion. Bronchoscopic biopsy confirmed small cell carcinoma of the lung with metastasis.

Discussion
This case highlights the diagnostic complexity of differentiating massive effusion from a lung mass on imaging. In high-risk patients, malignancy must be high on the differential. POCUS proved instrumental in narrowing the diagnosis and avoiding unnecessary procedures. Timely biopsy and histological confirmation are crucial for directing appropriate oncologic management.

Key Learning Points

- Massive pleural opacity may mimic either effusion or lung mass.
- High-risk history (smoking, COPD, old TB) should prompt suspicion of malignancy.
- POCUS is valuable for rapid bedside differentiation.
- Early bronchoscopy with biopsy confirms diagnosis and guides treatment.

A CASE OF TRAUMATIC LENS DISLOCATION FOLLOWING RTA - CASE REPORT

Mari Selva Ganesh M, Gokula Raman K, Amrithanand V T
Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

Introduction
Lens dislocation, or ectopia lentis, refers to the displacement of the crystalline lens from its normal position within the eye. Traumatic lens dislocation commonly results from blunt or penetrating ocular injuries, leading to zonular fiber disruption. It can present with visual disturbances such as blurred vision, monocular diplopia, or glare. Prompt diagnosis and appropriate management are essential to prevent complications like secondary glaucoma, retinal detachment, and permanent vision loss.

Case description
This case report describes a 70-year-old male who presented to the emergency department with an alleged history of fall into a drainage pit with injury to the head and brought to our ED in an intubated state with low GCS. He was found to have swelling around left eye and pupillary light reflex revealed anisocoria, which warranted an urgent NCCT Brain scan and decompression measures for cerebral herniation. It was initially difficult to fully examine the left eye due to orbital ecchymoses. Ocular POCUS had been done to look for raised ICP features but the patient was diagnosed to have traumatic lens dislocation (lens dipped into the vitreous). Later the NCCT brain also revealed the same. It is highly essential to do a quick ocular ultrasound scan to all patients with suspected traumatic and facial injury.

Discussion
Traumatic lens dislocation typically results from blunt trauma causing zonular fiber rupture, leading to anterior or posterior displacement of the crystalline lens. Traditional diagnostic tools such as slit-lamp examination and CT scans may be unavailable in some emergency settings or delayed due to patient instability.

Point-of-care ultrasound (POCUS) offers a rapid, bedside alternative that enhances the diagnostic capabilities of emergency and trauma physicians. It allows visualization of intraocular structures in real time and can identify key findings of lens dislocation, including an echogenic, mobile lens in an abnormal position—often posteriorly displaced into the vitreous or, less commonly, anteriorly into the anterior chamber. POCUS also provides the advantage of detecting associated ocular pathologies such as vitreous haemorrhage, retinal detachment, or globe rupture. When performed with proper technique and caution (avoiding excessive pressure on the globe), it has high sensitivity and specificity for detecting intraocular injuries.

Key Learning Points

- Traumatic lens dislocation should be promptly suspected in patients presenting with injury to head or eye and with an abnormal pupillary reflex.
- Early recognition of lens dislocation via POCUS expedites ophthalmologic consultation and management decisions, which may include surgical lens extraction or medical management to reduce intraocular pressure.

OBSTRUCTION UNMASKED: WHEN THE TANGA SIGN TELLS THE TALE

Sauparnika Shaji
Believers Church Medical College Hospital, Thiruvalla, Kerala

Introduction
Intestinal obstruction is a common surgical emergency requiring prompt diagnosis to prevent serious complications. Traditional imaging may be delayed or unavailable in critical settings. Point-of-care ultrasound (POCUS) serves as a rapid, bedside diagnostic tool that enables early identification of obstruction, improves clinical decision-making, and facilitates timely intervention, making it invaluable in emergency and resource-limited environments.

Case Description
A 48-year-old female with a known case of hypothyroidism presented with 10-hour history of abdominal A 48-year-old female with hypothyroidism presented with 10-hour abdominal pain, vomiting, and constipation. Vitals were stable; exam showed mild distension and epigastric tenderness. Labs revealed elevated CRP (39 mg/L) and low potassium (3.2 mmol/L). POCUS showed dilated bowel loops, reduced peristalsis, and “Tanga sign.” CECT abdomen confirmed obstruction due to an apple-core lesion in the distal sigmoid.

Discussion
This case highlights the value of point-of-care ultrasound (POCUS) in the early diagnosis of small bowel obstruction (SBO). A 48-year-old woman with hypothyroidism presented with acute abdominal pain, vomiting, and constipation—classic features of SBO. Vitals were stable, with labs showing elevated CRP and hypokalemia. POCUS using a curvilinear probe revealed dilated bowel loops, reduced peristalsis, and free fluid—the characteristic “Tanga sign”— suggesting high-grade obstruction. CECT confirmed an apple-core lesion in the distal sigmoid with distal collapse, likely a neoplastic stricture. POCUS enabled rapid, bedside diagnosis before formal imaging, facilitating early surgical referral and helping prevent complications such as strangulation or ischemia.

Key Learning Points

POCUS enabled early diagnosis of small bowel obstruction in a stable patient.
• Tanga sign on ultrasound indicated high-grade obstruction.
• Helped differentiate obstruction from other causes of abdominal pain.
• Facilitated faster decision-making and early surgical referral.
• Radiation-free, bedside, and rapid – ideal for emergency settings.
• More sensitive than plain radiographs in diagnosing SBO.

FROM LEG TO LUNG: THE JOURNEY OF A KILLER CLOT

Neeraj V P
Believers Church Medical College, Thiruvalla, Kerala

Introduction
Pulmonary embolism (PE) is a potentially fatal condition caused by thrombotic occlusion of the pulmonary arteries, often secondary to deep vein thrombosis (DVT). Early recognition and aggressive intervention in the ED are critical to improve outcomes.

Case Summary
A 34-year-old female on oral contraceptives with prolonged immobility due to back pain presented with syncope following an unwitnessed fall. Initial labs were unremarkable. Bedside POCUS revealed right ventricular dilation with septal motion abnormality. Bilateral DVT was confirmed by Doppler, and CTPA showed a massive PE. She was started on LMWH.

The patient deteriorated with a seizure-like episode and cardiac arrest. Following ROSC, she underwent thrombolysis with alteplase, emergency pulmonary thrombectomy, and was placed on VA-ECMO for refractory shock and hypoxia. Complications included AKI requiring dialysis, coagulopathy, subarachnoid hemorrhage, tracheostomy-site bleed, hospital-acquired infections, and limb weakness.

She gradually improved with multidisciplinary care. On discharge, she was hemodynamically stable, mobilizing with support, on oral feeds, and continued anticoagulation.

Discussion
PE is diagnostically challenging due to variable presentations. Tools like Wells/Geneva scores, D-dimer, POCUS, and CTPA aid timely diagnosis. Emergency physicians must act rapidly, especially in unstable patients.

Key Learning Points

- Suspect PE in unexplained syncope or hypoxia.
- Use risk scores and D-dimer to guide imaging.
- CTPA is the gold standard; POCUS helps in unstable patients.
- Early, aggressive, multidisciplinary management saves lives.

AORTIC DISSECTION -IDENTIFIED USING POINT OF CARE ULTRASOUND IN THE EMERGENCY DEPARTMENT :CASE REPORT

Akhila Shaju
Believers Church Medical College, Thiruvalla, Kerala

Introduction
Aortic dissection involves a tear in the intima, leading to separation of the aortic wall layers and disruption of blood flow. Presents with sudden chest, back, or abdominal pain, often mimicking other acute conditions. Timely diagnosis is crucial; mortality rises with each hour of delay. CT angiography is the gold standard but may not be feasible in unstable patients. POCUS (Point-of-Care Ultrasound) serves as a valuable bedside tool, particularly in time-sensitive or resource-limited scenarios.

Case Description

A 58 years old male presented to the emergency department with complaints of chest pain for 5 days, initially sharp, now burning type pain radiating to the left scapula. He also has a history of fever, myalgia, rhinitis and dysuria. On examination he was hemodynamically stable. ECG showed normal sinus rhythm. Bedside POCUS showed aortic root dilatation and intimal flap in abdominal aorta. CT Aortogram showed dissection starting from aortic isthmus extending to upper abdominal aorta. Hence he was started on IV Labetalol, other supportive medications and was admitted under Cardiology.

Discussion
Acute dissections are highly lethal but chronic dissections (>2 weeks) have better prognosis. Classic sign are sudden, tearing chest/back pain—commonly misdiagnosed. POCUS helps detect dissection flap, true/false lumen, aortic root dilation, regurgitation, pericardial effusion, hemothorax, wall motion abnormalities

Key Learning Points

- High index suspicion - in patients with sudden, severe chest pain, back or abdominal pain – tearing or ripping type
- Risk factors - Hypertension, Connective tissue disorders, Aortic aneurysm history etc
- Classification - Stanford Type A- involving Ascending aorta- surgical emergency
  Stanford Type B- Distal to left subclavian
- Rapid imaging and BP control are key to management
- CT Angiography- gold standard for diagnosis

RAPID BEATS , DEADLY BUGS- RECOGNISING INFECTIVE ENDOCARDITIS IN ED USING POCUS

Aghin V
Iqraa International Hospital And Research Centre, Kozhikode, Kerala

Introduction
Infective endocarditis (IE) is a serious infection of the heart's endocardial surface, often involving the valves. It presents with diverse symptoms, making early diagnosis challenging. Despite advances in care, IE remains associated with high morbidity and mortality. Timely recognition and targeted therapy are essential for improved outcomes.

Case Description
65 year old male patient with a known case of Diabetes mellitus , systemic hypertension ,chronic kidney disease stage5 on hemodialysis presented to the emergency department with fever with chills, tiredness and reduced response. ABG showed metabolic acidosis (lactate 4.6). The patient was in septic shock.No history of cough with expectoration, soft tissue infection , dysuria. Cause of sepsis was not known and while waiting for the reports pocus helped in identifying the source of sepsis

Discussion
Cardiac screening revealed a large growing vegetation around the valves – probable source of sepsis is identified as infective endocarditis and managed at the earliest. Timely targeted antibiotic therapy can significantly reduce the mortality in infective endocarditis Patients on hemodialysis have higher susceptibility to infective endocarditis.

Key Learning Points

- POCUS helps in early detection of infective endocarditis in E
- Always include infective endocarditis as a differential , when source of sepsis is not clear.
- Early initiation of treatment helped better clinical outcome

FROM PAIN TO CLARITY - A CASE OF PNEUMOPERITONEUM DIAGNOSED BY POINT OF CARE ULTRASOUND

Archana Nair, Soubhik Chakraborty, Sanjeev Kumar Bhoi, Tej Prakash Sinha
All India Institute of Medical Sciences, New Delhi

Introduction
Undifferentiated abdominal pain is a commonly encountered emergency. It requires prompt differentiation between medical and surgical causes. Increasingly, point-of-care ultrasound (POCUS) is being recognized as an effective, rapid diagnostic modality capable of identifying life-threatening intra-abdominal conditions, reducing reliance on radiologic imaging, and expediting clinical decision-making. The sonographic evaluation for pneumoperitoneum using POCUS is relatively straightforward but highly dependent on the operator's proficiency. This case review illustrates the clinical utility of abdominal POCUS in diagnosing pneumoperitoneum and supports its broader integration into the evaluation of acute abdominal presentations.

Case description
A 40-year-old male with no prior comorbidities presented to the emergency department in cardiac arrest. Following advanced cardiac life support, return of spontaneous circulation (ROSC) was achieved after approximately 10 minutes. Post-resuscitation care was initiated. Review of history revealed epigastric pain two days prior. On examination, his abdomen was distended and rigid.POCUS demonstrated key findings: absent gut sliding, abdominal A-profile, free fluid containing echogenic particulate matter and Enhanced Peritoneal Stripe Sign (EPSS)—a hyper-echoic thickening of the peritoneal stripe indicative of free intraperitoneal air.

Due to hemodynamic instability requiring dual vasopressor support, the patient was deemed unfit for transfer to the operating theatre for exploratory laparotomy. Accordingly, a bedside peritoneal drain was inserted in the infrahepatic region using a 22-French intercostal drain, yielding approximately 2,500 mL of feculent material. Abdominal radiography corroborated the ultrasound findings, demonstrating subdiaphragmatic free air and dilated bowel loops. Despite administration of broad-spectrum antibiotics and full supportive resuscitation, the patient unfortunately succumbed to his condition.

Discussion

Abdominal A lines: These are similar to the reverberation artefacts of pleura in lung ultrasound, which is called A lines and are due to presence of pneumoperitoneum.

EPSS : A hyperechogenic peritoneal line is visible at the interface between the parietal peritoneum and free intraperitoneal air. A "gut point" is a point from which the parietal peritoneum sliding stops and the horizontal lines appear.

Abdominal free air produces a strong linear echo with a pathognomonic peritoneal stripe sign. Absent abdominal sliding and 'gut point'. In normal patients, a subtle sliding or shimmering is present along the peritoneal line, indicating apposition of the visceral and parietal peritoneum. The pathologic presence of intrabdominal air separates these structures

Conclusion
Point-of-care ultrasound (POCUS) is a very powerful tool in early detection of perforation peritonitis and pneumoperitoneum. CT remains gold standard, but POCUS offers rapid, non-transfer-dependent bedside diagnosis—critical in unstable post-arrest patients. Due to its high sensitivity and specificity, low cost, and patient safety profile, abdominal ultrasound should be considered as first-line imaging modality for diagnosing pneumoperitoneum and should be widely embraced by emergency physicians.

CEASE THE STORM- STELLATE GANGLION BLOCK IN TREATING REFRACTORY ELECTRICAL STORM

Archana Nair, Sanjeev Kumar Bhoi
All India Institute of Medical Sciences, New Delhi

Introduction
Electrical storm refers to a state of cardiac electrical instability characterised by multiple episodes of ventricular tachycardia (VT storm) or ventricular fibrillation (VF storm) within a relatively short period of time, typically 24 hours.

Case description
A 48 year old gentleman known case of diabetes mellitus, hypertension, coronary artery disease, post stenting to left circumflex artery, with an ejection fraction of 20% presented to Emergency department with complaints of palpitations and diaphoresis. His initial ECG showed monomorphic VT and patient was hemodynamically stable. Hence pharmacological cardioversion was attempted with Amiodarone.

During course of treatment patient became hemodynamically unstable with hypotension and synchronised cardioversion was done, following which rhythm did not revert. His VT persisted, despite multiple cardioversion attempts, other anti arrhythmics were also added like lidocaine and esmolol. In between patient sustained one cardiac arrest, revived after 2 cycles of CPR and was intubated and put on mechanical ventilation . Finally left stellate ganglion block was given with 10% Lidocaine and the VT storm subsided. Patient was admitted to CCU, was discharged after inserting an ICD in a hemodynamically and neurologically intact state.

The same patient presented to us 7 months later with history of multiple ICD shocks and again ECG was suggestive of VT storm. Initially as patient was stable, we started with Amiodarone and later due to hypotension patient was given synchronised cardioversion. Eventually when all pharmacological and multiple electrical cardioversion failed, left stellate ganglion block was given and the storm settled.

Discussion
Stellate ganglion block (SGB) is extensively used by pain physicians for treatment of sympathetic mediated pain (SMP) that consists abnormal interconnection between sympathetic and sensory nervous system. The therapeutic effects of SGB are due to sympatholytic in its region of innervation, hence temporarily curbs the effect of sympathetic autonomic nervous system and the improvement of blood supply of the region. The common indications are complex regional pain syndrome of upper extremities , peripheral vascular disease, scleroderma and Raynaud's disease, post-surgical pain, post-traumatic stress disorder, intractable angina, and refractory ventricular arrhythmias.

Conclusion
The ultrasound guided technique of SGB is now standard of care, the technique requires skill of ultrasound along with skill of needle tracking and sono anatomy.

PUPILLARY ASSESSMENT WITH POCUS

Muhammed Shafeeq
IQRAA International Hospital and Research Centre, Kozhikode, Kerala

Introduction
Paediatric head trauma can present with subtle but life threatening signs.Early recognition of neurological compromise is crucial in improving outcome.We report a case of young girl who presented with periorbital swelling following head trauma. Point of care ultrasound(POCUS) revealed anisocoria which prompted immediate neuroimaging.Imaging confirmed the presence of an epidural hematoma.POCUS can be a valuable bedside tool to detect early sign of neurological deterioration,such as anisocoria

Case Description
A 10-year-old girl presented to the Emergency Department with a history of fall from height. On examination, she was hemodynamically stable with a Glasgow Coma Scale (GCS) score of E4V5M6. She had significant right periorbital swelling, which limited the ability to perform a conventional pupillary examination.

POCUS was used for pupillary assessment and revealed anisocoria. Urgent neuroimaging subsequently confirmed a right-sided extradural hemorrhage. The patient was managed appropriately based on these findings.

Discussion
This case highlights the clinical value of POCUS in the emergency setting, particularly for neurologic assessment when physical examination is limited. Early detection of anisocoria using POCUS enabled timely diagnosis and intervention, demonstrating its role as a useful adjunct in trauma care.

Key Learning Points

- Anisocoria in trauma patients should rise concern for intracranial pathology,including possible brain herniation or compressive hematoma
- POCUS can be a valuable bedside tool to detect early signs of neurological deterioration,such as anisocoria
- Epidural hematoma in children may present subtly,often without classic symptoms like loss of consciousness or vomiting

STUDY ON CHANGE IN CAVAL AORTIC INDEX USED AS A PREDICTOR OF CLASS 1 HAEMORRHAGIC SHOCK USING POCUS AMONG BLOOD DONORS IN A TERTIARY CARE CENTRE

Shameem K
Amala Institute Of Medical Sciences, Thrissur, Kerala

Background
Haemorrhagic shock is a potentially life-threatening condition resulting from significant blood loss, leading to reduced tissue perfusion and oxygenation. Early detection, particularly of Class 1 Haemorrhagic shock (blood loss <15%), remains challenging due to compensatory physiological mechanisms masking classical clinical signs. Traditional clinical and laboratory parameters lack sensitivity and specificity for detecting early hypovolemia. The Caval Aortic Index (CAI), calculated as the ratio of the Inferior Vena Cava Diameter (IVCD) to Abdominal Aortic Diameter (AAD), measured by point-of-care ultrasound (POCUS), has emerged as a promising tool for assessing early intravascular volume changes. Aim was to determine whether the change in CAI before and after blood donation can serve as an early predictor of Class 1 haemorrhagic shock.

Methods
A prospective observational study was conducted among 116 healthy adult blood donors at a tertiary care center. Baseline measurements of vital signs, IVCD, and AAD were taken prior to a 450 mL blood donation. Repeat measurements were taken within 15 minutes post-donation. POCUS was used to obtain vascular diameters. The CAI was calculated pre- and post-donation. Paired t-tests were used to assess statistical significance of changes in CAI and hemodynamic parameters. Data were analyzed using Jamovi solid version 2.6.26.

Results
A significant decrease in IVCD was observed post-donation (1.62 ± 0.09 cm to 1.48 ± 0.12 cm, $p< 0.001$), while AAD showed a smaller but significant reduction (1.47 ± 0.08 cm to 1.42 ± 0.11 cm, $p = 0.002$). The CAI dropped significantly from 1.11 ± 0.08 to 1.04 ± 0.12 ($p< 0.001$), indicating early volume loss. Heart rate and shock index increased significantly post-donation, while blood pressure showed a modest decline. The gender-based analysis showed similar trends, though the changes were not statistically significant.

Conclusion
The study demonstrates that CAI is a sensitive, reliable, and non-invasive marker for early detection of hypovolemia consistent with Class 1 haemorrhagic shock. Its ability to detect subclinical volume changes before alterations in vital signs makes it a valuable adjunct in emergency and trauma care.

ULTRASOUND-GUIDED CONFIRMATION OF GUIDEWIRE TIP POSITION TO PREVENT ARTERIAL CANNULATION AND DOUBLE VENOUS PUNCTURE DURING CENTRAL LINE INSERTION

Rebecca Paulose, Leenus Jacob
Amala Institute Of Medical Sciences, Thrissur, Kerala

Background
Central venous catheterization is a critical procedure in emergency, but it carries significant risks, including inadvertent arterial cannulation and multiple venous punctures. Though ultrasound guidance helps in reducing these complications, it doesn't completely eliminate them. One of the main problems encountered by novice practitioners is difficulty in visualizing needle tip when ultrasound is used in out of plane technique. This often leads to needle tip going beyond the vein and entering adjacent artery or creating a false tract. Our technique helps in confirming that guidewire is intraluminal and not gone beyond the vein into an adjacent artery or false tract.

Innovation
This technique introduces a refined step in ultrasound-guided central venous catheterization. After successful venous puncture and insertion of the guidewire, the guidewire is deliberately withdrawn under ultrasound visualization until the J-tip (hook) of the wire is seen within the vein. This visual confirmation ensures that the wire is intraluminal and not malpositioned or in an adjacent artery. Once the J-tip is identified within the target vein, the wire is advanced confidently, minimizing the risk of complications.

Outcomes
This technique was applied in a series of central line insertions in the emergency department. In all cases, visual confirmation of the guidewire tip within the vein was achieved. There were no incidents of arterial cannulation or double venous puncture.

Lessons Learned
Incorporating a brief pause to visualize the J-tip of the guidewire within the vessel offers a simple yet powerful safety step in central line insertion. This innovation can reduce procedural complications and improve patient safety. Broader adoption of this technique could establish a new standard for central venous access under ultrasound guidance.

POINT-OF-CARE VASCULAR ULTRASOUND DETECTION OF THE CAROTID ARTERY PULSE COMPARED WITH MANUAL CENTRAL PULSE CHECK DURING CARDIOPULMONARY RESUSCITATION

Nithin C K
Government Medical College, Kozhikode, Kerala

Background
In cardiac arrest, early recognition and initiation of high-quality CPR are crucial. Pulse checks guide resuscitation, but manual palpation of central pulses is often unreliable and time-consuming, frequently exceeding the recommended 10-second window. Despite limitations, manual palpation remains the standard method. Point-of-care ultrasound (POCUS) may offer a faster, more objective alternative. The objective was to compare the time taken for pulse detection using ultrasound-guided carotid artery compression (POCUS-CAC) versus manual palpation (MP) during CPR in cardiac arrest patients.

Methods
A linear probe was placed transversely over the neck at the level of the thyroid cartilage to visualize the carotid artery and internal jugular vein (IJV). Probe pressure was applied to collapse the IJV.

Pulse absent: no visible pulsation and complete arterial collapse.

Pulse present: pulsation or incomplete compression.

POCUS was performed every 2 minutes during rhythm checks, synchronized with ECG monitoring. A second trained person, blinded to ultrasound results, simultaneously performed femoral artery palpation. Pulse detection time was recorded using a stopwatch.

Results
In 50 cardiac arrest patients, 322 pulse checks were recorded. The average POCUS-CAC time for ROSC detection was significantly shorter than manual palpation.The mean of the average time for carotid pulse identification per patient using POCUS-CAC was 2.91s compared to 5.9s with MP.

Conclusion
POCUS-guided carotid pulse assessment is a faster and more reliable method for ROSC detection during CPR than manual palpation. Its integration in emergency care can reduce interruptions in chest compressions and improve resuscitation efficiency.

POCUS FOR EARLY DETECTION OF INTRACRANIAL HYPERTENSION IN NON-TRAUMATIC ICU PATIENTS USING OPTIC NERVE SHEATH DIAMETER (ONSD)

Alen Hussain Kalakkat
Vinayaka Mission Kirupananda Variyar Medical College And Hospital, Salem, Tamil Nadu

Background
Intracranial hypertension (ICH) is a life-threatening condition that can occur in ICU patients even without head trauma. Early detection is crucial but often delayed due to limited access to CT/MRI. Optic nerve sheath diameter (ONSD) measurement via POCUS offers a potential non-invasive, bedside screening tool.

Objectives
To evaluate the effectiveness of point-of-care ultrasound (POCUS) measurement of optic nerve sheath diameter (ONSD) as a non-invasive, bedside screening tool for early detection of intracranial hypertension (ICH) in non-traumatic ICU patients, and to compare its diagnostic accuracy with computed tomography (CT) findings.Sonographers were blinded to CT results.

Methods
This was a prospective observational study involving 40 non-traumatic ICU patients with altered sensorium or suspected raised intracranial pressure. Bilateral ONSD was measured using a 7.5 MHz linear transducer. CT brain was performed within 1 hour for comparison. Sonography were blinded to CT results. An ONSD >5.5 mm was considered suggestive of ICH. Sensitivity, specificity, and correlation with CT findings were analyzed.

Results
ONSD POCUS identified raised ICP in 32 of 35 confirmed ICH cases on CT. Sensitivity was 91.4%, specificity 86.7%, and positive predictive value 84.2%. Mean ONSD in ICH patients was 6.2 ± 0.4 mm vs. 4.8 ± 0.3 mm in non-ICH. Time to initial suspicion via POCUS was significantly shorter (15 mins vs. 2.5 hours for CT). No adverse events were reported.

Conclusion
POCUS measurement of ONSD is a rapid, non-invasive, and reliable screening tool for detecting intracranial hypertension in non-traumatic ICU patients. It enables earlier diagnosis and intervention, particularly in resource-limited settings or where imaging delays are common.

THE SILENT SPLIT: UNVEILING AORTIC DISSECTION WITH EMERGENCY ULTRASOUND

Akshaya B S, Anandasree, Nithin Suresh
St. Gregorios Medical Mission Hospital, Parumala, Thiruvalla, Kerala

Introduction
Aortic dissection is a time-sensitive cardiovascular emergency with high mortality if not promptly diagnosed. Clinical presentation is often atypical and leads to diagnostic delays. Point of care ultrasound (POCUS) offers a rapid, bedside imaging modality that may aid in early recognition, especially in unstable patients. This case series highlights the role of POCUS in the early identification of aortic dissection and its impact of emergency management and saving life.

Case Description
We report a series of two patients who presented to the ED with symptoms including chest discomfort with severe back pain profuse sweating. In each case, emergency physicians performed bedside POCUS as part of the initial evaluation. During bedside assessment, parasternal long-axis view to assess the aortic root and suprasternal aortic arch view to visualize the ascending aorta, aortic arch and descending aorta were visualised.Key ultrasound findings included dilated aortic root and visible mobile intimal flap in the ascending, arch of aorta, descending aorta.

Suspicion raised by POCUS prompted urgent CT aortogram, which confirmed Stanford Type A aortic dissection in both patients. Depending on Stanford classification and hemodynamic status, patient were triaged for surgical management. In all cases, POCUS significantly reduced the time of diagnosis and definitive care.

Discussion
While CT Aortogram remains the gold standard for diagnosing aortic dissection, bedside ultrasound can serve as a rapid, non-invasive adjunct in critically ill patients. In this series, POCUS is extremely useful in raising early suspicion, guiding resuscitation, and accelerating definitive imaging and consultation. Recognizing key ultrasonographic signs such as aortic root dilation, intimal flap, and pericardial effusion can be lifesaving when time is essence.

Key Learning Points

- Aortic dissection may present atypically and mimic other cardiovascular emergencies.
- POCUS can detect critical signs such as intimal flap, aortic root dilation, and pericardial effusion.
- Integration of POCUS into early ED evaluation protocols can expedite diagnosis and improve patient outcomes.
- Emergency physicians should be trained to recognize aortic pathology on bedside ultrasound

A POCUS-DRIVEN REVELATION OF A SILENT CATASTROPHE

Avin Shaji John
Amrita Institute of Medical Sciences, Kochi, Kerala

Introduction
Gallbladder perforation is a rare but potentially fatal complication of acute cholecystitis. While CECT is the gold standard, POCUS especially as part of RUSH protocol offers rapid assessment of hemodynamic instability, guiding early differential diagnosis and resuscitation. Integration of the hepatobiliary system can be decisive in altering clinical trajectories.

Case Description
A 76 years old male presented with reduced response for 2 days, preceded by abdominal pain and vomiting. Vitals were BP 80/50mmHg, HR 134bpm, GCS E3V4M5. Fluid resuscitation was initiated. RUSH protocol was performed. RUQ POCUS revealed distended gallbladder with 7mm wall thickening, intraluminal sludge, pericholecystic fluid, and suspected mural rents suggestive of gallbladder perforation. The IVC showed a Collapsibility Index of 70%. IV fluids were continued, and early noradrenaline initiated. Empirical broad-spectrum antibiotics were given within the 1st hour. CECT abdomen confirmed acute perforated calculous cholecystitis. The patient underwent emergency percutaneous cholecystostomy, draining blackish bile. Patient gradually improved over 10 days and was discharged.

Discussion
Gallbladder perforation complicates 2–11% of acute cholecystitis cases and carries high mortality rate, especially with delayed recognition due to overlap in presentation with uncomplicated cholecystitis. RUSH protocol enables evaluation of shock by assessing cardiac function, IVC collapsibility, lung and abdominal pathology. RUQ scan was pivotal: wall discontinuity and pericholecystic fluid raised early suspicion of gallbladder perforation. Prompt diagnosis, early source control and antibiotic therapy led to a favorable outcome.

Key Learning Points

- RUSH protocol is invaluable in evaluating undifferentiated shock, especially in elderly patients with non-specific presentations.
- Early diagnosis and source control can be lifesaving in high-risk surgical candidates with gallbladder perforation.
- POCUS of hepatobiliary system should be included when evaluating abdominal pain in shock; wall defects or pericholecystic collections may be the first clue to GB perforation.

DIAGNOSTIC ACCURACY OF POINT-OF-CARE ULTRASOUND TO IDENTIFY THE SOURCE OF INFECTION IN UNDIFFERENTIATED SEPSIS PATIENTS IN THE EMERGENCY DEPARTMENT - Sepsis Ultrasound Protocol to identify source Etiology Rapidly (SUPER protocol)

Sreekara VR, Amrithanand VT, N Balamurugan, S Manu Ayyan
Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry

Background
Sepsis is a rapidly progressing condition with high mortality, often presenting diagnostic challenges due to its varied clinical features. Conventional diagnostic pathways, including laboratory tests and routine imaging, can be time consuming. Delays in identifying the infection source can hinder timely treatment. POCUS offers a rapid, bedside tool that complements clinical evaluation and may expedite diagnosis in the ED. Early source identification and treatment improve outcomes and reduce mortality. However, there is limited evidence on the diagnostic accuracy of POCUS in identifying infection sources in undifferentiated sepsis, warranting further investigation.

Our objectives were to evaluate the diagnostic accuracy of point of care ultrasound protocol to identify the source of infection compared with the final diagnosis and to evaluate the sensitivity of diagnosis grouped by the anatomical sites.

Methodology
This is a prospective observational diagnostic validity study conducted in the Emergency Department (ED). Patients aged ≥18 years presenting with clinically suspected sepsis but without an identifiable source after initial history and examination by the treating physician (undifferentiated sepsis) were enrolled. Exclusion criteria included patients who died before a final diagnosis, pregnant females, and those who declined consent. Following initial stabilization and clinical assessment,

POCUS-SUPER protocol was independently performed at the bedside by the investigator without interfering with ongoing resuscitation. The rapid protocol, completed within 10 minutes, assessed five domains: focused cardiac, lung, hepatobiliary/gastrointestinal, genitourinary, and musculoskeletal systems. The final diagnosis determined by the admitting department, incorporating all laboratory and imaging findings during hospitalization, served as the gold standard. A sample size of 149 was estimated, adjusted to 164 to account for an anticipated 10% loss to follow-up.

Results
These are the interim results of the ongoing prospective study, with 50 patients enrolled to date.The SUPER protocol demonstrated a sensitivity of 81.5% and specificity of 65% in identifying the source of infection in patients with undifferentiated sepsis. The positive predictive value was 75.9%, while the negative predictive value was 72.2%. Subgroup analysis based on the anatomical source of infection revealed that the diagnostic accuracy of the protocol was highest for musculoskeletal infections. Final results and complete analysis will be reported upon achieving the target sample size.

Conclusion
POCUS-SUPER protocol shows potential as a valuable adjunct for identifying infection sources in sepsis patients.

SPONTANEOUS PERINEPHRIC HEMATOMA SECONDARY TO MUMPS-INDUCED VASCULITIS: A RARE DIAGNOSTIC PICK ON POINT-OF-CARE ULTRASOUND

Padmapriya P Nair, Arin Eliza Sunny
Jubilee Mission Medical College and Research Institute, Thrissur, Kerala

Introduction
Spontaneous perinephric hematoma is a rare and potentially life-threatening condition. It is most often associated with renal neoplasms, vascular abnormalities, or infections. Post-viral vasculitis as an etiology, particularly following mumps, is exceptionally rare. Point-of-care ultrasound (POCUS) plays a pivotal role in the rapid diagnosis and management of such conditions.

Case Description
A 20-year-old male presented to the ED with right-sided abdominal pain for three days, intermittent in nature. His history was significant for recent mumps complicated by pancreatitis and prior right-sided torsion testis for which he had undergone orchidopexy. On POCUS examination, free fluid was visualized in the right perinephric region, prompting further evaluation with contrast-enhanced CT (CECT). CECT revealed a large right-sided perinephric hematoma (7.3 × 5.5 cm) anterior to the kidney. Laboratory evaluation showed a significant drop in hemoglobin from 11 to 6 g/dL. The patient was transfused with PRBC and referred to a higher center for angioembolization.

Discussion
This case underscores the utility of POCUS in detecting intra-abdominal pathology, especially in young patients with non-specific pain. Spontaneous perinephric hematoma is rarely reported as a sequela of post-mumps vasculitis. The incidental detection of free fluid by bedside ultrasound played a pivotal role in guiding further imaging and management. In the emergency setting, rapid bedside decisions can significantly alter outcomes, as demonstrated in this case.

Key Learning Points

- POCUS is vital for early recognition of atypical intra-abdominal collections in the ED.
- Spontaneous perinephric hematoma, though rare, must be suspected in post-viral vasculitis.
- Timely diagnosis enabled stabilization and plan of management, highlighting the life-saving potential of bedside ultrasound.

A CASE OF VENTRICULAR SEPTAL RUPTURE

Ann Susan Kuriakose
Jubilee Mission Medical College & Research Institute, Thrissur, Kerala

Introduction

This is the case of a 64 year old male with no prior comorbidities who presented with acute onset chest pain and sweating.

Case Description

A 64 years old male presented to the emergency with a history of acute onset chest pain and profuse sweating followed by breathing difficulty. He was diagnosed with ACS- Anterior wall STEMI, thrombolysed using streptokinase from another hospital and referred for further management.

On arrival, the patient was tachypneic, tachycardia and hypotensive on oxygen supplementation and inotropic supports. On examination, he had a pansystolic murmur. A POCUS examination showed moderate LV systolic dysfunction with septal, anterior and lateral wall RWMA. It also revealed a ventricular septal rupture with left to right shunt.

He was shifted to the CCU and was planned for VSR closure under high risk.

Discussion

Post-myocardial infarction ventricular septal rupture (VSR) is a dreaded complication and confers high morbidity and mortality in patients with STEMI. It commonly occurs in the setting of a first myocardial infarction in the background of delayed or absent reperfusion therapy. Its incidence usually shows a bimodal peak, which is within the first 24 hours or 3 to 5 days post-MI. The clinical characteristics of these complications differ and depend on the site of rupture, which may involve the free wall of either ventricle, the interventricular septum, or the papillary muscles. Surgical closure is the treatment of choice.

Key Learning Points

- Post-myocardial infarction ventricular septal rupture (VSR) although not that common is a fatal mechanical complication and surgical closure is the treatment of choice.
- ECHO is the test of choice and serial cardiac exams help in identifying a VSR in the emergency department.

DEVELOPING CARDIAC TAMPONADE IN MINOR SUPERFICIAL INJURIES TO CHEST - A CASE REPORT

Rituraj Sharma
Tirunelveli Medical college, Tamil Nadu

Introduction
Chest trauma, often subtle and concealed, can rapidly deteriorate if not thoroughly assessed, especially in emergency settings. In our institution, chest trauma is the second most common injury type after head trauma.

Case description
A 27-year-old male presented to the emergency department with a reported history of assault involving sharp instruments. Clinical examination revealed only minimal superficial injuries on the anterior and posterior chest. Initial vital signs were within normal limits (BP: 100/60 mmHg, PR: 100/min, RR: 26/min, SpO_2: 98% on room air). However, an extended Focused Assessment with Sonography in Trauma (e-FAST) scan revealed early signs of pericardial tamponade. Serial thoracic ultrasound confirmed progression of pericardial fluid accumulation. Cardiothoracic surgery was promptly consulted, and the patient was taken to the operating room, where timely surgical intervention saved his life.

Discussion
Point-of-care ultrasound (POCUS) showed pericardial effusion with right atrial collapse and diastolic collapse of the right ventricle. Inferior vena cava (IVC) assessment revealed a plethoric IVC with minimal respiratory variation, indicative of elevated right atrial pressure and consistent with cardiac tamponade.

Key Learning Points

- Even minor or superficial chest injuries can lead to life-threatening complications such as cardiac tamponade.
- Early use of POCUS in trauma settings is crucial for timely diagnosis and management.
- Vigilant serial monitoring with ultrasound can make the difference between life and death in concealed thoracic injuries.

POCUS TO THE RESCUE: A CASE OF TUBERCULOUS PERICARDIAL TAMPONADE UNMASKED IN SHOCK

Shilpa C Baby, Shanthi Sri G S, Rajashekar Reddy
Government Medical College, Kadapa, Andhra Pradesh

Introduction
Pericardial tamponade is a life-threatening emergency requiring rapid diagnosis and intervention. Tuberculous pericarditis, common in TB-endemic regions, often presents without respiratory symptoms, delaying diagnosis. Point-of-care ultrasound (POCUS) is a vital bedside tool for rapid detection of pericardial effusion and tamponade physiology, guiding timely treatment.

Case Description
A 55-year-old man presented with progressive breathlessness for 5 days, orthopnea, fatigue, and mild chest discomfort, without fever, cough, or TB contacts. Examination revealed hypotension (BP 84/60 mmHg), tachycardia (132 bpm), raised JVP, muffled heart sounds, pulsus paradoxus, and weak pulses.

Multi-organ bedside POCUS showed large circumferential pericardial effusion with right atrial and ventricular diastolic collapse and a dilated, non-collapsing IVC—confirming tamponade. Ultrasound-guided pericardiocentesis drained 600 mL of straw-colored fluid, with immediate hemodynamic improvement.

Pericardial fluid analysis showed elevated ADA (76 U/L), lymphocyte predominance, and CBNAAT positivity for Mycobacterium tuberculosis. Anti-tubercular therapy with adjunct steroids was started.
- Day 0: BP improved to 110/70 mmHg; HR decreased to 90 bpm without vasopressors.
- Day 1: POCUS showed reduced effusion and normalized IVC collapsibility; patient stable.
- Day 2: Near-complete effusion resolution on POCUS; patient weaned off intensive monitoring.

Discussion
This case highlights the critical role of POCUS in rapid diagnosis and management of pericardial tamponade in resource-limited, TB-endemic settings. Despite absence of pulmonary symptoms, TB pericarditis was confirmed by fluid analysis. Multi-organ POCUS enabled early intervention and dynamic monitoring, preventing adverse outcomes.

Key Learning Points

- TB pericarditis may present solely as tamponade without pulmonary signs.Multi-organ POCUS (heart, lung, IVC) allows rapid, accurate tamponade diagnosis and guides interventions.
- Ultrasound-guided pericardiocentesis is safe and effective for hemodynamic stabilization.
- Serial POCUS is valuable for monitoring treatment response and preventing complications.
- High suspicion for extrapulmonary TB in undifferentiated shock is essential in endemic areas.

FISH HOOK INJURY TO THE NECK IN A CHILD – A CASE REPORT

Dyanchand P S
Jubilee Mission Medical College and Research Institute, Thrissur, Kerala

Introduction
Fish hook injuries in children are commonly encountered on extremities; however, injuries involving the neck are rare and pose significant risk due to the proximity of vital structures such as the carotid artery, jugular vein, and airway. Prompt and precise management is essential to avoid life-threatening complications.

Case Description
A 10-year-old boy presented to the Emergency Department with a fish hook injury to the left side of his neck, sustained while fishing with his father. On examination, a barbed fish hook was visibly embedded in the lateral aspect of the neck, near the carotid artery. There was no active bleeding or neurovascular deficit. Bedside point-of-care ultrasound (POCUS) revealed the fish hook tip to be closely abutting the carotid artery.

The patient underwent removal of the hook under local anesthesia with real-time ultrasound guidance to avoid vascular injury. The procedure was uneventful. A post-removal ultrasound confirmed no hematoma, vascular damage, or retained fragments. The child was observed for a few hours and discharged with oral antibiotics and follow-up instructions.

Discussion
Penetrating neck injuries in children require a high index of suspicion due to their smaller anatomy and the potential for rapid deterioration. The use of bedside ultrasound in the ED setting enabled safe, minimally invasive foreign body removal while avoiding surgical exploration. Emergency physicians must be adept at using POCUS for such procedures and understanding relevant anatomy to minimize iatrogenic harm.

Key Learning Points:

- Fish hook injuries to the neck are rare but can be potentially life-threatening.
- Real-time ultrasound guidance significantly improves the safety of foreign body removal in anatomically sensitive areas.
- Early identification, careful planning, and a minimally invasive approach can result in excellent outcomes in pediatric patients.
- POCUS is a valuable tool for emergency physicians in managing soft tissue foreign bodies, especially near vascular structures.

SWEAT, PAIN AND THE SPLIT WITHIN, DECEPTIVE PRESENTATION AND A DEVASTATING OUTCOME

Abid P
Baby Memorial Hospital Kozhikode, Kerala

Introduction
Aortic dissection is a rare yet catastrophic emergency, particularly in young individuals where the presentation may be atypical. Rapid diagnosis is essential but often delayed due to its varied clinical manifestations. This case emphasizes the critical role of focused history, clinical examination, and point-of-care ultrasound (POCUS) in the early diagnosis of Stanford Type A aortic dissection presenting as lower limb ischemia.

Case Description
A 35-year-old previously healthy male presented to the Emergency Department with sudden onset severe pain and heaviness in the left lower limb, associated with profuse sweating and a ripping sensation in the chest. On arrival, the patient was visibly distressed and drenched in sweat. Examination revealed complete motor loss (0/5 power) in the left lower limb,absent distal pulses in the left lower limb and significant blood pressure discrepancy between upper limbs.

Bedside POCUS showed absent blood flow in the left femoral artery and below, along with a significantly dilated aortic root containing an intimal flap.CT aortogram with peripheral angiogram confirmed Stanford Type A aortic dissection, extending into the right brachiocephalic trunk, right common carotid artery, and bilateral common iliac arteries. There was complete occlusion of the false lumen in the left common iliac artery, explaining the limb ischemia.Cardiothoracic surgery was urgently involved, and extensive surgical repair with elephant trunk prosthesis implantation was planned. Despite timely diagnosis and intervention, the patient unfortunately succumbed intraoperatively due to the extensive nature of the dissection.

Discussion
This case demonstrates the deceptive nature of aortic dissection, especially in younger patients presenting with non-classical symptoms such as limb pain. The coexistence of limb ischemia, BP discrepancy, and subtle chest symptoms should alert clinicians to the possibility of a vascular emergency.

POCUS proved pivotal in this case, allowing rapid identification of both peripheral and central vascular abnormalities. The tool significantly reduced time to diagnosis and definitive imaging. Unfortunately, the extensive dissection was beyond salvage.

Key Learning Points

- Aortic dissection may present with non-specific signs such as limb pain, neurologic deficits, or sweating—especially in young adults.
- High clinical suspicion, thorough history, and targeted physical examination are essential.
- Blood pressure differences between limbs and limb ischemia are key red flags.
- POCUS can serve as a rapid, non-invasive, and life-saving tool in diagnosing aortic dissection in the ED.
- Early recognition and multidisciplinary intervention are crucial, though prognosis remains poor in extensive Stanford Type A dissections.

POINT OF CARE ULTRASOUND AS AN ADJUNCT IN THE EARLY DIAGNOSIS OF PNEUMOPERITONEUM COMPARED WITH MULTIDETECTOR COMPUTED TOMOGRAPHY ABDOMEN

Gayathri Mohan, Chandni R
Government Medical College, Kozhikode, Kerala

Background

Acute abdominal pain is a common ED presentation requiring rapid diagnosis for timely intervention. Gastrointestinal perforation with pneumoperitoneum is a critical condition needing prompt detection to reduce morbidity and mortality. While MDCT remains the gold standard due to its high sensitivity, POCUS has emerged as a valuable bedside tool, providing real-time imaging without radiation exposure.

Objectives

To compare Point-of-care ultrasound as an early tool in the identification of pneumoperitoneum with the gold standard technique MDCT abdomen in patients presenting with abdominal pain in the Department of Emergency Medicine, Government Medical College, Kozhikode.

Methods

This was a prospective observational study conducted in 134 patients. After a thorough history and physical examination, a point-of-care ultrasound (POCUS) was performed on all study subjects by the Faculty of the Emergency Medicine Department.Patients were positioned in a supine posture to allow free air to rise and collect just beneath the anterior abdominal wall. While both curvilinear and linear transducers can be used, a linear transducer (4-8 MHz) is preferred.The right upper quadrant, particularly over the liver and subdiaphragmatic region, was the primary scanning site for detecting free intraperitoneal air.

The Gut Point Sign was identified as a transition zone where normal peritoneal sliding was absent on one side, confirming free air presence. The Enhanced Peritoneal Stripe Sign (EPSS) appeared as a thickened, hyperechoic peritoneal stripe with strong posterior reverberation artifacts, best assessed in the subxiphoid.The Reverberation Artifact was detected in the subdiaphragmatic areas,presenting as echogenic foci with repeating horizontal reverberation patterns, often forming a comet-tail appearance that shifted with patient repositioning. Subjects then underwent MDCT abdomen radiological imaging as per the standard of care.

Results

A total of 134 patients with abdominal pain were included, of which 65 (48.5%) had perforation confirmed by MDCT. POCUS demonstrated a sensitivity of 63%, specificity of 100% and NPV of 74% for detecting pneumoperitoneum. EPSS had a Sensitivity of 55.4%, Specificity of 100%, PPV of 100%, and NPV of 70.4% Reverberation Artifact showed a Sensitivity of 52.3%, Specificity of 100%, and NPV of 69%. Gut Point Sign showed a Sensitivity of 49.2%, Specificity of 100%, NPV of 67.6%

Site-specific findings showed Gut Point had 100% sensitivity for gastric antral and sigmoid perforation, while EPSS and Reverberation Artifact had the highest sensitivity (100%) for detecting jejunal and transverse colon perforations.

Conclusion

POCUS demonstrated high specificity (100%) but moderate sensitivity (63%) for detecting pneumoperitoneum, reinforcing its role as a reliable adjunct diagnostic tool. Among ultrasound markers, EPSS, reverberation artefact, and Gut Point exhibited varying sensitivities across different perforation sites, with Gut Point showing 100% sensitivity for gastric antral and sigmoid perforations.

ULTRASOUND GUIDED ERECTOR SPINAE PLANE BLOCK FOR PAIN MANAGEMENT IN ACUTE PANCREATITIS

Aparna Harikumar
Government Medical College, Kozhikode, Kerala

Introduction
Pain control for patients in the emergency department(ED)with acute pancreatitis can be difficult and is often limited to intravenous opioids. Ultrasound guided regional anesthesia by emergency physicians has increasingly proven to be an integral part of a multimodal opioid sparing pain control strategy for patients in the ED.Erector spinae nerve block has been used successfully in controlling pain for rib fractures, post herpetic pain and post operative pain

Case description
Five patients >18 years of age, diagnosed with acute pancreatitis, presenting to ED with acute pain without any hemodynamic instability or end organ damage and having pain according to numerical rating scale(NRS) >5 were selected. The Erector Spinae Plane Block (ESPB) was performed by an emergency physician with expertise in the procedure, adhering to strict aseptic precautions.

The patients consisted of four males (ages 27, 38, 39, and 54) and one female (age 45). Pain reduction started within 5 to 15 minutes of the block. The duration of pain relief varied, lasting from 11 hours (in the 54-year-old male) to a maximum of 32 hours (in the 45-year-old female). The maximum pain relief was generally achieved within 20 to 30 minutes post-procedure across all cases. Notably, all patients experienced significant pain relief without reported complications.

Discussion
In this case series, we found that Erector Spinae Plane Block (ESPB) showed promising results in reducing pain of all five patients. The procedural success also highlights the ease of anatomical identification of the T8 level and the transverse process, using a high-frequency linear ultrasound probe. Our case series supports the use of ultrasound-guided ESPB as a safe, effective, and opioid-sparing modality for managing acute pain in pancreatitis patients presenting to the emergency department. Further prospective, controlled studies with larger sample sizes are warranted to establish standardized protocols, evaluate long-term outcomes, and compare efficacy with traditional analgesic regimens.

Key Learning Points

- Rapid Onset: ESPB provided pain relief within 5–15 minutes in all patients.
- Prolonged Effect: Analgesia lasted between 11 and 32 hours, reducing opioid need.
- Simple and Safe: The block was easily performed under ultrasound guidance at T8 with no complications.
- Opioid-Sparing Strategy: Effective as part of multimodal pain management in acute pancreatitis.
- Need for Further Research: Larger controlled studies are required to confirm efficacy and safety

OPTIC NERVE SHEATH DIAMETER MEASUREMENT USING POCUS: A TOOL FOR EARLY IDENTIFICATION OF ELEVATED INTRACRANIAL PRESSURE

Devika K Das
Stanley Medical College, Chennai, Tamil Nadu

Introduction

Elevated intracranial pressure (ICP) is a critical concern in neurological emergencies such as traumatic brain injury, stroke, and CNS infections. Early recognition is essential to prevent secondary brain injury. In resource-limited or time-sensitive settings, bedside point-of-care ultrasound (POCUS) measurement of optic nerve sheath diameter (ONSD) offers a rapid, non-invasive, and radiation-free method for detecting raised ICP.

Case Description

We present three cases where bedside ONSD measurement via POCUS supported the early identification of elevated ICP. Case 1 involved a 45-year-old male with head trauma who presented with a GCS of E3V4M5; bilateral ONSD measured 6.0 mm, and CT brain confirmed cerebral edema with midline shift. In Case 2, a 55-year-old female with altered mental status and suspected stroke had an ONSD of 5.8 mm bilaterally, with CT revealing cerebral edema. Case 3 featured a 65-year-old male with a hypertensive hemorrhagic stroke who showed an ONSD of 6.2 mm; imaging confirmed a large intraparenchymal bleed with mass effect.

In all three cases, bedside ONSD measurement facilitated early clinical decision-making prior to definitive imaging, and serial monitoring was used to assess response to therapy.

Discussion

Bedside ONSD measurement is a valuable tool for early detection of elevated ICP. An ONSD >5.0 mm is associated with high sensitivity and specificity for raised ICP. POCUS is easily repeatable, making it suitable for dynamic monitoring in emergency and critical care settings.

Key Points

- POCUS-based ONSD measurement enables early detection of raised ICP.
- An ONSD >5.0 mm is a useful diagnostic threshold.
- It supports timely intervention when imaging is delayed.
- Incorporating ONSD into emergency protocols enhances clinical decision-making.

Celebrating 10 YEARS 2015-2025

Southern Regional Training Hub

EMERGENCY MEDICINE & TRAUMA CARE
Jubilee Mission Medical College & Research Institute

9 788198 968784