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POCUS Journal

Journal of Point of Care Ultrasound

EMERGENCY MEDICINE. INTERNAL MEDICINE. CRITICAL CARE. CARDIOLOGY. PRIMARY CARE. ANESTHESIOLOGY. PULMONOLOGY

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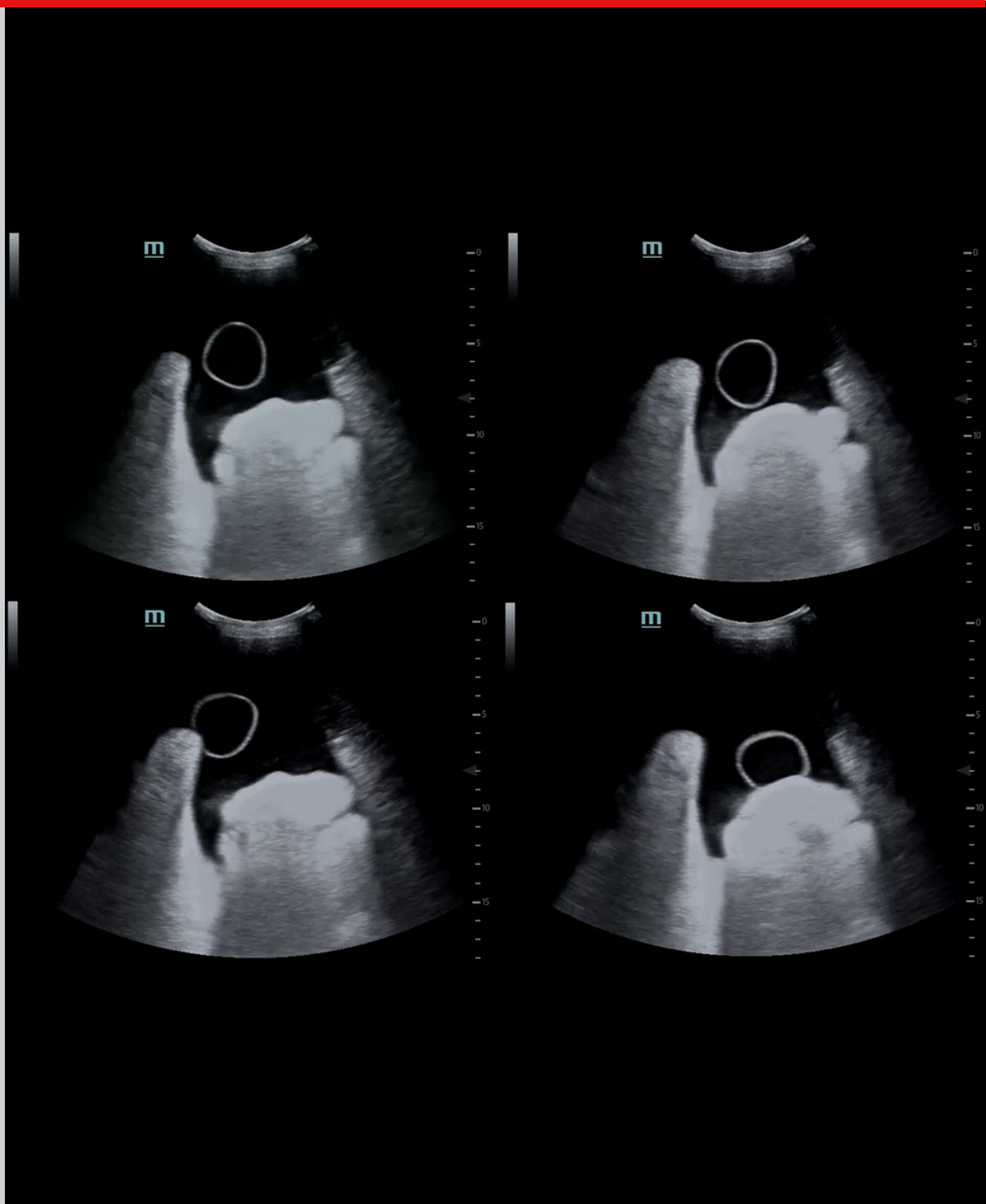

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Case File

Unexpected cyst within ascites

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A 59-year-old man, with known alcohol-induced liver cirrhosis and diuretic refractory ascites, was seen in General Internal Medicine clinic for a therapeutic paracentesis. The tense large volume ascites caused abdominal pain, which had been previously relieved with paracentesis on several occasions. In preparation for paracentesis, routine point-of-care ultrasound (POCUS) was performed to landmark for the procedure. POCUS revealed an unexpected thin-walled mobile structure (Figure 1) within the abdominal cavity (online Video S1). There was no history of abdominal surgery, or any indwelling catheters.

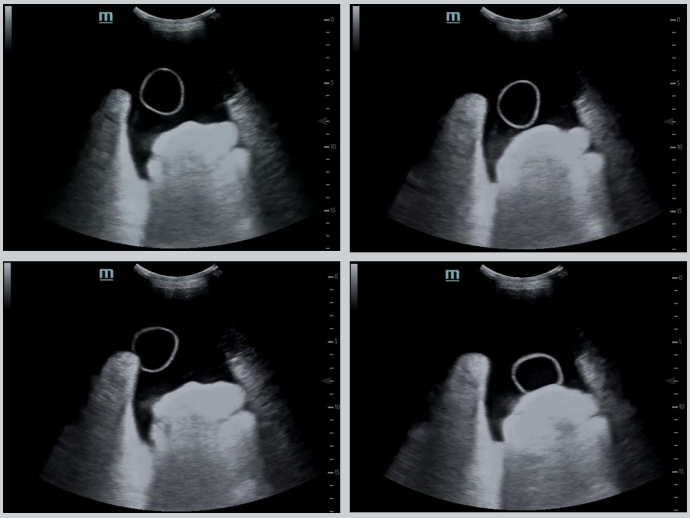

Figure 1. Point of Care Ultrasound of Right Lower Abdominal Quadrant. Four still images captured from the 6 seconds of video recording.

Intraabdominal cysts are classified based on their organ of origin. This particular cyst appears adjacent to mesentery or omentum. The most common mesenteric or omental cysts are lymphangiomas, which are multiseptated structures [1]. Less common are thick walled enteric duplication cysts, hypoechoic enteric cysts, and thin anechoic unilocular mesothelial cysts [1]. Pathologic examination is required for definitive diagnosis.

POCUS imaging characteristics in this case were consistent with a mobile benign mesothelial cyst. Benign mesothelial cysts are a relatively rare tumor, within the category of multilocular peritoneal inclusion cysts [2,3]. These cysts are generally tethered to organs, but a small subset is non-tethered and can be free floating in the presence of ascites [2,3]. They are often found incidentally, in reproductive age women during caesarian sections, or during abdominal imaging.

These thin-walled and fluid-filled structures are typically three to ten centimeters in diameter [4]. When examined histologically, the cyst walls are fibroconnective tissue with flattened to cuboid mesothelial cell layers without any mitotic activity [5]. While the pathophysiology remains unknown, there may be a link to peritoneal inflammation or elevated estrogen states [2,5]. End stage liver cirrhosis would cause both a pro-inflammatory state and elevated estrogen levels.

While these cysts are commonly asymptomatic, they can cause abdominal pain and compressive symptoms if large. Management is complete surgical resection, although there is a propensity for recurrence.

This patient underwent an effective therapeutic paracentesis, avoiding the cystic structure. Unfortunately, shortly after these images were obtained, he deteriorated due to progression of his decompensated liver cirrhosis, and subsequently passed away. In keeping with his goals of care, repeat therapeutic paracentesis was performed to help relieve abdominal pain, but no further investigations were performed on this cyst.

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A case of Fournier's gangrene diagnosed with POCUS

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Case

An 87-year-old man with a history of type 2 diabetes and severe Alzheimer disease was admitted to the emergency department with a lesion of the perineum for two days. The patient appeared agitated and not collaborating on the visit. His vital signs were normal. Physical examination revealed an edematous, suppurative, and foul-smelling perineal-scrotal lesion, with possible subcutaneous emphysema.

POCUS of the affected tissue was performed, revealing a heterogeneous hyperechoic area with irregular borders that suggested gas in the soft tissue of the scrotum and the perineum, a characteristic sign of a necrotizing fasciitis of perineum, known as Fournier's gangrene (FG; Figure 1; online video S1).

The most common clinical symptoms and signs of FG include severe pain, swelling, erythema, crepitus and bullae. Crepitus is a characteristic popping and crackling sound heard with palpation of the skin secondary to the presence of air in the subcutaneous tissue. FG constitutes a medical urgency with high mortality rates that commonly reach 30% and could increase when there is a delay in diagnosis. Rapid detection is essential to decreasing morbidity and mortality of this life-threatening disease [1]. Although the diagnosis of FG is clinical, this disease can sometimes difficult to diagnose, especially early in its presentation. For this reason patients with FG typically have a delayed diagnosis with several misidentifications such as simple cellulitis, pyoderma gangrenosum or hidradenitis suppurativa. POCUS might be a quick and early tool to confirm suspicion of subcutaneous air [2].

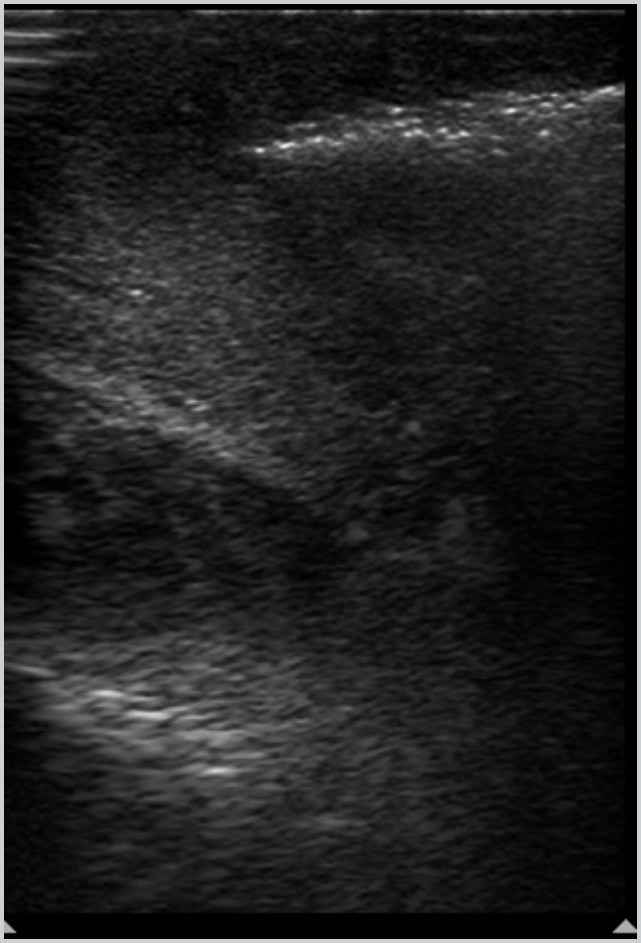

Figure 1. The gas in the scrotal wall, indicated by a hyperechoic 'dirty' shadowing, is a characteristic sign of FG.

Disclosures

The authors declare no conflicts of interest.

Consent

The patient and his family gave their consent.

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Case Report

POCUS for pleural assessment and intervention

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Introduction

The use of point-of-care thoracic (lung) ultrasound is an integral part of clinical practice that has shown diagnostic accuracy to help guide clinical decision making for pleural interventions [1].

Case Presentation

A 63-year old woman with no previous medical history was diagnosed with acute promyelocytic leukemia (APML) via bone marrow biopsy on the day of admission. However, she developed a significant amount of bleeding from the bone marrow biopsy site, despite pressure application. This was complicated by disseminated intravascular coagulation and thrombocytopenia. All-trans retinoic acid (aTRA) therapy was immediately commenced to attenuate the coagulopathy and treat the malignancy. In addition, she received a total of 2 units of packed red blood cells (600mL), 20 units of cryoprecipitate (20mL), and 4 doses of platelets (1400mL).

On post admission day 1, the patient was referred for progressive hypoxia (2L/min) to (10L/min). However, she was hemodynamically stable, afebrile, and asymptomatic. Physical examination revealed no edema in her lower limbs, but the jugular venous pulsations were difficult to visualize. Auscultation of her lung fields revealed right lower lobe coarse crackles and her heart sounds were normal. Chest x-ray (CXR) revealed bilateral pleural effusions with air space opacification in the right middle lobe (Figure 1). ECG revealed normal sinus rhythm.

The differential diagnosis at this time included: transfusion associated circulatory overload (TACO), transfusion related acute lung injury (TRALI), aTRA differentiation syndrome, and pneumonia.

POCUS was deployed to elucidate the etiology of the hypoxia, or, at minimum, narrow the differential diagnosis. The standard thoracic lung zones (Zones 1-4, bilaterally) were imaged (See online Video S1). Subsequently, the pleural interface was imaged (See online Video S2). In addition, given TACO was considered, the inferior vena cava (IVC) and heart were also imaged (See online Video S3).

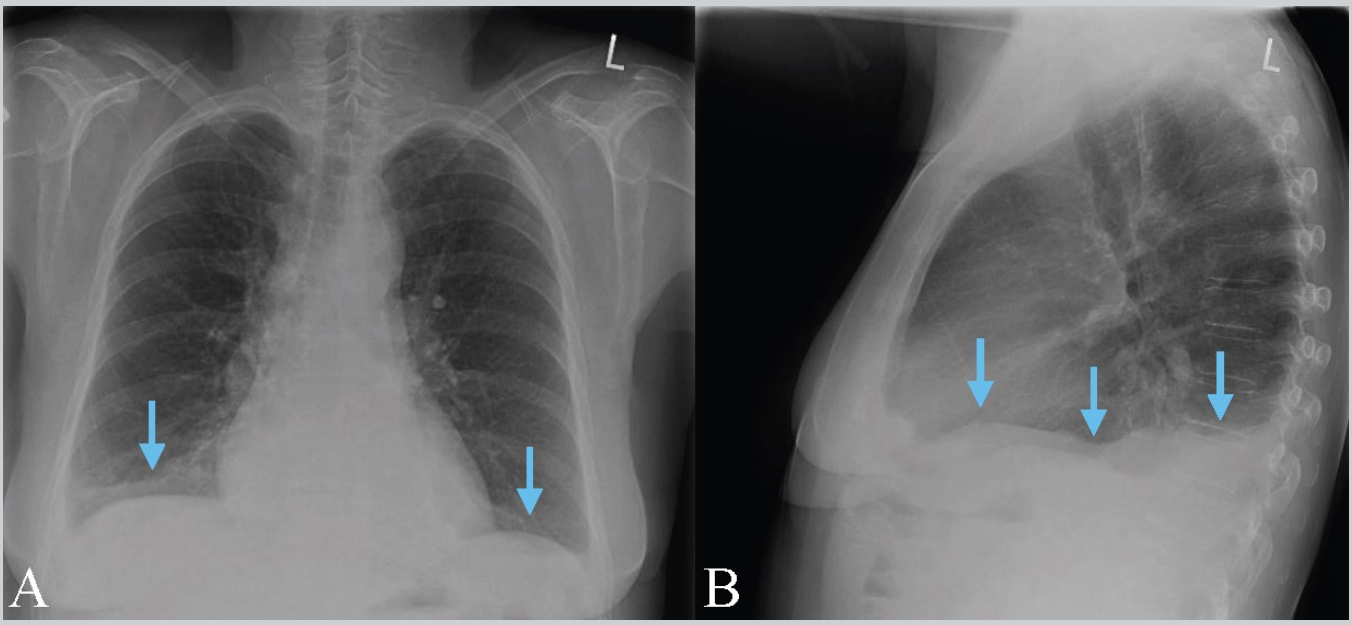

Figure 1. Chest radiograph revealing bi-lateral pleural effusion. A = posteroanterior view image; B = upright lateral view. Pleural effusion is indicated with blue arrows.

Figure 2. POCUS of dependent lung zones revealing bi-lateral pleural effusion. Lung zones are indicated: RZ4 = right lung zone 4; LZ4 = left lung zone 4.

The dependent lung zones revealed pleural effusion as expected (Figure 2); and given their anechoic appearance and the absence of fibrin and swirling debris, these were simple pleural effusions. **Each of the other lung zones, however, revealed at least 3 B-lines which is consistent with a bilateral interstitial syndrome.** The pleural line was smooth with no evidence of subpleural consolidation and, also, the B-lines appeared to be evenly spaced.

The IVC was collapsing at <50% with spontaneous respiration. The subcostal view revealed no pericardial effusion except for a fat pad in the pericardial space. The right ventricle was not dilated, and the left ventricle appeared to have normal function, though assessment was incomplete.

Given the findings, the sonographic pattern found was consistent with a non-inflammatory etiology of interstitial syndrome, in which the primary pathophysiology was high pulmonary capillary hydrostatic pressure. Such findings are consistent with TACO. The patient was diuresed with furosemide, which mitigated the hypoxia.

Discussion

This case illustrates how POCUS can expedite a diagnosis. Studies have demonstrated the improved operational characteristics and diagnostic sensitivity of POCUS in locating pleural effusions, in comparison to traditional methods such as CXR and physical exam [2]. Specifically, the intrigue of this case was how POCUS application determined clinical management at the bedside.

For inflammatory conditions such as pneumonia, TRALI, or aTRA differentiation syndrome, they would yield an asymmetrical or unilateral sonographic thoracic pattern. In addition, the pleural line would likely be coarse with evidence of subpleural consolidation.

For TACO, furosemide is the therapy of choice [3]. For TRALI and aTRA differentiation syndrome, the primary management would be supportive care (non-invasive ventilation support) and adding on a corticosteroid for the latter [4]. There are additional implications to be considered in the diagnosis of such inflammatory etiologies. If TRALI was the cause, the patient should not receive future transfusion of any plasma-containing blood product from the implicated donor. If the diagnosis was aTRA differentiation syndrome, aTRA, a highly efficacious therapy, would be discontinued and corticosteroids must be used.

Conclusion

Thoracic (lung) POCUS is a valuable tool for assessment of urgent pulmonological diagnoses where immediate therapeutic decisions must be determined.

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Case Report

Infected Baker's cyst, diagnosed in the emergency department using POCUS

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Abstract

Baker's cyst is a closed collection of fluid that forms in the posterior aspect of the knee. Usually, it appears as a non-painful inflammation in the popliteal fossa. In adults, its aetiology is secondary to problems that cause distension of the knee joint; It is often associated with rheumatoid arthritis and osteoarthritis. Occasionally, the cyst may become oversized and rupture with the consequent leakage of synovial fluid into adjacent tissues, presenting a clinical course similar to acute thrombophlebitis. Infection of a popliteal cyst is an uncommon complication and is associated with septic arthritis. In this paper, we present the case of a patient, an intravenous drug user (IVDU), who developed a spontaneous infection of a Baker's cyst secondary to *Staphylococcus aureus*, which was diagnosed in the emergency department (ED) using point-of-care-ultrasound (POCUS).

Introduction

A Baker's cyst (also known as a popliteal cyst) is not a true cyst but a distension of the gastrocnemius-semimembranosus bursa behind the knee [1]. In most cases, they appear between the tendons of the gastrocnemius and semimembranosus muscles on the medial side of the popliteal fossa, slightly distal to the centre crease of the knee [2]. Most Baker's cysts are not associated with complications; however, the most common complication is rupture. This may be asymptomatic in up to 80% of people [3]. One uncommon complication is an infected popliteal cyst. [4].

Case report

A 32-year-old man presented to the emergency department with a two-day history of acute onset of swelling and pain in the left calf. The patient had a history of hepatitis C, intravenous drug use with past admissions due to repeated soft-tissue abscesses at drug injection sites. The patient denied any trauma to the leg, and was not on any regular medication. On examination, there was marked swelling and tenderness in the left calf. He had a temperature of 37.7°C, a heart rate of 110 beats/min, a blood pressure of 110/707 mm Hg, and a respiratory rate of 18 breaths/min. A three-point compression point-of-care-ultrasound (POCUS) of the leg was performed which did not show any evidence of a DVT; however, a large cystic structure in the posterior aspect of the calf was identified (Figure 1). A knee ultrasound also demonstrated a fluid-filled area suggesting an associated knee effusion. A knee aspiration revealed a WBC count of 135 000 cells/μL, with 95% neutrophils (Figure 2). The patient was admitted under Orthopaedics with a suspected diagnosis of a septic knee and a ruptured infected Baker's cyst. Blood test results at admission are shown in supplementary material (online Table S1). An inpatient Doppler ultrasound of the leg excluded DVT. A musculoskeletal ultrasound of the left leg confirmed the findings of an extremely large complex haemorrhagic or infected Baker's cyst. The patient was initially treated with intravenous flucloxacillin. A knee aspiration culture revealed *staphylococcus aureus*. The patient was planned for surgical treatment however he self-discharged from hospital. The patient returned to Hospital 1 month later feeling unwell, pyrexial and complaining of pain in the right sternoclavicular area. Computerized tomography (CT) of the chest demonstrated acute septic arthritis of the right sternoclavicular joint with superficial phlegmon and small superficial ring enhancing collection anterior to the medial right clavicle and superiorly, appearances most likely secondary to *Staphylococcus aureus*. The knee swelling had improved, but symptoms were still persistent, however the patient refused any invasive treatment and accepted an intravenous course of Vancomycin.

Discussion

Infection of a Baker's cyst is a very uncommon. The initial clinical suspicion of deep vein thrombosis or cellulitis is the most frequent clinical presentation [5]. The clinical signs suggestive of this infection are defined by a soft cyst, with a well-defined contour, located in the popliteal fossa and in the case of rupture, will lead to the appearance of a growing hematoma or anterior or distal ecchymosis of the lateral malleolus. Regarding diagnostic tech-

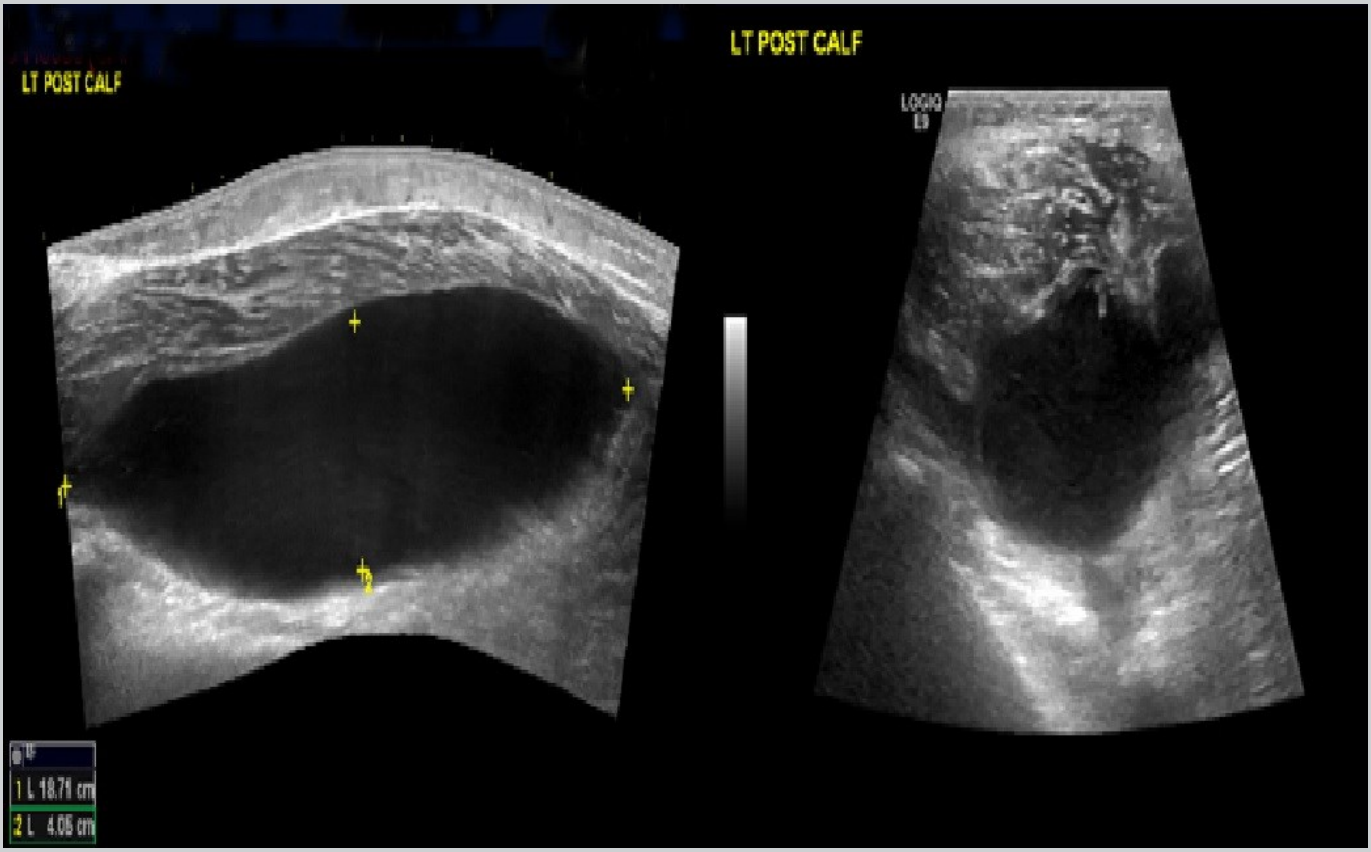

Figure 1. Within the posterior aspect of the left calf on the medial aspect there is an extremely large cystic lesion measuring 18.7 cm in length and 4 cm in width with no adverse features. The cystic lesion is communicating with the semimembranosus/medial head gastrocnemius bursa more proximally in the knee where it demonstrates internal echoes and synovial thickening and a single septation.

niques, CT and magnetic resonance imaging (MRI) allow the cyst to be clearly defined, as well as to confirm rupture of the cyst along with any haemorrhagic complications, and whether it is accompanied by polymyositis or osteomyelitis. However, ultrasound can also easily detect a cystic structure in the popliteal fossa. Classically it can be identified as a well-defined cyst with a 'neck' at its deepest extent, extending into the joint space between the semimembranosus tendon and the medial head of the gastrocnemius. Identification of a fluid-filled structure at the posteromedial knee is suggestive of a popliteal cyst, but identification of the 'neck' between the tendons is necessary for a definitive diagnosis, the ‘neck’ has been described as being shaped like a "speech bubble" or "talk bubble" [6].

In cases of bacterial infection, the drainage of the capsule or cyst fluid usually shows the presence of purulent fluid. When Gram staining or bacterial culture of the aspirate is negative, investigation of a fungal or mycobacterial aetiology should be ruled out. Overall, the most frequently isolated infectious etiologic agent is *Staphylococcus aureus*, although it can be easily infected by other systemic infectious agents. Other detected organisms include; mycobacterium tuberculosis, candida albicans and streptococcus pneumoniae [7].

This case reflects the utility of POCUS in ED to evaluate patients with musculoskeletal complaints, in this case acute calf pain and swelling which is a common presentation in the ED. On initial presentation, a DVT was suspected. A three-point ultrasound demonstrated compressible femoral and popliteal veins with no obvious evidence of DVT, however a non-vascular image in the popliteal fossa was visualized measuring 24 cm, the cyst was communicating with the semimembranous and medial head gastrocnemius bursa, a knee effusion was also demonstrated. The case was discussed with the Orthopaedics team and a formal ultrasound was requested that confirmed the findings and suspected a ruptured infected Baker’s cyst which was supported by raised inflammatory markers and IV antibiotics were immediately started.

In the past 10 years’ emergency physicians have im-

proved the ability of musculoskeletal (MSK) ultrasound. POCUS can identify inflamed or fluid structures. POCUS has changed the management in 65% of patients with joint pain, erythema, and swelling and reduced planned joint aspiration from 72.2 to 37 % [8]. The skin, soft tissue, and most parts of the MSK system are relatively superficial anatomical structures and ideal targets for ultrasound examination. Using MSK POCUS, emergency physicians can provide better care to patients presenting with MSK complaints in the ED.

Conclusions

Using POCUS in ED, most of the differential diagnoses for acute calf pain and swelling can be identified with confidence.

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Two cases of aortic emergency presenting with neurologic manifestations, aided by POCUS

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Abstract

Acute aortic dissection and aneurysm are lethal vascular emergencies and may present with various clinical presentations including neurological manifestation. Thus, the diagnosis of aortic dissection and aneurysm can be challenging as it may mimic other disorders whereby misdiagnosis can be fatal. In district general hospitals where advanced radiological modalities are not widely available, Point of Care Ultrasound (POCUS) is a tool to diagnose aortic dissection and aneurysm rapidly and accurately. The first case was a 60-year old, Chinese gentleman presented with alternating conscious level. He had a history of syncope that was precipitated by shortness of breath. On examination, his initial GCS was E1,V3, M5 but he regained full consciousness when we laid him supine for intubation. He complained of severe tearing chest pain. He demonstrated radio-radial and radio-femoral delays. Chest X ray showed mediastinal widening, and bedside echocardiography revealed aortic root dilatation with intimal flaps. Patient was sent to a tertiary centre for Computed Tomography of Aorta that confirmed the diagnosis, and vascular repair was planned.The second case was a 70-year old, Malay gentleman presented with recurrent tonic-clonic seizure. On examination, there was a palpable pulsatile mass over epigastric and umbilical region. Bedside ultrasound revealed aortic aneurysm measuring 5.4 x 5.8 cm with peri-aortic haematoma. Despite intense resuscitation, pulseless electrical activity ensued while awaiting for tertiary referral. The presentation of aortic dissection and aneurysm can vary and mimic other deadly diseases in which misdiagnosis can be fatal. Most common neurological manifestations are transient ischaemic attack and ischaemic stroke. POCUS is increasingly used by emergency physician in acute care as it is rapid, non-invasive, widely available and allows accurate measurement of the aorta. Aneurysmal rupture between 4.5 to 5.5 cm is a useful guide for surgical prophylaxis. Intimal flaps visualisation has a sensitivity of 67-80 % and a specificity of 99 - 100 % with demonstration of colour flow in both true and false lumens in Doppler, strengthening the diagnosis of aortic dissection. Clinicians should be aware of the unique presentations of aortic dissection and aneurysm, as both can mimic other serious diseases whereby misdiagnosis can be fatal. In district setting where advanced radiological imaging is not readily available, the utility of POCUS in the ED can be crucial to diagnose aortic dissection and aneurysm.

Introduction

Acute aortic dissection and aneurysm are lethal vascular emergencies involving the aorta. Although, pain is the classical presentation of both dissecting aorta and aneurysm, other myriad of symptoms can be presented by the occlusive dissection of aortic branches, aneurysmal expansion or hypotension [1]. Neurological presentation of aortic emergencies are not only frequent (17-40 % of patients), but often dramatic and may mask the underlying condition [2]. Diagnosis of aortic dissection is missed in up to 38 % of patients on initial assessments with up to 28 % diagnoses being made during post-mortem [3]. Additionally, it can mimic acute ischaemic stroke or myocardial infarction and with increasing use of thrombolytic therapy, misdiagnosis could be fatal [2]. Therefore, point of care ultrasound (POCUS) is crucial for rapid diagnosis of aortic dissection and aneurysm especially in district general hospitals with limited high tech radiology imaging [4].

First Case: Alternating Consciousness associated with Acute Aortic Dissection (DeBakey Type I)

Case Presentation

A 60-year old Chinese gentleman with known case of Hypertension was referred from health clinic for altered mental state with bradycardia. He had an episode of fainting which precipitated by shortness of breath upon climb-

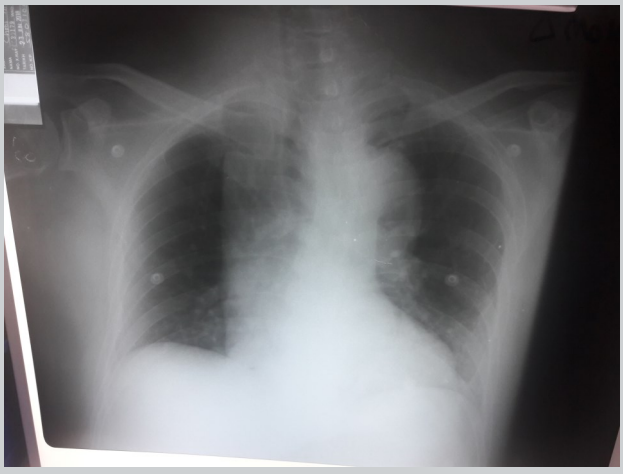

Figure 1. Chest X-ray shows mediastinal widening suggestive of thoracic aortic dilatation.

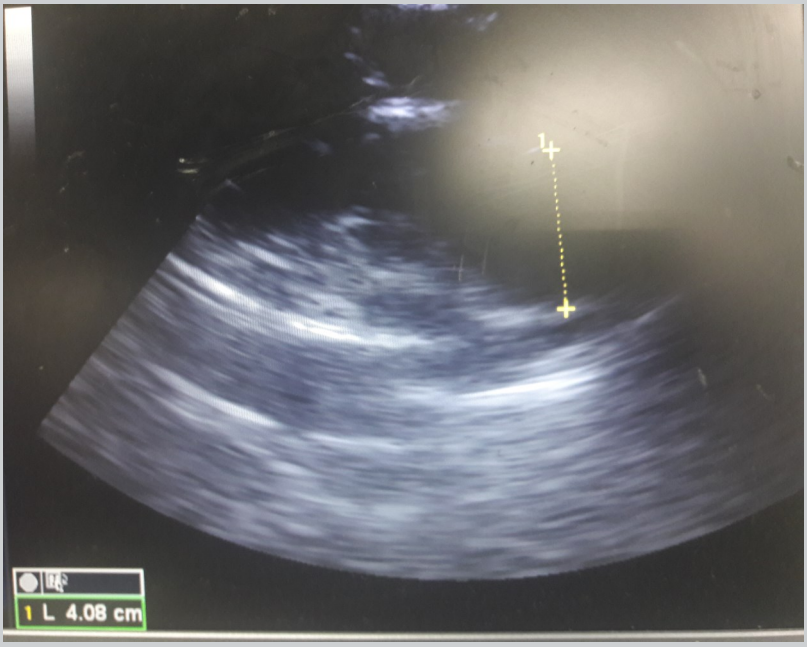

Figure 2. Aortic root measuring 4.08 cm.

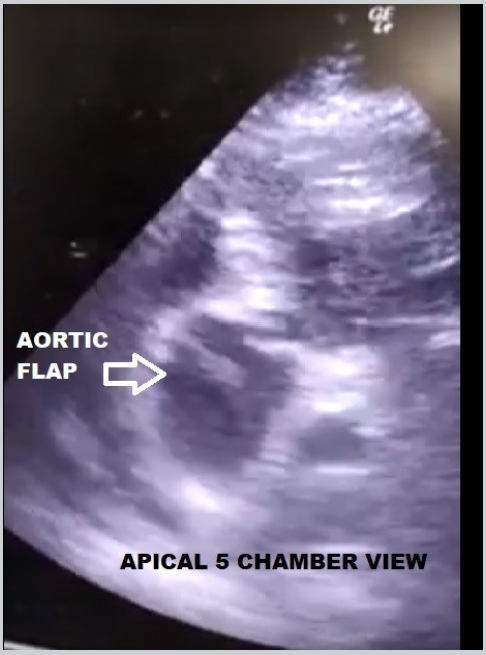

Figure 3. Aortic intimal flap seen in apical five chamber view and parasternal short axis view

ing of stairs. On initial presentation, he appeared drowsy and only responded to pain stimuli. Initial Glasgow Coma Scale was E1, V3, M5 and pupils bilaterally 3mm reactive to light. His vital signs demonstrated blood pressure of 86/59 mmHg, heart rate of 60 beats per minute, temperature of 36 Celcius and saturation of 98% under room air. He regained full conscious level when we laid him supine for intubation. Patient began vocalising, complaining of severe tearing chest pain which was not resolved with Morphine and Fentanyl infusion.

On examination, he was diaphoretic and pale. There were radio-radial and radio-femoral delays. His other examination were unremarkable.

His Electrocardiogram demonstrated sinus rhythm without ischaemia changes. Chest X-ray showed marked widened mediastinum and obliteration of aortic knob (Figure 1).

POCUS demonstrated aortic root dilatation measuring four centimetre and aortic intimal flap (Figure 2, Figure 3, Video S1). Rapid infusion of crystalloid normal saline and blood products was performed to restore systolic blood pressure to more than 90mmHg.

Patient was subsequently referred to a tertiary hospital and Computed Tomography Angiogram of Aorta and Carotid Artery revealed extensive Aortic Dissection (DeBakey Type I) with involvement of aortic arch branches, right Innonimate Artery, left Common Carotid Artery and left Subclavian Artery. It extended to the Infrarenal Abdominal Aorta and left Common Iliac Artery. Patient was referred to the vascular team for definitive surgical intervention.

Second Case: Complex Generalised Seizure associated with Ruptured Abdominal Aortic Aneurysm

Case Presentation

A 70-year old Malay gentleman with known case of Hypertension was referred from health clinic for recurrent seizure. This was the second episode of seizure with semiology of generalised tonic-clonic. Previously, he had a similar episode of grand mal seizure and was admitted to inpatient unit, but no further investigation had been done. In the emergency department, he had another episode of tonic-clonic seizure which aborted with diazepam infusion. There was no history of fever or evidence of recent trauma.

On examination, he was unconscious without response to verbal and pain stimuli. His vital signs demonstrated blood pressure of 100/60 mmHg, pulse rate of 60 beats/min and saturation was 98 % under high flow mask. Pupils were bilaterally 4mm and reactive to light. Abdominal examination revealed a faintly palpable, pulsatile mass localized at epigastric and peri-umbilical regions.

Electrocardiogram showed sinus rhythm with no evidence of ischaemia. X-ray of the chest revealed no mediastinal widening. We performed bedside ultrasound showing abdominal aortic aneurysm measuring 5.45 x 5.85 cm

with peri-aortic concealed haematoma (Figure 4). The aneurysm extend to infra-renal without involvement of Common Iliac Artery.

Rapid resuscitation and blood products transfusion were administered in an attempt to maintain circulatory blood pressure while awaiting for tertiary referral. Despite all efforts, pulseless electrical activity ensued and patient passed away due to ruptured aneurysm.

Discussion

Michael Ellis DeBakey (born Septermber 7,1908), who was the pioneer of the treatment of aortic dissection, was diagnosed with aortic dissection type II and suffered from neurological symptoms. Before he had operation at the age of 97 years old, he was delirious and sometimes unresponsive [2]. According to a study conducted in Korea, neurological manifestations of aortic dissection were found in 14.7 % of all patients with aortic dissection, and in 21.8 % of patients with type A (deBakey type I) dissection with supra-aortic branches involvement [1].

Figure 4. Thoracic aortic dissection at arch level with diameter of 4.7 x 4.3 cm with true lumen is seen at the center measuring 4.2 x 1.8 cm and false lumen seen at both sides.

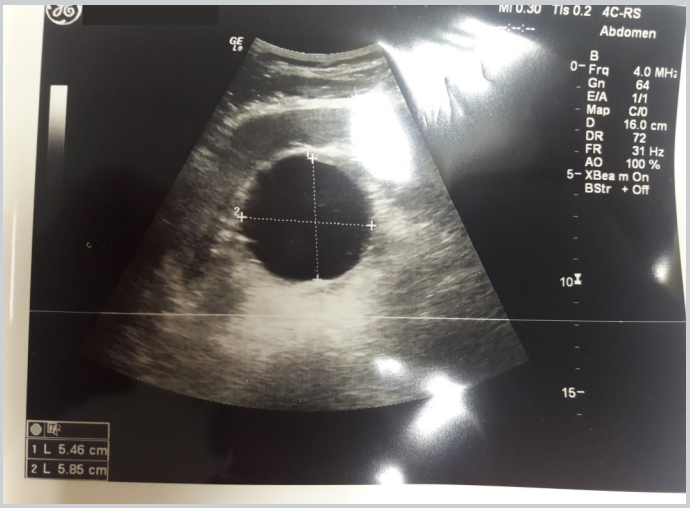

Figure 4. Abdominal aortic aneurysm measuring 5.4 x 5.8 cm with peri-aortic haematoma.

The most common neurological presentation was ischaemic stroke or transient ischaemic attack (TIA) followed by hypoxic encephalopathy, transient global amnesia, ischaemic neuropathy, spinal cord ischaemia and syndromes, seizure, hoarseness and septic encephalopathy [1,2]. The pathophysiology of cerebral involvement includes dissetion of aortic arch vessels, cerebral hypoperfusion with global hypotension and nerve compression by enlarging lumen [2]. Signs and symptoms that mimic spinal cord syndromes is due to obliteration of Arteria Radicularis Magna (Adamkiewicz artery) that supplied the spinal cord [2]. Ruptured abdominal aortic aneurysm is usually presented with severe abdominal pain. However, in up to 15 % of cases, abdominal pain was not the cardinal feature [3]. The reasons behind the painless presentation are not fully understood but a few explanations include cerebral hypoperfusion and systemic hypotension [3].

Aortic dissection has become a challenge for decision-making to thrombolyse a patient presenting with hyperacute ischaemic stroke or myocardial infarction. A literature review revealed three out of four patients who received thrombolytic treatment for acute ischaemic stroke secondary to aortic dissection sustained deadly haemorrhagic complications [1]. Moreover, there are a number of cases of suspected myocardial infarction treated with thrombolysis, complicated by the extension of the dissection into the pericardium leading to cardiac temponade and death [2].

Various radiological modalities used to evaluate thoracic and abdominal aorta with advantages and limitations in the acute care setting. This includes plain chest X-ray (CXR), computed tomography angiography (CTA), magnetic resonance imaging (MRI), transthoracic echocardiography (TTE), and multi-planar transesophageal echocardiography (TEE) [4]. TTE is increasingly used by emergency physician as a point-of-care (POC) test comparing to other modalitites as it is rapid, non-invasive and allows accurate measurement of the aorta. CXR is a poor tool to diagnose aortic dissection because only 10-18 % of aortic dissection demonstrate a widened mediastinum. CXR can be normal in 12-18 % of cases [5]. Although the sensitivity and specificity of CT, TEE and MRI range from 94 - 100 %, they are expensive, not widely available especially at district general hospitals and require removal of potentially unstable patients from the resuscitation zone [6].

In the emergency department, POCUS provides real-time information of unstable diseases at the bedside, concurrently with evaluation of patients and resuscitation. Thus, emergency physicians have been advocated to develop skills to obtain ultrasound images, interpret them and be able to treat patients accordingly [6]. There are numerous studies demonstrating utility of POCUS at the bedside to diagnose aortic dissection and aneurysm. Typically, aneurysmal rupture between 4.5 to 5.5 cm is a useful guide for surgical prophylaxis in an emergency setting in patient

presenting with acute complaints [4]. Intimal flap visualisation has a sensitivity of 67-80% and a specificity of 99 - 100% [5]. The undulating intimal flap is highly specific, and was demonstrated in our case. Other sonographic features may demonstrate colour flow in Doppler flowing in both true and false lumens, strengthening the diagnosis of aortic dissection [5].

Conclusion

Clinicians should be aware of unique presentations of aortic dissection and aneurysm, which can mimic other serious diseases, including neurological emergencies. In district setting where advanced radiological modalities are not readily available, the utility of POCUS in the ED can be crucial to diagnose aortic dissection and aneurysm.

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