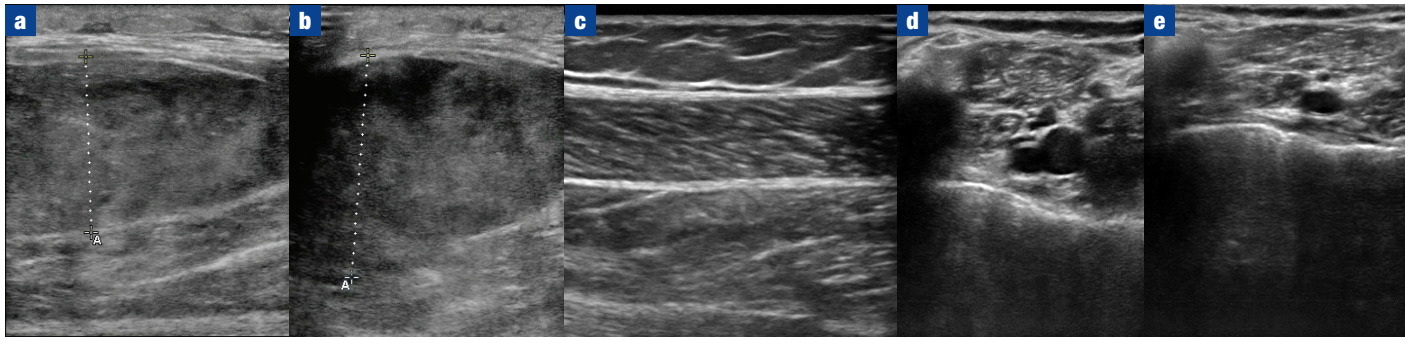
Left calf haematoma mimicking deep vein thrombosis

Figure 1. Musculoskeletal point-of-care ultrasound in the **(a)** longitudinal and **(b)** transverse views of the left leg shows a well-defined ovoid lesion in the affected area (swelling and tender area in the calf), hypoechoic, partly compressible and no Doppler flow suggesting a haematoma. **c.** Musculoskeletal point-of-care ultrasound of the right leg shows normal anatomy compared with the affected leg. Three-point compression ultrasound of the left leg showing **(d)** normal compression of the popliteal vein and **(e)** no visible clot.



Introduction

Only a quarter of patients evaluated in the emergency department for suspected deep vein thrombosis of the lower extremity actually have the disease. Deep vein thrombosis is characterized by pain and swelling of the limb, which are not specific (Wells et al, 2006). Identifying the cause of unilateral calf swelling in the absence of significant trauma can be difficult as history and physical examination findings are often not specific.

Discussion

Unilateral calf swelling and tenderness in a patient without a history of trauma can be challenging, with deep vein thrombosis as the first consideration. In the UK tender calf swelling with no antecedent history of trauma is usually managed empirically as suspected deep vein thrombosis in the emergency department, based on a protocol (National Institute for Health and Care Excellence, 2012) that includes the use of a two-level deep vein thrombosis Wells score and a D-dimer test. For people who are likely to have deep vein thrombosis (based on the results of the Wells score) an interim 24-hour dose of a parenteral anticoagulant is given and a proximal leg vein ultrasound scan arranged (to be carried out within 24 hours of being requested). For people unlikely to have deep vein thrombosis, a D-dimer test is indicated and if positive these patients follow a similar pathway (anticoagulation and 24-hour scan). However, at the weekend it takes longer than 24 hours to obtain the leg vein ultrasound scan.

The use of point-of-care ultrasound in emergency department has increased over the past 15 years. Studies have demonstrated that emergency physicians are capable and effective in performing ultrasound scanning of deep vein thrombosis (Pomero et al, 2012) and for the past 10 years soft tissue and musculoskeletal applications have been included as one of the core emergency ultrasound applications (Nagaraj et al, 2010). Point-of-care ultrasound can provide valuable information on major muscle tears and intramuscular haemorrhage, and comparison to the contralateral part can facilitate the diagnosis.

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CASE REPORT

A 31-year-old woman with an unremarkable medical history presented to the emergency department with an acutely painful, swollen left calf. She had seen her GP the day before, who suspected a deep vein thrombosis and started rivaroxaban. The pain and swelling worsened over the following 24 hours, at which point she presented to the emergency department.

She had no previous history of trauma, rated the pain as severe and was unable to bear weight. On examination, her left leg was swollen: left calf 39 cm diameter, right calf 33 cm diameter. The patient's two-level deep vein thrombosis Wells score was 3 (deep vein thrombosis likely) and her D-dimer level was 764 ng/ml. A left leg point-of-care ultrasound (*Figure 1*) was performed to confirm the diagnosis, but the femoral and popliteal veins were compressible, suggesting that this was not deep vein thrombosis. A hypoechoic image in the muscular plane of the calf with absence of flow and mild compressibility suggested the possibility of haematoma.

Treatment was started with Octaplex to reverse rivaroxaban and the patient was referred to the orthopaedic team based on the point-of-care ultrasound findings with a diagnosis of compartment syndrome secondary to the haematoma. The haematoma was evacuated and she has subsequently remained asymptomatic and returned to her usual activities.

Conclusions

This case report emphasizes the importance of using ultrasound before starting anticoagulation therapy in patients suspected of having deep vein thrombosis. The use of point-of-care ultrasound can avoid the consequences of both unnecessary treatment and missed diagnosis of the venous thromboembolic disease process. BJHM

Nagaraj G, Chu M, Dinh M. Emergency clinician performed ultrasound: Availability, uses and credentialing in Australian emergency departments. Emerg Med Australas. 2010 Aug;22(4):296–300. https://doi.org/10.1111/j.1742-6723.2010.01306.x

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Pomero F, Dentali F, Borretta V, Bonzini M, Melchio R, Douketis JD, Fenoglio LM. Accuracy of emergency physician–performed ultrasonography in the diagnosis of deep-vein thrombosis. Thromb Haemost. 2012 Nov 08;109(1):137–145. https://doi.org/10.1160/TH12-07-0473

Wells PS, Owen C, Doucette S, Fergusson D, Tran H. Does this patient have deep vein thrombosis? JAMA. 2006 Jan 11;295(2):199–207. https://doi.org/10.1001/jama.295.2.199

LEARNING POINTS

- This case illustrates the importance of imaging a spontaneous tender unilateral calf swelling in the emergency department before empirical management.
- Misdiagnosis of calf haematomas as deep venous thrombosis and the consequences of anticoagulation require immediate treatment to avoid serious consequences to the patient.
- Point-of-care-ultrasound performed by emergency physicians provides better and safer care in the emergency department.

An unusual cause of chronic back pain: retroperitoneal ganglioneuroma

A 37-year-old woman was referred with back pain of 6 months' duration. Diagnostic imaging demonstrated a mass of approximately 30 mm diameter.

Given these inconclusive results, endoscopic ultrasonography, guided-fine needle aspiration and exploratory laparotomy were undertaken. A tumour 30x30 mm was found in the angle between the left gastric and splenic artery (*Figures 1a* and *b*) and was completely resected (*Figure 1c*). Histopathological evaluation reported a ganglioneuroma (*Figure 1d*), and the patient was released from the hospital on day 5, in good condition. Nine months after surgery, the patient was asymptomatic and there were no signs of recurrence.

This case represents a seldom published example of a symptomatic retroperitoneal ganglioneuroma, a particular type of peripheral nerve sheath tumour. This patient had a significantly smaller tumour than average, and the symptomatic presentation occurred at an older age than usually seen. BJHM

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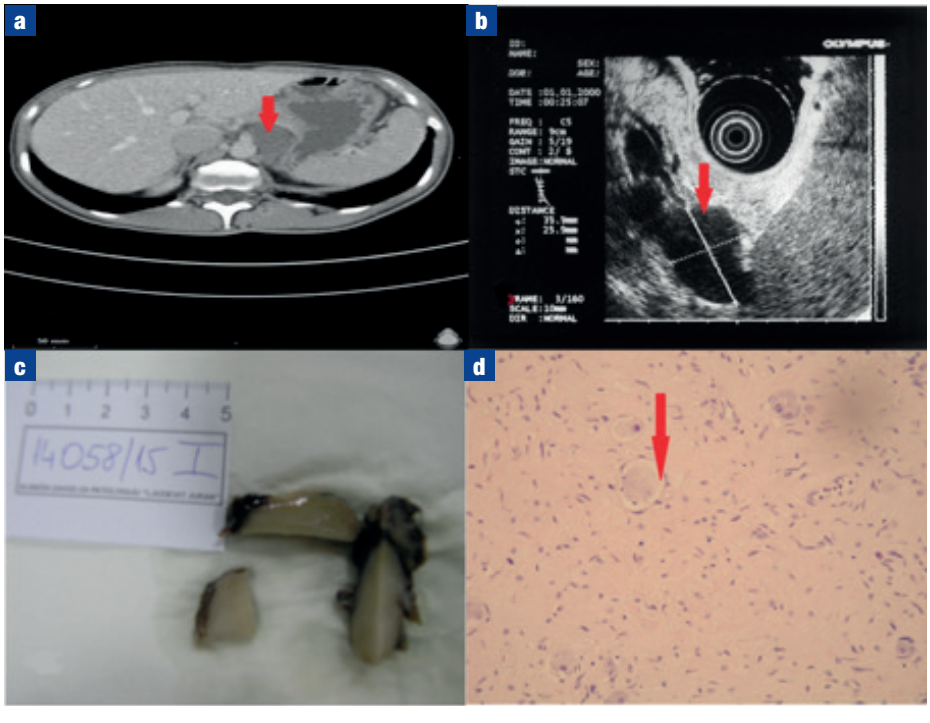

Figure 1. **a.** Computed tomography of the abdomen: located between the coeliac trunk and superior mesenteric artery, is a round, irregular, hypodense area 27 mm in long-axis diameter (arrow). **b.** Endoscopic ultrasound: oval hyperechoic tumour (arrow). **c.** Macroscopic picture: well-defined, retroperitoneal mass, 30×30 mm, grayish colour on the cross-section. **d.** Clearly seen ganglion cells (arrow), there is no sign of atypia, mitosis or a blastemic component (haematoxylin and eosin x 200).