Recurrent Lower Limb DVT: Out With the Old (Thrombus), in With the New?

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INTRODUCTION

Ultrasound has long been established as the first choice imaging modality for the assessment of deep vein thrombosis (DVT). However, in patients with suspected ipsilateral DVT recurrence, its interpretation is notably more difficult (Guatam et al., 2020).

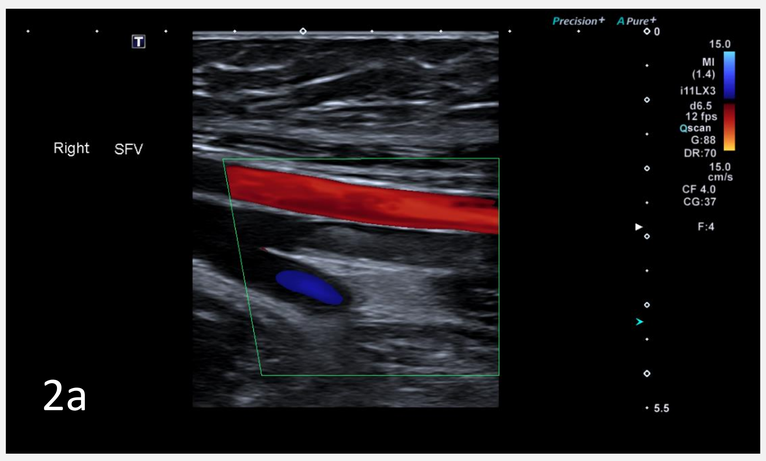
The use of anticoagulant drugs in the treatment of DVT is crucial. The aim of this treatment is to alleviate the symptoms, suppress the progression of thrombus and prevent complications secondary to DVT, including pulmonary embolism. Although anticoagulants drugs do not have a fibirinolytic effect, thrombus resolution may be accelerated by actively inhibiting prothrombotic activity. The clinical course of DVT is determined by the competition between residual venous thrombosis and recanalisation. Residual venous thrombosis is associated with post-thrombotic syndrome and recurrent DVT (Erol et al., 2023). Features of post-thrombotic veins include wall thickening, fibrosis bands within and a change in vessel diameter. As a result, in the absence of an unequivocal new site of acute DVT, the diagnosis of recurrent DVT is difficult (Needleman et al., 2018).

BACKGROUND

A 23 year old female attended the Medical Assessment Unit with a swollen, painful right calf and an elevated D dimer of 1.16. 8 months prior, she presented to the Accident and Emergency Department in Cork University Hospital (CUH) with an open right femur fracture post road traffic accident, as demonstrated in Figure 1 below.

Figure 1. Radiograph demonstrating a comminuted fracture of the right proximal femur. Image courtesy of CUH.

She then underwent intra-medullary nailing and subsequently developed a right lower limb DVT, as demonstrated in Figures 2a – 2c below.



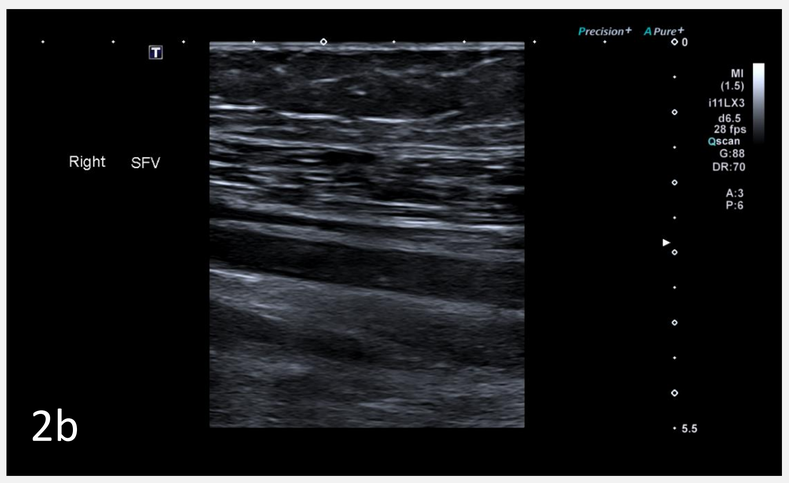


Figure 2a and 2b. Occlusive thrombus within the right femoral vein. Images courtesy of CUH.

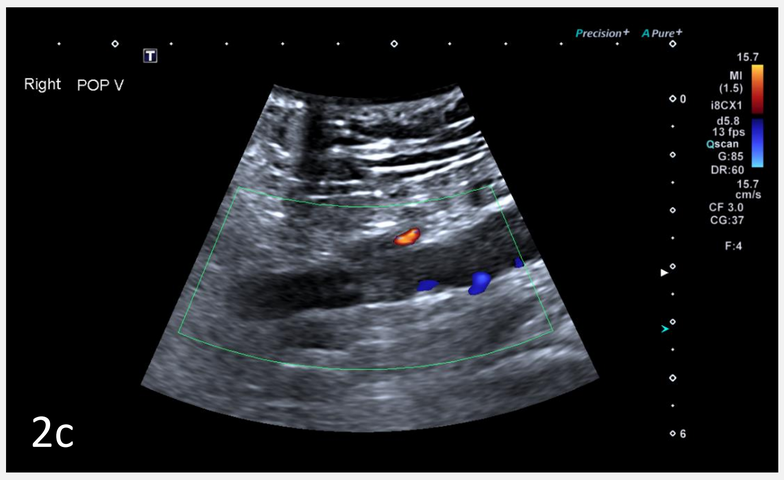
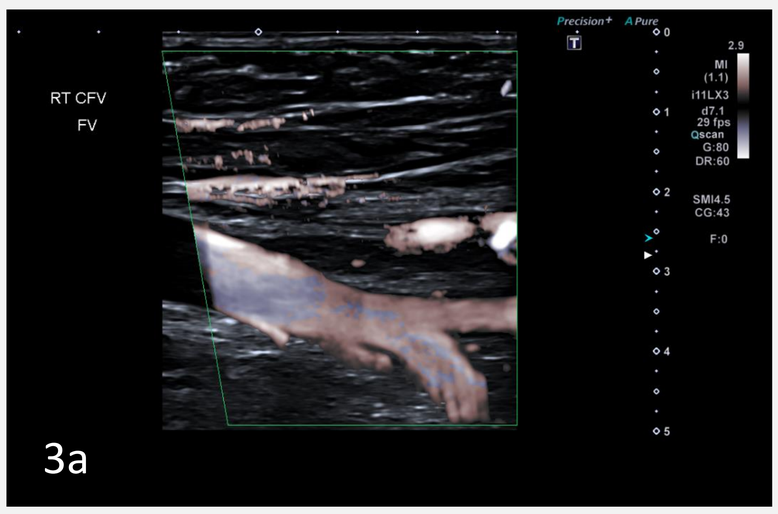


Figure 2c. Occlusive thrombus within the right popliteal vein. Image courtesy of CUH.

ULTRASOUND EXAMINATION

Comparison is made to the initial presentation right lower limb ultrasound after her femoral fracture 8 months earlier. Thrombus is evident within the right proximal and mid femoral vein (see Figures 3a and 3b). These areas were nearly completely occluded on the initial ultrasound. The thrombus within the proximal femoral vein is hypoechoic while the thrombus within the mid femoral vein is now relatively echogenic and adherent to one wall.



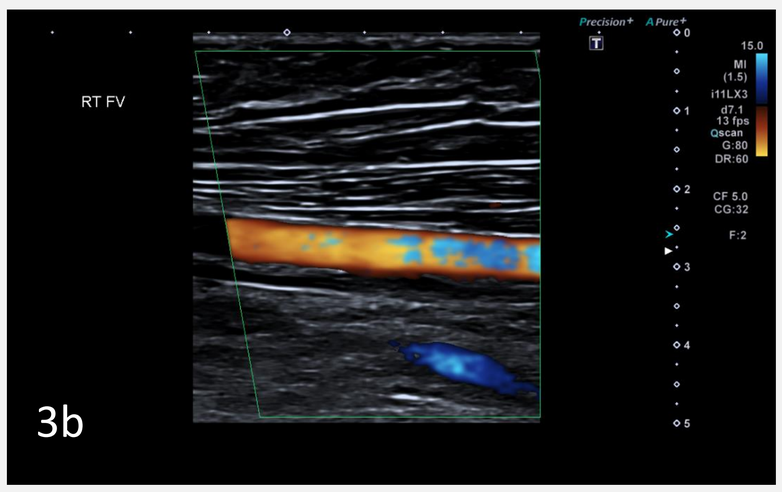
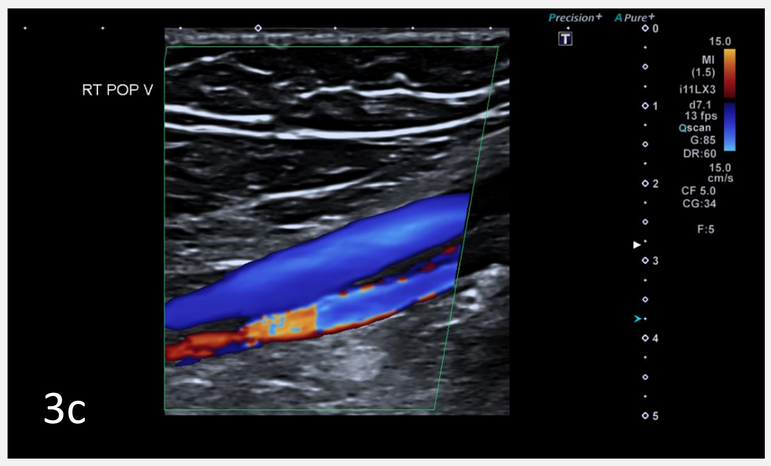


Figure 3a and 3b. Occlusive thrombus within the right proximal and mid femoral vein.

The proximal right popliteal vein is patent. There is further adherent appearing mural thrombus within the distal popliteal vein where again previously, there was extensive occlusive thrombus (see Figures 3c and 3d).



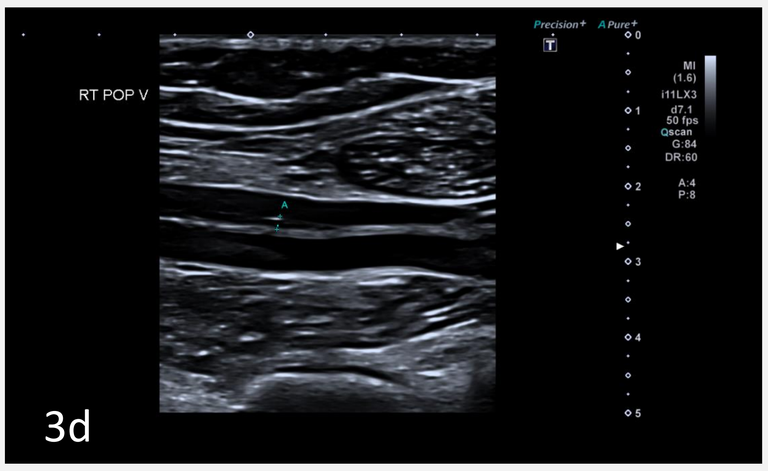


Figure 3c and 3d. The proximal popliteal vein is patent and thrombus free. Thrombus (callipers) within the distal right popliteal vein.

The thrombus in the popliteal vein appears chronic and partially endothelialised. It is more difficult to label as chronic and partially endothelialised the thrombus within the femoral vein.

DISCUSSION

The diagnosis of recurrent lower limb DVT can prove challenging (Stevens, 2020). There is curently no diagnostic standard for the management of suspected recurrent DVT. Up to 50% of patients who experience lower limb DVT will develop post-thrombotic syndrome. This high incidence complicates the assessment of recurrent lower limb DVT, as there is significant overlap in the clinical signs and symptoms (Maufus et al., 2018).

Given that a significant proportion of DVTs do not recanalise on anticoagulation, it is difficult to differentiate acute from chronic thrombus with ultrasound (Gautam et al., 2020). Additionally, ultrasound has limited ability in distinguishing new DVTs from previous post-thrombotic changes (Stevens, 2020). Imaging findings in the diagnosis of a suspected recurrent lower limb DVT must be correlated to current clinical history as regards to whether the lower limb swelling resolved after initial treatment and subsequently, reoccurred rapidly on current presentation, or not. The patient in this case study reported that her leg had completely resolved after the previous DVT. As a result, the decision was made to treat this as a new lower limb DVT with 6 months of anticoagulation.

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