

IMAGES IN EMERGENCY MEDICINE

Cardiology

A man with recurrent leg swelling

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1 | CASE PRESENTATION

A 59-year-old male presented to the emergency department (ED) with a complaint of “my leg feels swollen again.” He had an unprovoked left lower extremity deep venous thrombosis (DVT) 15 months prior that was treated with a 6-month course of apixaban and presented with concerns for a new acute DVT. He was not on an anticoagulant and was not known to have a hypercoagulable disorder at the time of ED evaluation. Bedside ultrasound showed echogenic material on the walls of the patent proximal popliteal vein (Figures 1, 2, and 3; Video S1).

2 | DIAGNOSIS

2.1 | Chronic postthrombotic change

Chronic postthrombotic change is the preferred radiographic term for residual material and wall thickening that remains in the vein after an acute DVT.¹ The material is not thrombus and may be able to be differentiated from an acute DVT with the material being rigid and nondeformable with compression, having irregular surfaces, and integrating into the vein wall.¹ A previous ultrasound documenting the prior location and characteristics of the previous DVT is also very helpful.

A complete duplex ultrasound performed by the radiology department confirmed our suspicion that this was not an acute DVT and that treatment with anticoagulant medication was not warranted. In this case, the vein has recanalized (Figure 2) and has thickened echogenic

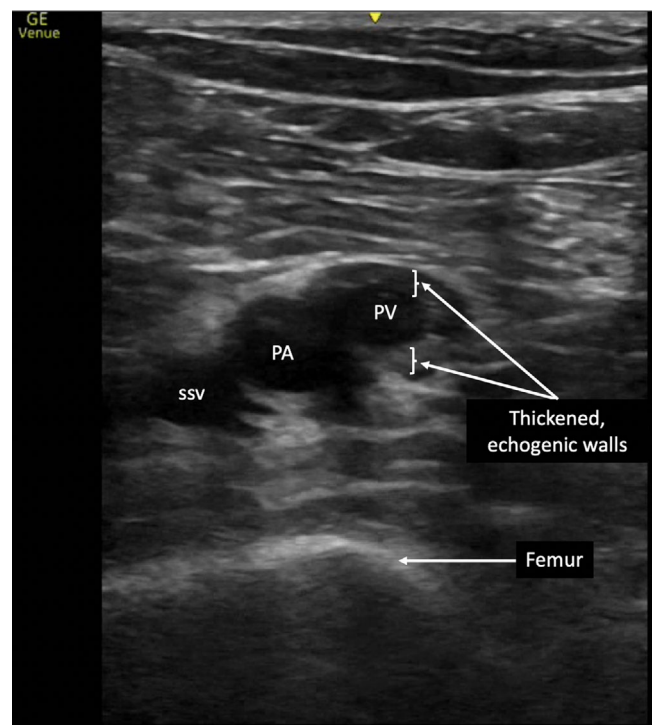


FIGURE 1 Proximal popliteal vein with echogenic material adherent/incorporated into the vein walls. The smaller vein next to the popliteal artery is likely the small saphenous vein versus the superior genicular vein. PV, popliteal vein; PA, popliteal artery; ssv, small saphenous vein

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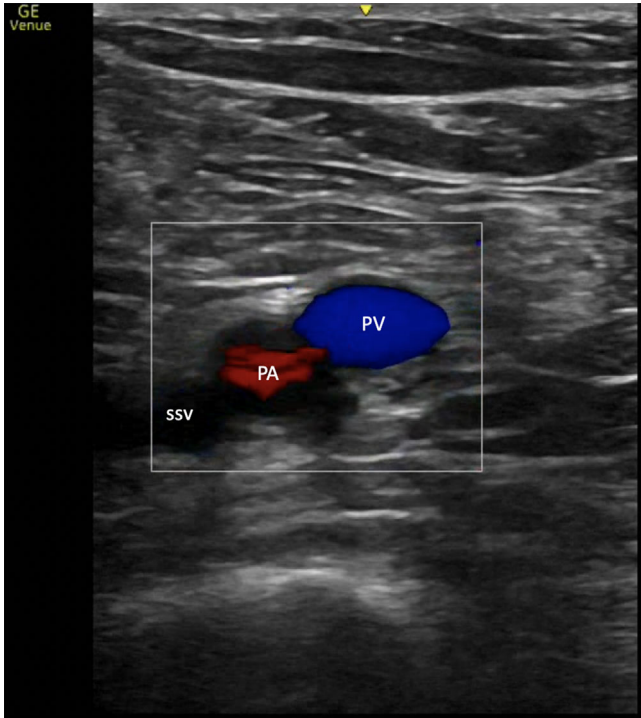


FIGURE 2 Color Doppler imaging of the popliteal vein demonstrating patency of the vein with augmentation of flow by squeezing the calf. PV, popliteal vein; PA, popliteal artery; ssv, small saphenous vein

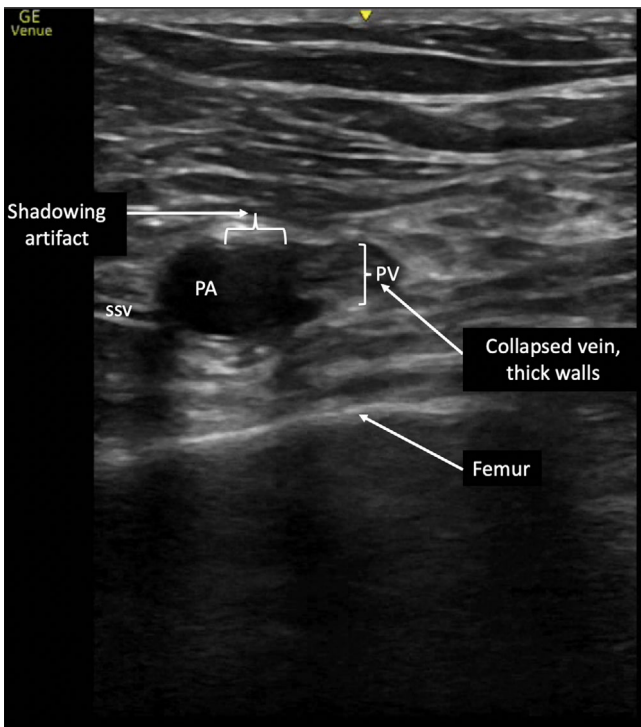


FIGURE 3 Popliteal vein with compression. The echogenic material seen is rigid and nondeformable. Note that there is not complete anterior to posterior wall apposition of the original borders of the vein walls. PV, popliteal vein; PA, popliteal artery; ssv, small saphenous vein

walls that are likely the result of fibrosis, the material being primarily composed of collagen.² This process of fibrosis and reendothelialization occurs over weeks to months after an acute DVT.¹ Postthrombotic syndrome develops in up to 50% patients after a DVT secondary to valvular incompetence³ and is likely the cause of this man's symptoms.

A limited compression ultrasound relies on observing complete apposition of the anterior and posterior walls of the vein.⁴ Figure 3 shows complete apposition of the thickened walls, but it can be a challenge to determine a chronic postthrombotic change versus new acute DVT. This is supported by American College of Emergency Physicians, who states that a completely normal limited compression ultrasound likely excludes any DVT but warns that interpretation of abnormal findings in those with a history of DVT may be beyond the scope of a bedside limited compression ultrasound.⁴

DISCLAIMER

The views expressed in this article are those of the authors and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. government.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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