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OXFORD

An Uncommon Cause of Posterior Knee Pain: Diagnosis and Injection for Popliteus Strain Using Ultrasonography

Dear Editor,

A 52-year-old man with a diagnosis of multiple myeloma was admitted for chemotherapy. Due to immune suppression, he had been instructed to stay in his room and rest in bed during the whole treatment course. After 3 weeks of activity restriction, as he was getting prepared for discharge, he noticed severe left knee pain. He stated long-term discomfort on his left posterior knee, never causing difficulty in weight bearing like this episode. Based on his past history, he was referred for ultrasound (US) evaluation for gouty arthritis attack. Physical examination did not yield any swelling or redness but tenderness near the lateral tibial plateau.

Substantial US assessment showed normal knee compartments (including the posterior cruciate ligament). However, by repositioning the probe along the lateral-proximal to medial-distal direction below the posterior knee crease, we observed that a segment of the popliteus muscle (just inferior to the lateral tibial plateau) was swollen and that its fibrillary pattern was lost (Figure 1). With the diagnosis of popliteus strain, local anesthetic and corticosteroid injection was performed under US guidance with a direct in-plane approach (Video). The patient had immediate pain relief and was discharged 1 day after the intervention. The patient reported no recurrent pain on a follow-up phone interview 1 month after injection.

The triangular-shaped popliteus muscle originates from the lateral condyle of the femur and inserts on the posterior surface of the tibia above the soleus muscle [1]. It bends and unlocks the knee joint by internally rotating the tibia. Under US imaging, its proximal tendinous portion can be visualized axially in the bony groove below the insertion of the fibular collateral ligament on the lateral femoral condyle [2,3]. Its muscular part courses in an oblique fashion and attaches distally on the posterior tibial bone [1]. Another landmark would be the popliteal neurovascular bundle, separating the gastrocnemius (superficial) and popliteus (deep) muscles. Isolated injury to the popliteus muscle is rare but may develop following a twisting insult. The segment posterior to the lateral tibial plateau is vulnerable to a strain injury since its more proximal part is secured by the arcuate popliteal ligament [3].

In the present case, we considered that immobilization could have tightened his popliteus muscle, which eventually resulted in a strain following a twisting strike during weight bearing. Identifying a popliteus muscle lesion is challenging because the muscle is deeply situated and its pain can hardly be differentiated from that of adjacent structures—for example, gastrocnemius/soleus muscles, meniscus, and posterior cruciate ligament. The comparison of echo-texture with the asymptomatic side is definitely required for a prompt diagnosis. Injections to the popliteus muscle should be cautious and well planned even under US guidance because inferior lateral genicular and posterior tibial recurrent arteries course above the proximal portion of the muscle [2]. Finally, stretching exercises for knee flexors should also be emphasized for the prevention of repetitive popliteus strain.

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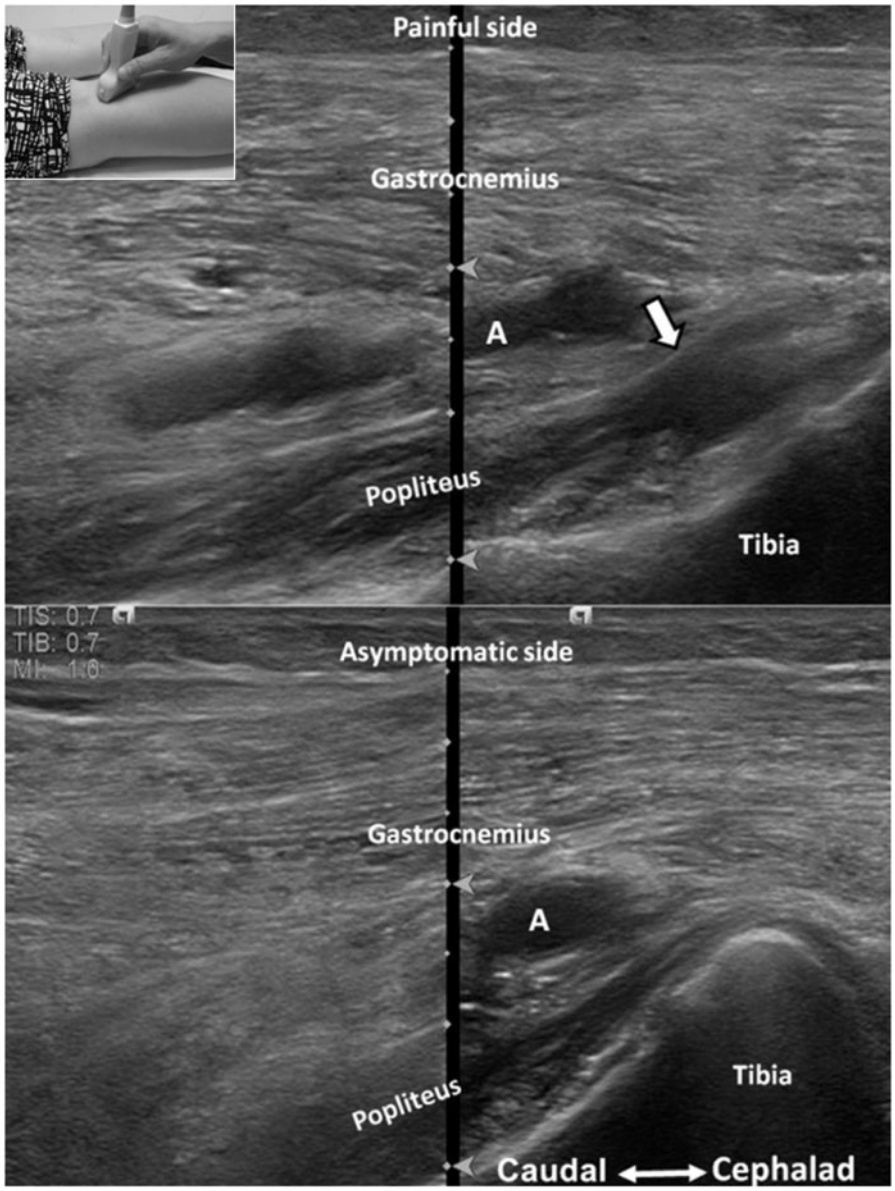

Figure 1 Ultrasound image (long-axis split screen view) shows the popliteus muscle coursing between the posterior tibia and the popliteal neurovascular bundle. At the asymptomatic side, the muscle has a fibrillar echotexture; however, it appears hypoechoic with focal swelling (arrow) at the painful side. A = popliteal artery. The insert at the upper-left side of the figure indicates probe positioning.

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