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Case Report

Ultrasound-guided corticosteroid injection for proximal plantaris tendinopathy: A case report [☆]

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ABSTRACT

Minimal literature is available on the diagnosis and treatment of proximal plantaris tendinopathy. Calf pain is a common complaint in runners, ranging from myofascial pain to acute strains. Rarely, the plantaris tendon can be involved in mid-calf pain. This case highlights a 23-year-old female elite runner with a case of symptomatic proximal plantaris tendinopathy. Insidious mid-calf pain and/or tightness with tenderness to palpation was noted, and ultrasonographic examination provided an accurate diagnosis. An ultrasound-guided corticosteroid injection was performed, providing complete pain relief without recurrence, even 1 year after the initial injection. The patient was able to return to full activity. Successful treatment of this rare condition with ultrasound-guided corticosteroid injection should be considered once a proper diagnosis is made.

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Introduction

Calf pain is a common complaint in runners, ranging from myofascial pain to acute strains. Rarely, the plantaris tendon can be involved in mid-calf pain. This case highlights an elite runner with a case of symptomatic proximal plantaris tendinopathy.

Case report

A 23-year-old female professional runner presented with a 2-week history of insidious left medial mid-calf pain that

started following a run, without inciting event. Other than a feeling of general calf tightness, she had no pain with daily activities, but was only able to run a short distance before identifying focal pain. She had been diagnosed with a calf strain and had received dry needling to the calf musculature with only mild improvement. Examination of the left leg and knee noted intact strength, sensation, and range-of-motion with tenderness upon palpation at the left medial mid-calf.

Ultrasound imaging of the left calf (Fig. 1) showed no injury or tear to the gastrocnemius and soleus muscles, as well as a patent, compressible popliteal vein. A focal, hypoechoic swelling of the plantaris tendon of the left calf was noted, which was markedly larger than the rest of the tendon, and larger than the asymptomatic right calf.

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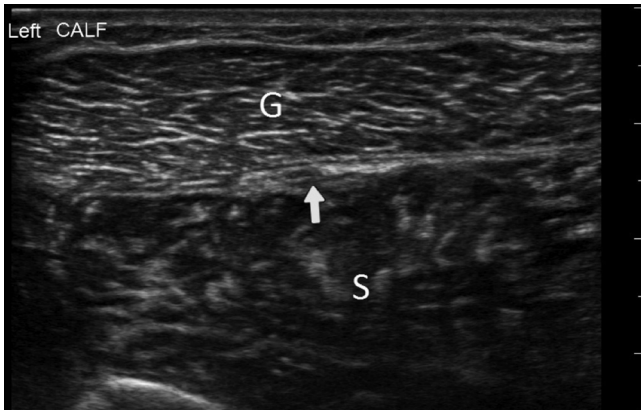


Fig. 1 – Grayscale transverse sonographic image at the level of the left mid-calf demonstrates plantaris tendinosis (arrow) in its normal anatomic location between the gastrocnemius (G) and soleus (S) muscle bodies.

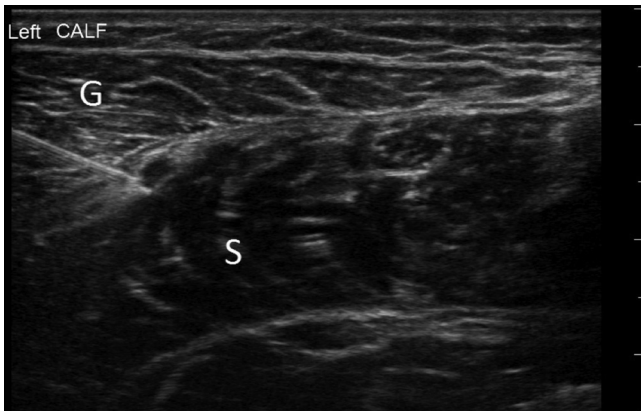


Fig. 2 – Grayscale transverse sonographic image at the level of the left mid-calf demonstrating a hyperechoic needle at the 10-o’Clock position penetrating the gastrocnemius (G) muscle body, with its tip abutting the circular, hypoechoic, thickened portion of the plantaris tendon, seated above the soleus (S) muscle body.

After discussion with the patient, the mutual decision was made to undergo an ultrasound-guided corticosteroid injection adjacent to the plantaris tendon. A linear transducer probe was used to identify the plantaris tendon in the short axis, where a 27-gauge needle was inserted in-plane from the medial side of the calf (Fig. 2) after local anesthesia was obtained. A mixture of 1 mL (40 mg) of methylprednisolone and 1 mL of 1% lidocaine was injected around the tendon, completely encircling the tendon within the gastrocnemius-soleus fascial plane (see video). The athlete was instructed to slowly resume running 2 days after the procedure, which she was able to do with complete resolution of pain; she remained pain-free at 1 year from the date of the injection and continued to run at the elite level. She noted complete satisfaction with the procedure.

Discussion

For athletes with insidious focal medial calf pain, plantaris tendinopathy should be included in the differential diagnosis, which should include deep vein thrombosis, gastrocnemius or soleus strain, hematoma, proximal (myotendinous) Achilles tendinopathy, myofascial pain, or a frank plantaris tendon tear. The plantaris tendon has long been considered to be a vestigial tendon, present in around 80% of the population, and more commonly absent bilaterally than unilaterally [1]. The plantaris originates from the posterolateral knee and its tendon runs between the gastrocnemius and soleus muscles, and ultimately inserting on the medial calcaneus or Achilles tendon [2], providing very little strength to plantarflexion (around 0.7%) [3]. Ruptures tend to be relatively mild and resumption of activity can usually be undertaken rapidly [2]. The tendon is increasingly being examined at its distal end as a potential contributor to mid-portion Achilles tendinopathy. The more proximal portion of the tendon rarely is associated with tendinopathic change, though it has been reported in the acute injury setting [4,5]. The potential causes of tendinopathy remain speculative – they could be due to relative unilateral calf weakness, fascial adhesions, plantaris asymmetry (including lack of plantaris on one side). However, due to the infrequency of this condition, it has not been studied to date.

Plantaris tendinopathy is a rare diagnosis that should be considered in athletes with insidious medial mid-calf pain. A corticosteroid injection may alleviate the pain safely, as a worst-case scenario of tendon rupture after the procedure likely will have very little impact on the athlete’s strength or stability.

Patient consent

The patient in the case report has consented to using their information and is aware of its potential publication. Maximal effort was put into ensure absolute anonymity, and the patient reserves the right to decline release of information if they choose to do so.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.radcr.2020.08.039](https://doi.org/10.1016/j.radcr.2020.08.039).

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