Clinical Image

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The man who thought he was kicked from behind

Clinical Presentation. A 53-year-old man presented with a painful swollen right calf. The day before, he was walking uphill on a cold afternoon after finishing work. Suddenly, he stepped on a shallow hole in the pavement, his foot went up and his knee straightened backwards. At the same time, he felt someone had kicked him at the back of the right calf and felt a snap. He looked behind, but there was no one. He carried on walking but in pain. The following morning, he woke in severe pain and noted swelling of his right calf. He presented to the Emergency Department. He was otherwise well with no past medical history of note.

On physical examination, there was swelling and edema extending from the middle of right calf and including the foot with ecchymosis posterior to the medial malleolus (Figure 1). There was no limitation in flexion or extension of the knee, and ankle. There was an increased pain in the mid-calf medially with dorsiflexion, with maximal tenderness on palpation especially on medial head of the gastrocnemius at its attachment with the Achilles tendon. The calf was not tender. There was no effusion in the knee nor a popliteal cyst clinically.

Keywords: Tennis leg, tendor rupture

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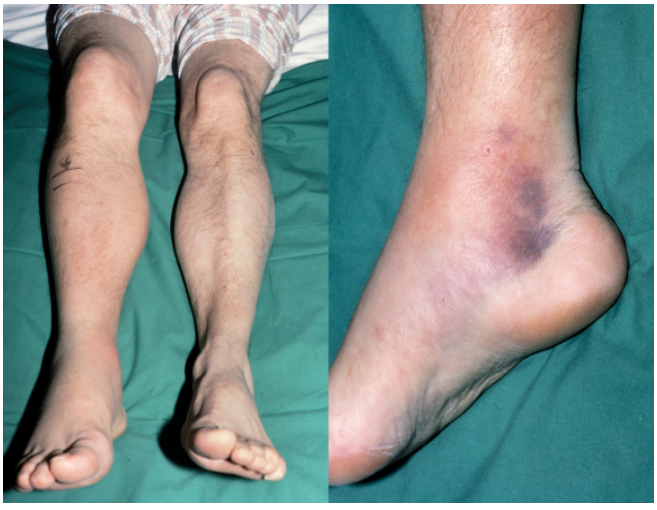

Figure 1 - The right leg and foot are swollen (picture on the right) and a tracking bruise medially behind the medial malleolus.

Clinical Image

Question

1. What is the differential diagnosis?
2. What are the most appropriate investigations?

Answer

The most likely diagnoses in descending order are:

- Partial rupture of the medial head of the gastrocnemius
- Severe strain of the aponeurosis of the gastrocnemius and soleus muscles without rupture
- Deep vein thrombosis
- Rupture of the plantaris tendon
- Partial rupture of the soleus
- Ruptured popliteal cyst

Ultrasound and doppler examination did not show any deep vein thrombosis or knee effusion and no popliteal cyst. The plantaris tendon was intact but clear evidence of partial rupture of the medial head of the gastrocnemius (Tennis leg).

MRI scanning of the knee and calf can be used if ultrasound and doppler do not provide the answer.

Discussion

Tennis leg was described by Powell in 1883 and he thought the cause was rupture of the plantaris tendon and he named it as 'lawn tennis leg'.[1] In a study involving 141 patients with a clinical diagnosis of tennis leg, partial rupture of the medial head of the gastrocnemius was noted in 66.7% of patients.[2] In 21.3% of patients there was evidence of fluid collection, without muscle rupture, noted between the aponeuroses of the gastrocnemius and the soleus. Actual plantaris tendon rupture was seen in 1.4% and partial rupture of the soleus in 0.7% of patients. Deep vein thrombosis (DVT) on its own was seen in 9.9% and in conjunction with another finding in 5% of patients; hence, the importance excluding DVT.

Our patient was given a walking air cast, advised to keep the foot elevated on resting and prescribed naproxen and omeprazole. Four weeks later, he was no longer in pain, the leg swelling settled and the bruise disappeared.

Tennis leg is considered in a middle aged patient who gives a history of sudden pain and a snap on sudden dorsiflexion of the foot and hyperextension of the knee. There is swelling of the leg, tenderness at the junction of medial head of the gastrocnemius with the Achilles tendon and usually a bruise behind the medial malleolus. Treatment is conservative. Ultrasound and Doppler are important for diagnosis and exclusion of an associated DVT.

References

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2. Delgado GJ, Chung CB, Lektrakul N, Azocar P, Botte MJ, Coria D. Tennis leg: clinical US study of 141 patients and anatomic investigation of four cadavers with MR imaging and US. *Radiology* 2002; 224:112-119.