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Case Report

Tennis leg: A mimic of deep venous thrombosis

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Introduction

Tennis leg results from partial or complete tear of the musculotendinous junction of the medial head of gastrocnemius and presents with acute onset of pain and swelling in the calf. A careful history and clinical examination together with imaging are the cornerstones for the diagnosis of this entity. A wrong diagnosis of deep venous thrombosis in these cases may result in increased morbidity, as instituting anticoagulant therapy in these patients may worsen the condition.¹

Clinical and imaging findings

A 42-year-old female patient presented for an ultrasound and colour doppler evaluation of the left lower limb following acute onset of pain and swelling. On carefully eliciting the history,

the lady attributed onset of pain to a sudden 'snapping' pain in the calf region prior to which she was asymptomatic. On clinical examination the pain and tenderness in the calf was aggravated by passive dorsiflexion of the ankle joint. Ultrasound and doppler evaluation of the left lower limb revealed a hypoechoic, 40 mm × 8.9 mm hypoechoic collection possibly haematoma along the medial head of gastrocnemius (Fig. 1). Spontaneous, phasic flow was noted in the deep veins of the left lower limb along with the response to calf augmentation.

Fig. 1 – Longitudinal ultrasound scan of the calf showing a well localised hypoechoic haematoma (H) interposed between the medial head of gastrocnemius (G) and the soleus muscle (S) typical of a tear.

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Fig. 2 – Balanced steady state free precession coronal and axial images of the calf reveal the presence of a haematoma evident as a hyperintensity between the medial head of gastrocnemius (G) and soleus (S) with some hyperintensity in the gastrocnemius muscle.

An MRI of the left lower limb was done which demonstrated an oblong hyperintensity along the medial head of the gastrocnemius on balanced steady state free precession imaging (Fig. 2). Changes were also noted in the surrounding muscle. There was no retraction of the muscle. A diagnosis of haematoma of the medial head of the gastrocnemius or 'Tennis Leg' was made. The patient was managed conservatively with gradual regression of the haematoma and reduction in the pain and swelling.

Discussion

Calf pain is a very commonly encountered 'clinical note' in the practise of Radiology. While the emphasis more often than not is on the diagnosis or exclusion of deep venous thrombosis due to the serious risk of pulmonary thromboembolism, it is always important to keep the 'checklist' in mind when confronted with a case of calf pain to avoid inappropriate investigation, wrong diagnosis and management. This checklist includes other causes like ruptured Baker's cyst, tennis leg, tear of tendoachilles, arthritis, pyomyositis, abscess, infection, haematoma, bursitis, stress fracture, thrombophlebitis, aneurysm, arteriovenous malformation, compartment syndrome, foreign body and tumor.² Tennis leg is a term that was coined in 1883 by Powell.³ It was initially attributed to isolated rupture of the plantaris muscle or tendon, however it was subsequently established that It occurs due to a complete or partial tear of the medial head of gastrocnemius muscle either alone or in combination with soleus or plantaris. Isolated tears of plantaris are exceedingly rare.⁴ The condition is most commonly seen in middle aged individuals who participate in racquet sport, running or any such sporting activity. The injury occurs due to partial contraction of the gastrocnemius muscle with concomitant overstretching of the muscle due to knee extension resulting in disruption of fibres from the aponeurosis.⁵ It presents as swelling, pain and tenderness in the calf. Even though clinical findings are typical, it is a condition that can get misdiagnosed as deep venous thrombosis leading to anticoagulation and its complications including development of compartment syndrome.¹ It is important for the Radiologist not to confuse the haematoma

with a thrombus in the posterior tibial vein. Ultrasound can confirm the diagnosis of haematoma and exclude the other causes including deep venous thrombosis. Various grades of injury can be seen ranging from contusion at one end to avulsion at the other. Previously MRI as a modality was limited in its availability and coupled with long examination times was not routinely used in the evaluation of acute calf pain. However with the wider availability and faster sequences, MRI with its superior soft tissue and contrast resolution is being used more often in the evaluation of acute calf pain. In our case we made use of the balanced steady state free precession to evaluate the lower limbs. The sequence can confirm the presence of a thrombus in the deep vein which appears as a hypointense defect within the veins in which flowing blood appears bright.⁶ Management of tennis leg is conservative with some role of image guided evacuation of haematoma in the acute setting.

Conclusion

Tennis leg is a common cause of calf pain. In most case of calf pain, the focus of the Radiologist is in excluding or confirming deep venous thrombosis. A carefully taken history with a sonography covering the entire 'checklist' of causes, vascular and musculoskeletal will help in arriving at the correct diagnosis. It is important that these cases of tennis leg are not misdiagnosed as deep venous thrombosis leading to wrong management and complications including 'compartment syndrome'.

Conflicts of interest

The authors have none to declare.

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