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Case Report

Snapping Sensation Behind the Knee: Ultrasound Diagnosis of "Tennis Leg" - A Case Report

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Abstract

"Tennis leg" refers to a myofascial or tendinous injury of the lower limb, characterized by acute pain in the mid-calf, often accompanied by a sensation of snapping within the calf. Ultrasound is effective for diagnosing the condition, with the primary ultrasonographic finding being fluid accumulation between the medial gastrocnemius and soleus muscles, particularly prominent at the myotendinous junction. This case report discusses a typical presentation of "Tennis leg" in a middle-aged male, emphasizing the diagnostic utility of ultrasonography in identifying this condition and distinguishing it from other possible causes of calf pain.

Keywords: *Tennis Leg; Gastrocnemius Muscle; Soleus Muscle*

Introduction

"Tennis leg" is a myofascial or tendinous injury primarily affecting the lower limb, most often seen in middle-aged, active individuals. This injury typically occurs due to the partial or complete detachment of the medial gastrocnemius muscle at its myotendinous junction, commonly triggered by physical activities involving sudden movements such as tennis, hence the name.

Case Report

We report a case of a 45-year-old male patient, presented with acute mid-calf pain felt while playing football. He described hearing and feeling a "snapping" sensation behind his knee, which was immediately followed by swelling and an inability to bear weight.

The ultrasound assessment of the soft tissues in the leg (Figure 1A) revealed an oblong anechoic fluid collection situated deep to the medial gastrocnemius (G) and superficial to the soleus muscle (S). This collection was most prominent at the level of the myotendinous junction, and no signs of muscle rupture, intramuscular accumulation, or subcutaneous fat infiltration were observed. Additionally, the ultrasound examination of the contralateral limb showed a normal appearance (Figure 1B). Furthermore, exploration of the popliteal region did not reveal any other abnormalities (Figure 2).

Discussion

"Tennis leg" is a myofascial or tendinous injury affecting the lower limb [1], initially documented in a tennis player in 1883, though it can occur during various forms of physical activity [2]. This condition involves the partial or complete detachment of the medial gastrocnemius

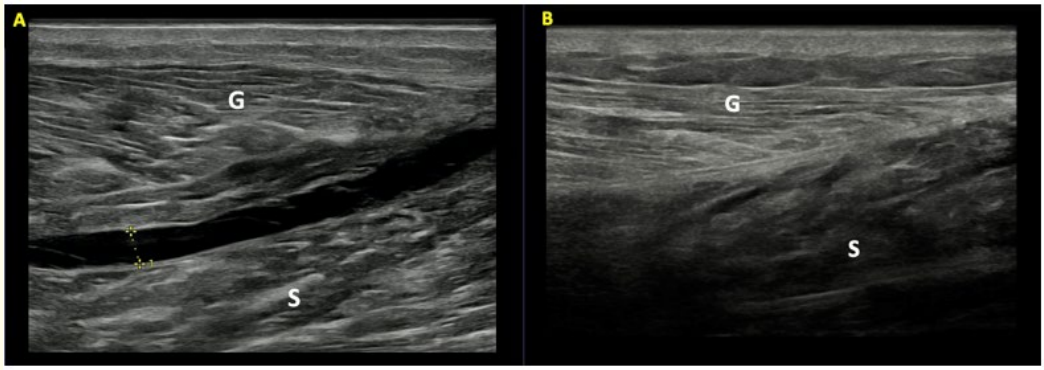

Figure 1: *Ultrasound examination of both legs in longitudinal section showing: (A) Right leg: an oblong anechoic fluid collection between the medial head of the gastrocnemius (G) and soleus (S) muscles without evidence of muscle rupture. (B) Left leg: Normal appearance of the myotendinous junction of the contralateral limb.*

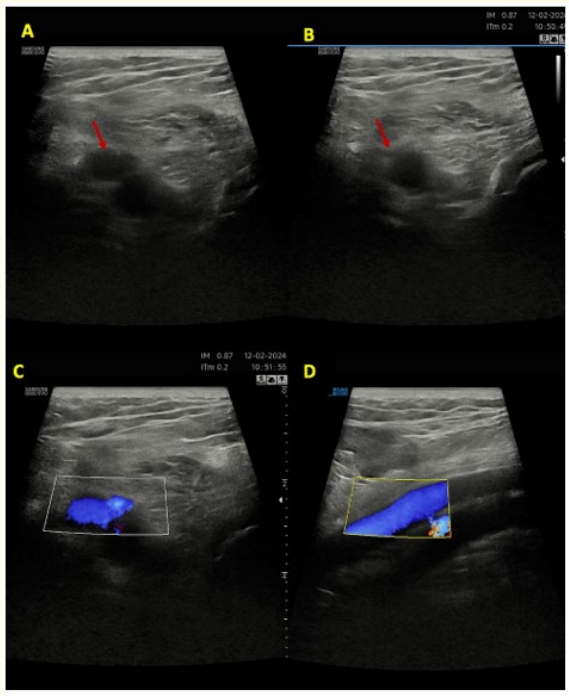

Figure 2: *Ultrasound in B-mode and color Doppler of the right popliteal region: (A) Right popliteal vein in B-mode ultrasound displaying anechoic content (Arrow). (B) Popliteal vein compressible after compression maneuver by the ultrasound probe (Arrow). Color Doppler ultrasound images of the popliteal vein in transverse (C) and longitudinal (D) sections demonstrating patency with color Doppler signal. Note the absence of any popliteal cyst formation, which could suggest a Baker's cyst.*

muscle from its musculotendinous junction, typically resulting in acute pain in the mid-calf. It most commonly occurs in active individuals, with a higher frequency in middle-aged people. The injury is most commonly caused by biomechanical factors such as knee extension and forced dorsiflexion of the ankle [3]. It was associated with a rupture of the plantaris tendon [4]. While a rupture of the plantaris tendon can occur, injuries to the medial head of the gastrocnemius or the gastrocnemius-soleus aponeurosis are much more frequent causes of tennis leg [2].

Clinically, the condition presents as acute mid-calf pain accompanied by a "snapping" sensation within the calf, sometimes audible to the patient. This is often coupled with localized tenderness and swelling, and occasionally a focal gap at the site of the tear [4], which may later be obscured by swelling.

The primary ultrasonographic finding is fluid accumulation located deep to the medial gastrocnemius and superficial to the soleus muscle, particularly prominent at the myotendinous junction, with no signs of muscle rupture or other anomalies. A tear on the deep surface of the gastrocnemius may manifest as a disruption in muscle fiber contour and echogenicity [1]. B-mode and Doppler-mode ultrasonography are typically sufficient for diagnosing "Tennis leg" and ruling out other differential diagnoses. MRI offers an accurate and dependable approach for assessing muscle fiber integrity and continuity. It can distinguish gastrocnemius strain from other soft-tissue injuries, such as soleus strain or Achilles tendon issues, and assess the integrity of surrounding connective tissues [5]. MRI findings demonstrate similar features observed on ultrasonography. These findings can include high T2 signal fluid located between the medial gastrocnemius and the soleus, a focal disruption of muscle continuity observed along the deep portion of the medial head of the gastrocnemius, typically accompanied by muscle edema. The plantaris tendon may present either as torn or remain intact [6]. Despite its efficacy, there's a lack of direct comparative studies assessing the diagnostic accuracy of ultrasound versus MRI for calf strain [5]. Calf strain is categorized based on physical examination and imaging findings. A grade-I (mild) strain is linked to micro-tears in the muscle fibers, which result in mild pain or soreness with minimal reduction in strength and range of motion [1]. A grade-II (moderate) strain involves a partial muscle tear that leads to a noticeable decrease in strength and range of motion. Athletes with partial tears may struggle to walk and often experience pain and swelling due to edema or hemorrhage [1]. A grade-III (severe) strain indicates a complete rupture, presenting with severe pain, disability, loss of muscle function, and significant edema and hemorrhage [5]. Treatment is generally conservative, as the condition tends to be self-limiting. However, surgical intervention, though rarely required, might be necessary for severe grade-III ruptures or complications [5].

Conclusion

Tennis leg" is a condition not exclusive to tennis players, it is characterized by acute mid-calf pain. Ultrasonography is sufficient for making diagnosis and excluding differential diagnoses. The prognosis is favourable, treatment is conservative.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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