

The Utility of Musculoskeletal Ultrasound in Diagnosing Uncommon Talocrural Synovitis in an Amateur Weightlifting Athlete

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Abstract

The use of musculoskeletal ultrasound to assess sports-related injuries has been increasing worldwide. This case report focuses on an unusual form of synovitis of the talocrural joint in a 33-year-old male amateur weightlifter who presented to our sports medicine clinic with acute non-traumatic left ankle pain lasting for 2 days. He reported a recent change in his squatting technique and had no significant medical history other than a recent viral upper respiratory illness. Weight-bearing ankle X-rays were inconclusive, however, ultrasound evaluation revealed effusion in the talocrural joint upon assessment of the ankle's anterior joint capsule. Additionally, the ultrasound examination helped rule out other common soft tissue ankle pathologies that can affect athletes. The athlete's symptoms resolved by day 5 with conservative measures, including weight bearing as tolerated, nonsteroidal anti-inflammatory drugs, and lymphatic drainage techniques. This report demonstrates the utility of musculoskeletal ultrasound in diagnosing an uncommon cause of ankle pain in athletes.

Keywords: Tibiotalar effusion, ankle, ultrasound, sports medicine.

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INTRODUCTION

The use of musculoskeletal ultrasound (MSK US) in sports medicine has been increasing in the past decade [1, 2]. While ankle injuries are common among athletes [3], talocrural synovitis (also known as tibiotalar synovitis) is considered a rare condition with limited studies on its prevalence in non-traumatic cases among athletes [4]. This case report demonstrates the use of MSK US to diagnose rare synovitis of the talocrural joint in a weightlifting athlete, along with its sonographic features.

CASE PRESENTATION

A 33-year-old right-hand dominant male amateur weightlifter presented to our sports medicine clinic complaining of acute non-traumatic pain in his left ankle. The pain started suddenly 2 days before the visit and was diffuse, but mostly felt in the back of the ankle. He could not remember any specific injury, but he had been trying a new squatting technique using heel lifts to improve his knee flexion while maintaining proper back posture. He hadn't had a fever but did recall a viral upper respiratory illness 2 weeks before. He had not taken any medication for the pain. He had no relevant medical or

surgical history, and the pain was making it difficult for him to walk.

On physical examination, the athlete had an antalgic gait and preferred using the unaffected right ankle. Minimal clinical effusion was noted by inspecting the ankle, especially from the posterior aspect. No significant change in temperature when palpating both ankles. Tenderness to palpation was mainly significant at the medial aspect of the tibiotalar joint, sparing the Achilles, Hager's fat pad, and the flexor tendons within the medial ankle region. Range of motion was significantly limited by pain in the left ankle, especially with plantarflexion with a loss of 20 degrees due to pain. Both inversion and eversion movements did not seem to recreate his pain with negative anterior drawer and talar tilt testing. Functional examination of his squatting technique attempted during the visit, however, could not be performed due to pain.

Weight-bearing radiographs of the left ankle were performed and were unremarkable. Bedside ultrasound evaluation was performed using high-frequency (6-13 MHz) linear transducer to evaluate the tibiotalar capsule anteriorly in the sagittal plane at the

mid-anterior ankle region. The evaluation started on the unaffected ankle to identify the athlete's specific anatomy with the longitudinal axis image obtained in Figure 1. The affected ankle joint was then evaluated in a similar fashion with the image obtained in Figure 2. The tibiotalar joint was identified with significant anechoic fluid extending from the joint displacing the joint capsule anteriorly. Additional assessment of the effusion with color Doppler was negative for hyperemia and the evaluation of the relevant medial and posterior ankle structures was unremarkable.

Further serum and synovial laboratory workup for inflammatory processes were recommended, however, declined by the athlete. He was educated about the findings and possible etiologies and was diagnosed with acute non-traumatic talocrural synovitis. The athlete was started on supportive measures including weight-bearing as tolerated, oral nonsteroidal anti-inflammatory drugs, along with rehabilitative measures to improve lymphatic drainage and joint effusion. His pain started improving the following day with complete resolution of pain and swelling by day 5. The athlete was able to return gradually to weightlifting 1 week after presentation with no return of symptoms at the 1-month follow-up.

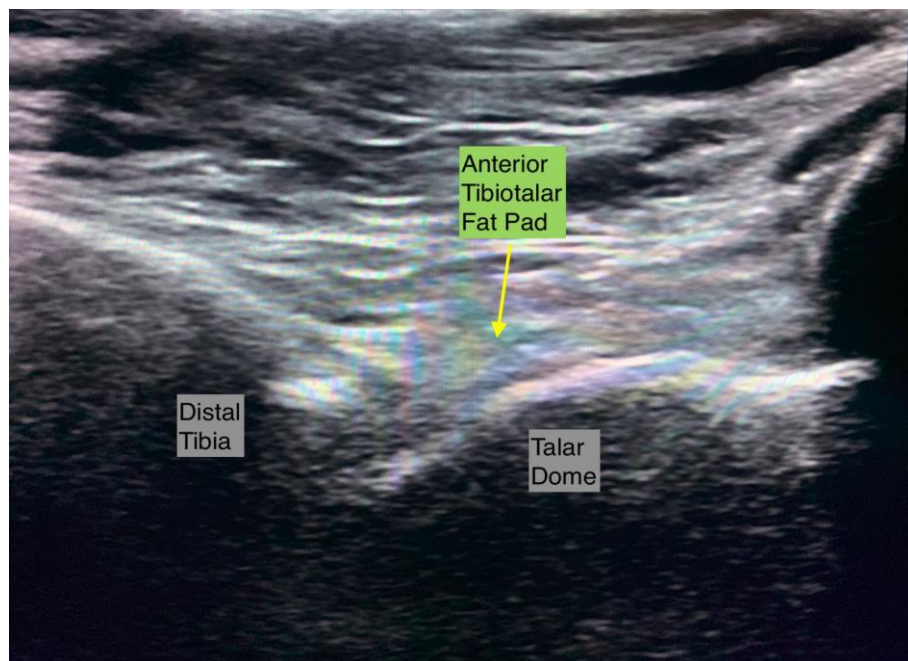


Figure 1: Long axis ultrasound view of the normal unaffected ankle joint

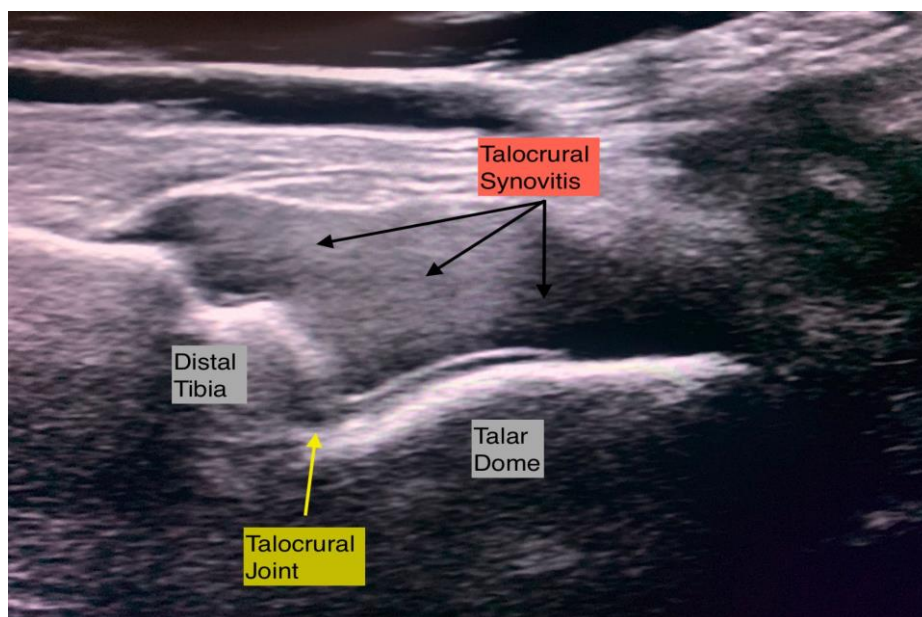


Figure 2: Long axis ultrasound view of the affected ankle joint

DISCUSSION

Ankle injuries are common in sports, such as lateral ankle sprains and tendinopathies [3, 6]. However, talocrural synovitis is an uncommon cause of ankle pain in athletes and is often missed [4]. This condition can indicate an underlying inflammatory condition, such as rheumatoid arthritis or monosodium urate crystal deposition disease [4], or it can be a transient consequence of viral respiratory illness, which is more commonly seen in the pediatric hip [5]. Other etiologies can include traumatic mechanical injuries affecting the ankle joint with or without the involvement of the talar chondral dome [3, 6-8]. Diagnosis requires a careful history and physical examination of the affected joint, while taking into consideration signs and symptoms of systemic illness and predisposing factors [4]. Conventional radiographs cannot identify active synovitis, but chronic erosive manifestations can be evident. Magnetic resonance imaging (MRI) is the current gold standard imaging modality for active synovitis [2]. However, due to its lack of availability and higher cost, ultrasound use has been increasing for the evaluation of synovitis [9-11]. While it is considered to be operator dependent, ultrasound can provide an excellent tool when evaluating and staging synovitis, with many advantages over conventional MRI in detecting active color doppler and performing dynamic evaluation. The anterior approach when evaluating talocrural synovitis is ideal due to the proximity of the anterior joint capsule to the superficial skin. Synovitis can be visualized as anechoic fluid extending out of the talocrural joint and extending across the anterior joint line with hyperemia in color Doppler in cases of acute inflammation. Arthrocentesis is essential in defining the underlying etiology by evaluating for cell count and differential, crystals, and proteins, while serum analysis looking for inflammatory and immune markers can also aid in the diagnosis [4, 5]. The management of talocrural synovitis is focused on addressing its cause and is primarily accomplished by using anti-inflammatory medications [5]. Caution should be exercised when assessing for septic arthritis risk factors, such as fever, recent surgery, or injections, as the management plan will change, necessitating emergent surgical evaluation [4, 5].

CONCLUSION

The use of musculoskeletal ultrasound in sports medicine has been rapidly evolving. This report on talocrural synovitis in a weightlifting athlete adds an important yet uncommon cause of non-traumatic ankle pain in athletes to the existing literature, along with its sonographic characteristics.

Plain Language Summary:

Athletes participate in a variety of physical activities that can put them at risk of injury. While ankle injuries are common among athletes, this case presents a less common cause of ankle pain in athletes due to

inflammation of the joint inner capsule. This inflammation can be caused by factors related to trauma or an underlying inflammatory process and is often managed conservatively. This case also demonstrates the usefulness of ultrasound imaging in diagnosing this condition in athletes.

Ethics Approval and Informed Consent: The case participant has given consent to participate as well as consent to publish the data.

Disclosure: The author report no conflicts of interest in this work.

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