

Tendon involvement in gout: utility of ultrasonography

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A 60-year-old male was referred to our Rheumatology Department with a 7 month history of pain in his right ankle. The patient had a long-standing diagnosis of tophaceous gout with bad compliance to urate-lowering therapy (ULT). Physical examination revealed multiple tophi overlying the first metatarsophalangeal joint of both feet and over the interphalangeal joints of hands. There was tenderness and swelling of right ankle and medial midfoot. Resisted dorsiflexion of the ankle

exacerbated the pain. An ultrasound (US) examination of the right ankle was performed and demonstrated an enlargement of tibialis anterior tendon with multiple hyperechoic foci in the body of the tendon suggestive of tophi (Figure 1). There was no synovitis. Allopurinol was started and dose was increased until serum urate (SU) levels reached the established target of <5mg/dL after 4 months. The patient was also educated concerning the importance of adherence to treatment. Sustained normouricaemia was achieved after 9 months of therapy. Furthermore, the patient's symptoms also improved. By this time, another US was performed showing a significant reduction in number and size of the hyperechoic foci within the tendon (Figure 2).

Gout is an inflammatory arthritis caused by deposi-

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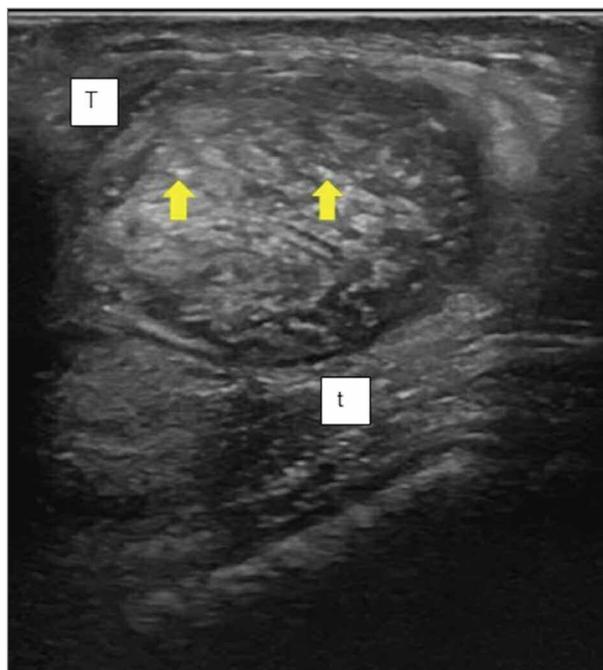


FIGURE 1. Transverse gray scale US image of the right tibialis anterior tendon showing increased diameter and volume of the tendon. Multiple hyperechoic foci with heterogeneous appearance and contours poorly defined (yellow arrows) can be seen within the tendon substance. This aspect is suggestive of multiple tophi deposits that cause a focal alteration of the fibrillary structure of the tendon. T = anterior tibialis; t = tibia.

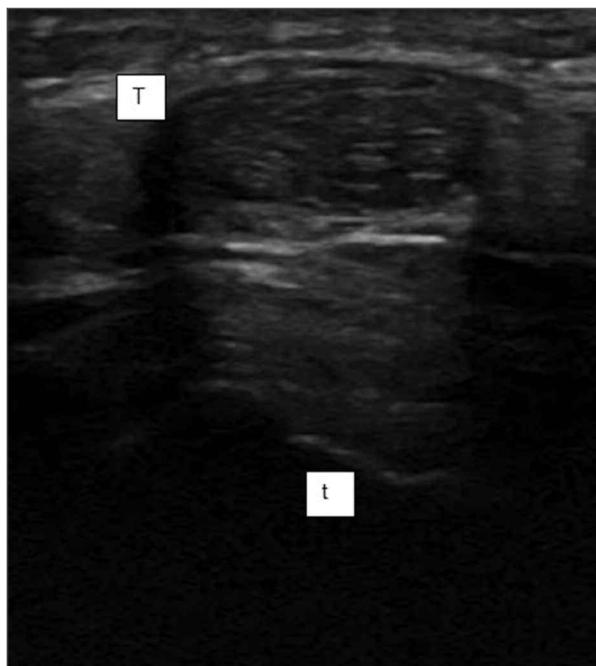


FIGURE 2. Transversal scan of right tibialis anterior tendon revealing a significant reduction of size and volume of the tendon with disappearance of most of the hyperechoic foci. T = anterior tibialis; t = tibia.

tion of monosodium urate (MSU) crystals within joints and soft tissues secondary to chronic hyperuricemia¹.

Recent EULAR updated guidelines for the management of gout highlight the importance of ULT as the first line long-term therapy for gout. ULT allow for the dissolution of crystal deposits if the uricaemia is maintained below the target of 6mg/dL (or <5mg/dL if tophaceous gout). As a consequence, ULT not only reduces the frequency of gout flares but also avoids their recurrence^{1,2}.

The role of US in the diagnosis of gout is well defined. However, data is scarce concerning the relevance of this imaging technique in follow-up of gout deposition after ULT². To date, few studies evaluated the usefulness of US on assessment of treatment response in patients with gout³⁻⁵. One of the first studies was performed by Perez-Ruiz et al. The authors performed serial US to measure tophi in a group of 22 patients with gout. They found an inverse correlation between the reduction in tophi size and the average SU levels during ULT suggesting that US was sensitive to change³. Later, Thiele RG et al confirmed by US the disappearance of MSU crystal deposition on hyaline cartilage of 3 patients with gout after successful reduction in SU levels⁴. More recently, Ottaviani S et al performed US at baseline and after 6 months of treatment with ULT in 16 patients with gout. They also showed disappeared tophi and “double contour” sign in the patients achieving low SU levels after initiating the therapy⁵.

In the case we present, US assessment contributed to suggest the diagnosis of tophi as they were located within the tendon, a site more difficult to recognize the crystal deposits. Additionally, US, along with clinical and laboratory data, helped to monitor the subsequence response to ULT. A significant reduction in size and volume of tophi was observed after sustained normouricaemia.

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