

## **Traumatic Injury of the Tibialis Anterior Tendon: A Sonographic Glance In-depth**

The Editor,

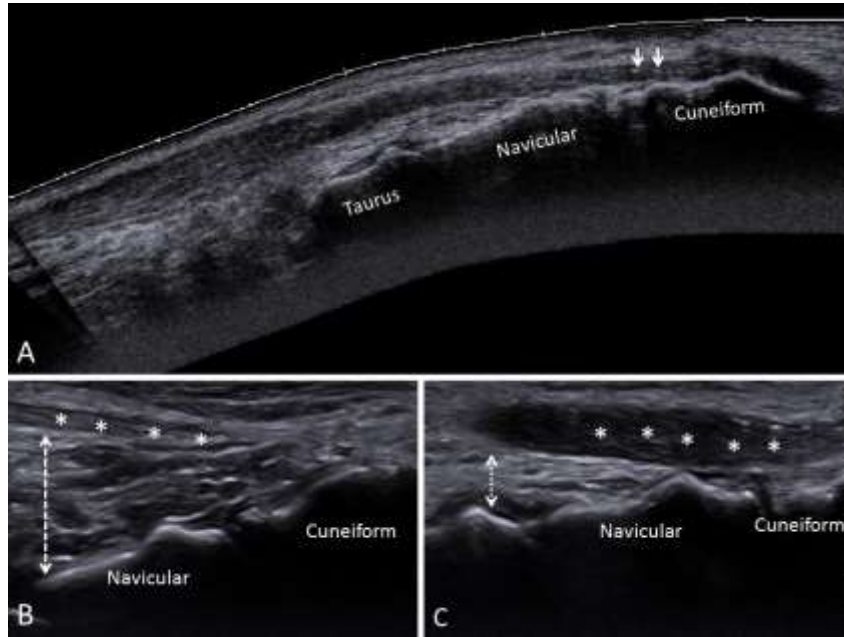
Sir,

A 23-year-old female had suffered a deep cut on her left foot due to glass fragments when a cup had dropped on the ground and broke into pieces. She was sent to the emergency room where an open wound deep to the subcutaneous layer had been noticed (Fig. 1A). The doctor had explored the wound, removed the remaining shards and sutured it after confirmation of no tendon injury. Several weeks later, although the wound was healed and stitches were taken out, she still felt difficult in level walking and frequently stumbled. She visited the orthopedic surgery clinic where tibialis anterior (TA) tendon tear was suspected and an ultrasound (US) examination was planned. Physical examination revealed compensatory use of the extensor hallucis longus and extensor digitorum communis tendons without visible excursion of the TA tendon during dorsiflexion of the affected ankle (Fig. 1B).



**Fig 1:** (A) An open wound on the dorsal medial aspect of the affected foot; (B) Overuse of the extensor hallucis longus and extensor digitorum communis and a lack of visible excursion of the tibialis anterior tendon.

Under US, the TA tendon appeared hypoechoic and hypervascular below the malleolus level, with a focal swollen segment overlying the anterior ankle pouch. Several tiny hyperechoic plaques were found scattering inside the infra-malleolar section of the TA tendon (Fig. 2A). However, although the tendon fibers appeared disorganized, there was no evidence of a tendon tear. Dynamic examination showed that the excursion was hindered by the surrounding subcutaneous tissues, causing entrapment of the injured tendon in contrast to the normal contralateral side (Fig. 2B and 2C). Accordingly, as the final diagnosis was post-traumatic TA tendinopathy with secondary adhesions, she was referred back to the orthopedic surgery department for adhesiolysis.



**Fig 2:** (A) The ultrasound image of the affected tibialis anterior tendon with several hyperechoic plaques (arrows) inside. (B) Excursion (dash line) of the tibialis anterior tendon (asterisk) at the healthy foot and (C) the injured foot during ankle dorsiflexion.

The TA tendon -originating from the lateral proximal tibia and the interosseous membrane and inserting on the medial cuneiform and the first metatarsal bone- accounts for 80% of the strength needed for ankle dorsiflexion.<sup>1</sup> Injury to the TA tendon (weakness in ankle dorsiflexion and toe clearance) is partially counterbalanced by the extensor hallucis longus and extensor digitorum communis muscles.<sup>2</sup> Based on her wound location and clinical presentation, rupture of the TA tendon seemed to be a reasonable initial diagnosis in our patient. Herewith, an US examination definitely provided further insight into understanding the real scenario and helped to elaborate prompt diagnosis/management. While the static images revealed TA tendinopathy, comparative dynamic assessment was actually more

contributory as regards clarification of the physical examination findings (i.e. lack of visible TA tendon migration). This way, unnecessary tests (e.g. electromyography) and surgical approaches could have been avoided as well.

**Keywords:** Tendon, tibialis anterior, ultrasound

#### **AUTHORS' NOTE**

All authors declare no conflicts of interest existed

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