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Ultrasound imaging of the posterior talofibular ligament

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We would like to highlight the issue of ultrasound imaging of the posterior talofibular ligament (PTFL). Many diagnosticians do not assess this ligament on the assumption that visualizing this structure is difficult, and thus such examination will not be reliable.

As with any anatomic structures, these challenges can be overcome by understanding the anatomy of this area, which would not only make the imaging of this structure easier, but also repeatable, and most importantly – useful in clinical practice.

In the anatomic structure, the main focus should be placed on the posterior process of the talus, which has two tubercles – medial and lateral. Between these tubercles, there is a notch, in which the tendon of the flexor hallucis longus runs (Fig. 1).

The posterior talofibular ligament connects the malleolar fossa, located on the medial surface of the lateral malleolus, with the lateral tubercle of the posterior process of the talus^(1,2). In order to properly visualize PTFL, it is necessary to identify the bony structures properly, especially the lateral tubercle of the posterior process of the talus. It should be noted that ligaments, in the majority of cases, form a reinforcement for the joint capsule and as they are placed deeply, they form a tissue layer close to the bone. The structure of echogenicity and the structure typical for a ligament placed deeply and connecting the fibula with the lateral tubercle of the posterior process of the talus can be easily identified as PTFL (Fig. 2A, Fig. 3) To evaluate this ligament, we suggest to place a patient in a prone position and bend the ankle to 90 degrees in the limb undergoing examination (with feet resting on the toes – Fig. 2B), although experienced diagnosticians should not encounter problems

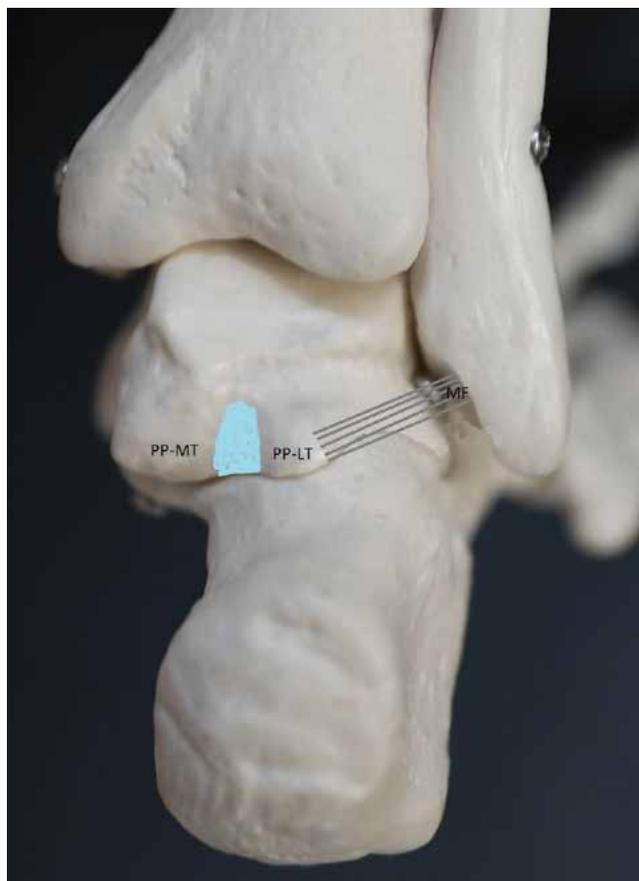


Fig. 1. Anatomy of the PTFL (PP-LT – lateral tubercle of the posterior process of the talus, PP-MT – medial tubercle of the posterior process of the talus, light blue area – sulcus of the flexor hallucis longus tendon, MF – malleolar fossa of the lateral malleolus, grey lines – typical course of the posterior talofibular ligament)

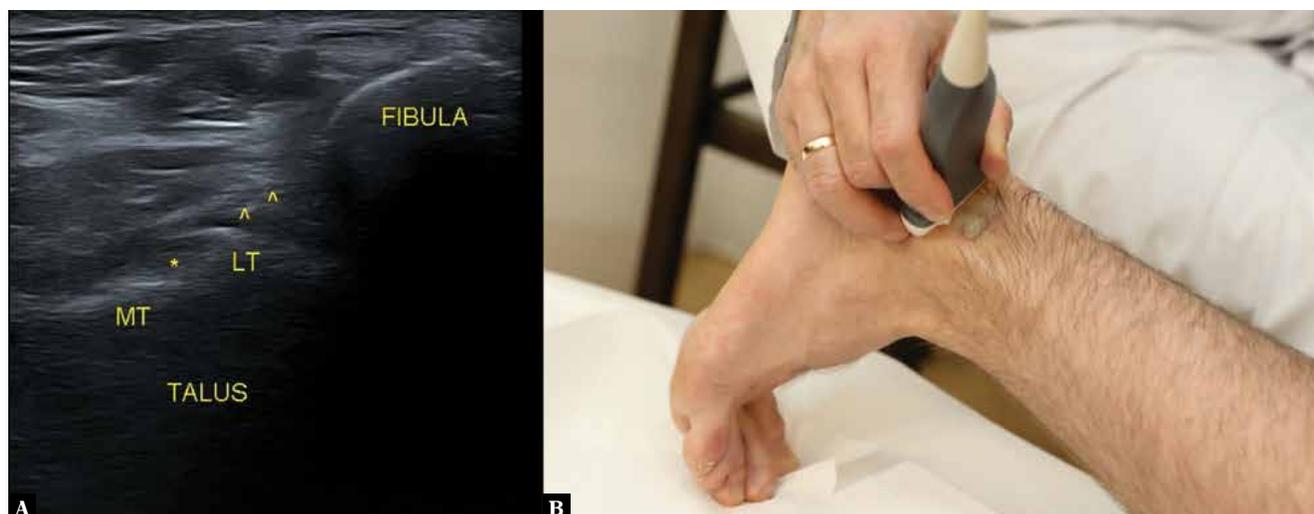


Fig. 2. A. Ultrasound image of the posterior talofibular ligament (MT – medial tubercle of the posterior process of talus, LT – lateral tubercle of the posterior process of talus, asterisk – tendon of flexor hallucis longus, arrowheads – posterior talofibular ligament localization), B. Positioning the patient and the ultrasound probe in PTFL imaging



Fig. 3. The course of PTFL on an ultrasonography image (PP-LT – lateral tubercle of the posterior process of the talus, LM – lateral malleolus, arrows – posterior talofibular ligament)

with visualization of the ligament with a patient in the supine position with a limb bend in the knee and with the foot resting on the ground.

Furthermore, close attention should be paid to the low echogenicity of the PTFL attachment near the medial side of the fibula, which comes from anisotropy, which might not be considered a post-traumatic lesion – although it is worthwhile to evaluate this ligament in comparison with the opposite side.

Conflict of interest

Author does not report any financial or personal connections with other persons or organizations, which might negatively affect the contents of this publication and/or claim authorship rights to this publication.

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