Ankle sprain can cause injuries to the anatomic structures surrounding the tibiotarsal joint. A possible extra-articular pathology is to be hypothesized and diagnosed as early as possible. The subtalar joint, for anatomical and functional reasons, is one of the most damaged joints following an ankle sprain. In spite of this, its involvement is often underestimated. The clinical case presented in the present article is referred to a giant cells osseous tumor in the tarsal canal that was diagnosed 2 months after an inversion ankle sprain.
a standard conservative regimen (rest, ice, compression, and elevation), due to the persistence of pain, a magnetic resonance imaging (MRI) was performed, which was evaluated as negative for pathology of the hindfoot. The patient underwent repeated periods of functional rehabilitation and physical therapy (YAG laser and tecar therapy). Two months after the trauma, there was the appearance of swelling in the anterior lateral area, in particular, at the level of the sinus tarsi, only painful during walking. In the face of this clinical evolution, corticosteroid injections were recommended.

The clinical condition progressively worsened with almost constant pain accompanied by a severe functional limitation of the ankle and hindfoot stiffness in pronation. At the clinical examination, it was evident that an anterolateral swelling at the level of sinus tarsi with a palpatable tight/elastic mass was relatively fixed to the deep structures and covered by indented skin. I recommended to the patient a new MRI (at ~8 months from the previous one) which did not highlight any problem at the tarsal canal and put into evidence a mass located in the lateral portion of the tarsal canal, inhomogeneous, delimited by a pseudocapsule with respect to the surrounding tissues, without intralesional calcifications (Fig. 1).

Based on the above-mentioned clinical and instrumental framework, open surgical removal of the mass was proposed to the patient.

**Surgical Procedure**

The patient was operated in semilateral decubitus. Pneumatic tourniquet was applied at the root of the thigh. A skin incision corresponding to the mass was performed and once the deep layer was reached, tissue of a lardaceous consistency and of color brownish-yellow mixed with grayish-white was evident. A thin pseudocapsule of brown color with lamellar structure and a moderately tough texture delimited the mass (Fig. 2A).

After the excision of the mass, there was a cavity of ~3 cm in diameter at the lateral portion of the tarsal canal. The excised material was processed for histologic examination. In the report of the histologic examination, a giant cell osseous tumor was diagnosed (Fig. 2B).

In the postoperative phase, a half-stitched boot was positioned with the ankle at 90° and weight-bearing was not allowed for 3 weeks. Thereafter, the valve was removed and a bivalve brace was applied, and weight-bearing was

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**Fig. 1** Magnetic resonance imaging of the subtalar joint. Sagittal (A) and coronal (B) scans show the lesion at the tarsal canal.

**Fig. 2** Excised mass. Macroscopic appearance of the lesion (A) and histologic pattern of the pathologic tissue (B).
allowed as tolerated. The patient performed functional rehabilitation of the ankle and subtalar joint and completed the rehabilitative program with proprioceptive exercise.

Currently, the patient no longer reports any type of pain, no range of motion restriction and no instability in both the ankle and the subtalar joint.

**Discussion**

The case described in the present article is rather rare and to my knowledge, no previous reports are present in the literature describing such a lesion. For this reason, only after histologic examination of the removed tissue, it was possible to speculate on the etiology of the disease.

At the origin of this type of benign tumor, there can be a “local reaction process” to a hemorrhagic problem in the tarsal canal. Probably, after an inversion ankle sprain, bleeding occurred in that district, which is richly vascularized. Such bleeding was not initially suspected in a typical clinical aspect of an ankle sprain. In a chronic phase, the development of more specific symptoms in the subtalar joint should have been evaluated with imaging studies, such as MRI. Indeed, early diagnosis would have prevented the formation of the neoformation and clinical manifestations characterized mainly by chronic pain and stiffness.

In conclusion, injuries from ankle sprain are not limited to the tibiotalar joint, but can affect tendons, ligaments, and bones that are in close topographical correlation. When clinical course deviates from normal post-traumatic evolution, targeted instrumental investigations should be recommended. Timeliness and diagnostic accuracy improve the outcome of treatment of the lesions associated with ankle sprain.

**References**

11. Harper MC. The lateral ligamentous support of the subtalar joint. Foot Ankle 1991;11(06):354–358