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Case report

An unusual cause of tarsal tunnel syndrome: Schwannoma of the posterior tibial nerve; a rare cause and rare localization

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ABSTRACT

Introduction: Schwannoma of the posterior tibial nerve is extremely rare.
Case presentation: A 25-year-old female with a one-year history of left foot pain is presented. Clinical and radiological findings were in favor of a tarsal tunnel syndrome caused by a schwannoma of the posterior tibial nerve, prompting the patient to undergo surgery. We performed a complete excision of the tumor with the aid of a loupe magnification. At the last follow-up, the patient did well, with no recurrent pain and no neurological squeals.
Discussion: The diagnosis of a tibial nerve schwannoma can often be difficult as, in the early stages, a mass may not be palpable and symptoms are often non-specific because of the slow-growing soft tissue mass.
Conclusion: Although schwannoma is a rare cause of tarsal tunnel syndrome, it should be kept in mind by physicians, especially in cases of chronic unexplained foot pain with a positive Tinel's test.

1. Introduction

Schwannoma (also known as neurilemoma) is a benign tumor that arises from the peripheral nerve sheath. It accounts for 5 % of all soft tissue tumors. It is usually found on the trunk, head, neck, or upper extremities, but it has seldom been reported in the lower extremities [1].

A schwannoma of the tibial posterior nerve is a rare occurrence. Moreover, being a cause of tarsal tunnel syndrome has rarely been reported in the literature [2].

The work has been reported in line with the SCARE criteria and the revised 2020 SCARE guidelines [3].

2. Case presentation

A 25-year-old patient with no pathological history presented one year ago to the emergency department with pain and total impotence of the left ankle following a fall. Clinical and radiological findings were in favor of an acute sprain of the ankle, which was treated by analgesic drogues (paracetamol 1 g three times daily in addition to the NSAIDS for a course of ten days), bandage plaster elastic, and non-weight bearing for six weeks. After this period, she continued to experience pain in the ankle that was partially calmed by oral analgesics (tramadol 50 mg three times daily with topical NSAIDS two times daily for a course of 15 days). At every physician's consultation, radiographs were performed, and the patient walked out with oral analgesics and rest advised. However, she experienced recurrent pain in the same location at home. Given that the pain got worse, becoming burnt in nature, she decided to visit our orthopedic department. On physical examination, we found a slight mass located in the medial retro-malleolar region, painful on direct palpation with a positive Tinel's test. The neurovascular examination was normal. At this follow-up visit, she reported no weight loss and no neurofibromatosis history. The ultrasound of the ankle revealed a well-defined heterogenous tissue formation. For further evaluation, we performed an MRI scan that showed a 2.5 + 2.0 + 1.5-cm hyperintense heterogeneous mass on the medial aspect of the ankle (Fig. 1). Because of the clinical evolution and the radiological findings, we elected to total surgical excision of the masse. Under general anesthesia, we performed a medial approach: after opening the tarsal tunnel, we identified the

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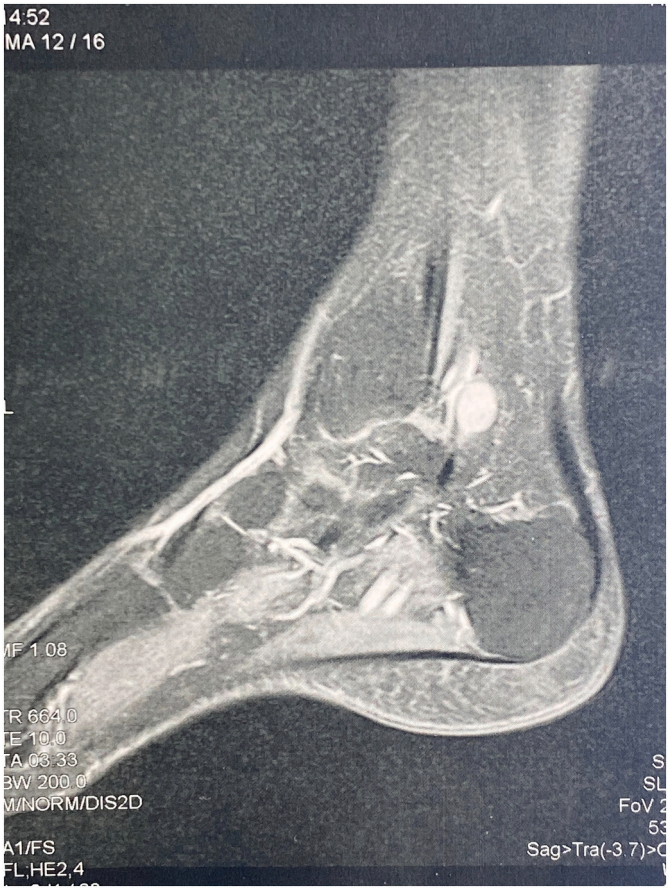

Fig. 1. MRI scan of the left ankle showed a 2.5 + 2.0 + 1.5-cm hyperintense heterogeneous mass on the medial aspect of the ankle.

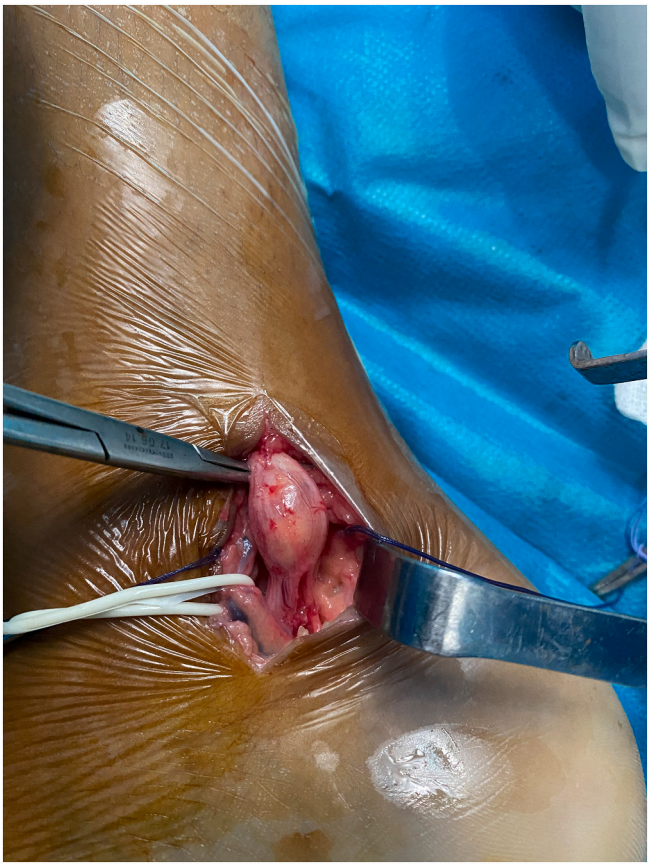

Fig. 2. Intraoperative aspect of the tumor within the posterior tibial nerve.

posterior tibial nerve with a mass within it (Fig. 2), then we used a loupe magnification that permitted careful dissection and entire excision of the mass (Fig. 3). The nerve was continuous (Fig. 4). On the postoperative day, she had slight numbness located at the medial aspect of her foot. The histopathological exam confirmed the diagnosis of neurilemoma of the posterior tibial nerve with no sign of malignancy (Fig. 5). At 12 months' follow-up, she had no recurrent pain and no residual numbness.

3. Discussion

Tarsal tunnel syndrome is due to a compression of the tibial nerve in the tarsal tunnel that generates neuropathy and pain in the foot. Common causes of this syndrome include ganglions, hind foot deformity, varicosity, and lipoma. There have only been a few reports of tarsal tunnel syndrome caused by a schwannoma of the posterior tibial nerve [2].

Neurilemmomas or schwannomas arise from the Schwann cells of the peripheral nerve sheath. These tumors are slow-growing and displace the nerve fascicles. They are the least common of the benign peripheral nerve tumors, usually presenting in the second to fifth decades of life. While most commonly solitary, multiple neurilemmomas are known to be developed in association with neurofibromatosis type 2 [4]. The diagnosis of a tibial nerve schwannoma can often be difficult as, in the early stages, a mass may not be palpable and symptoms are often non-specific because of the slow-growing soft tissue mass [5].

Once the space-occupying lesion gets to a considerable size, it causes symptoms of tarsal tunnel syndrome, in which case the Tinel's test is useful to orientate the diagnosis. The use of imaging modalities such as sonography, CT, and MRI has enhanced the diagnosis of nerve sheath tumors. In our case, the ultrasound helped in the diagnosis, but it was not sufficient. That's why we performed the MRI of the ankle, which was decisive [6,7].

Surgical excision of the mass and decompression of the posterior tibial nerve are the recommended treatments, ideally with the aid of a microscope or loupe magnification [2–8].

We herein describe an uncommon case of tarsal tunnel syndrome caused by a schwannoma of the posterior tibial nerve located in the medial retro-malleolar region of the ankle that was completely excised. At the 12-month follow-up, the patient was pain-free and showed no deficit. However, we would like to have electrophysiological information for more investigations.

4. Conclusion

Through our case, we want to make physicians aware of this rare etiology that should be considered as a possible etiology of tarsal tunnel syndrome, especially in cases of chronic foot pain resistant to oral analgesics with a positive Tinel's test.

Declaration of competing interest

Nil.

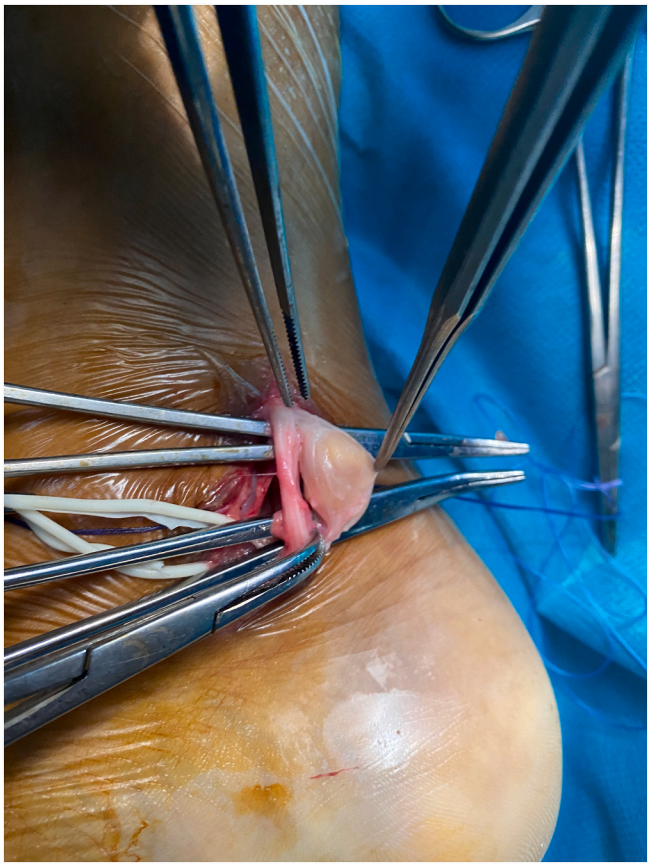

Fig. 3. Careful dissection of the mass using loupe magnification.

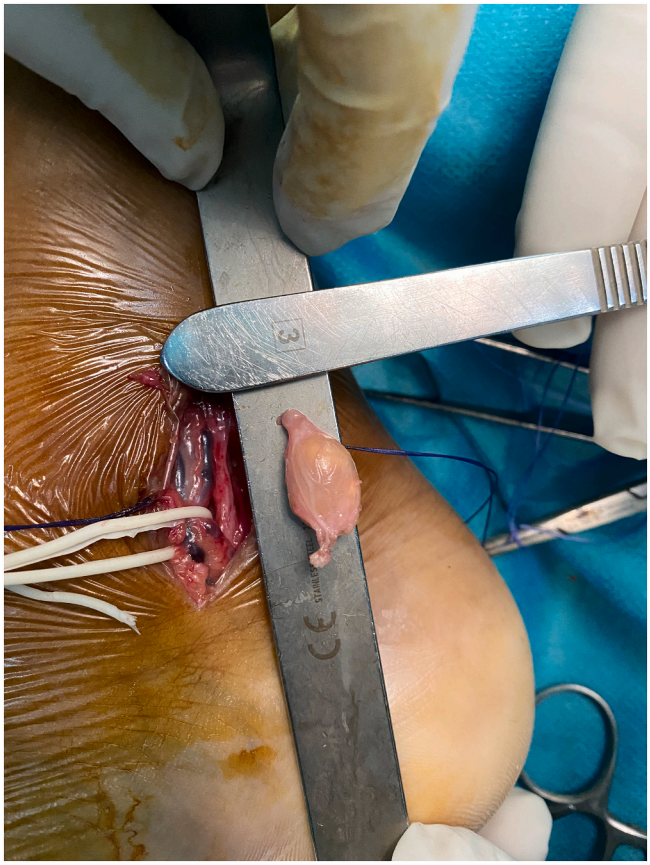

Fig. 4. Entire excision of the tumor and the posterior tibial nerve was continuous.

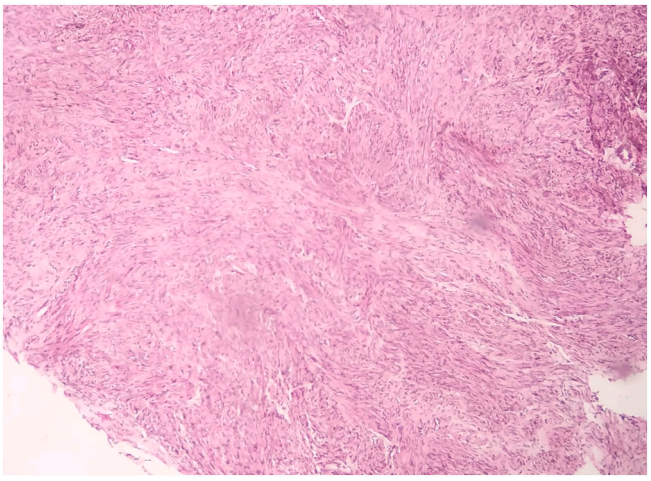

Fig. 5. The tumor is composed of spindle Schwann cells with the presence of Verocay bodies.

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Ethical approval

This study is exempt from ethnical approval.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

- The patient had been operated on by Dr. Naoufal elghoul and Pr. Salim Bouabid.
- The bibliographic research was done by Dr. Kamal El Mokhtari.
- The article was written by Dr. Naoufal Elghoul

Registration of research studies

Not applicable.

Guarantor

Dr. Naoufal Elghoul.

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