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Case report

Tarsal tunnel syndrome: Four uncommon cases

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Abstract

Tarsal tunnel syndrome is rarely diagnosed. We describe four uncommon cases treated in our department: a case of angioleiomyoma of the tarsal tunnel never reported in the literature, a case of neurilemoma of the posterior tibial nerve, a big ganglion of the tibiotarsal joint and a pes planus with valgus talus in a young male affected by cerebral palsy. All the cases were treated by surgery with a good outcome. The article includes a discussion about aetiology, diagnosis and treatment of this syndrome.

Keywords: Tarsal tunnel syndrome; Angioleiomyoma; Neurilemoma; Pes planus

1. Introduction

Tarsal tunnel syndrome (TTS) is a peripheral entrapment syndrome of the posterior tibial nerve (PTN).

Pollock and Davis were first to describe in 1932 a case of compression of the PTN by post-traumatic fibrous tissue [1], TTS was first named by Keck and Lam in 1962 and was defined as a clinical picture correlated to compression of the PTN inside the tarsal tunnel [2,3].

The medical literature describes many aetiological causes of PTN compression inside the tarsal tunnel.

Ankle and foot trauma (talus and calcaneus fracture, ankle sprain) may cause a nerve compression by a post-traumatic fibrosis or by bone fragments [4–7].

Several kind of space occupying lesions can compress the PTN: a ganglion is the most common lesion of the tarsal tunnel, it can be articular or tendinous [4,8,9]; some tumours such as lipoma, neurilemmoma and osteosarcoma are also encountered [10–12].

Other causes are: talus deformity, varicose veins, tarsal bone coalition, tenosynovitis, metabolic disease (diabetes, hypothyroidism, acromegaly, obesity, osteoporosis), muscular abnormality [4,8,13–17]. There are also cases of idiopathic TTS which includes condition in where no evident nerve compressing lesion is recognized.

We report four uncommon cases of TTS treated by surgery in our department with a good outcome.

2. Case 1

The patient was a 57-year-old female, complaining of progressive hypoesthesia under the medial malleolus of her right foot, radiating to the big toe and the second, third and fourth toe. The onset was 4 months earlier.

The previous lesion highlighted hemithyroidectomy and hypothyroidism, clinical examination showed a positive Tinel's sign. The EMG picked up no signs from the tibialis posterior nerve, the latent period of the PTN was about 6 ms. The first diagnosis was TTS related to a metabolic disease but MRI of the ankle showed PTN compression at the beginning of the tarsal tunnel by a big synovial ganglion of the tibiotarsal joint.

Treatment was surgical: excision of the ganglion without dividing the ligamentum laciniatum. The outcome was very good, at 1 year follow up, the patient was asymptomatic and free of ganglion recurrence.

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Fig. 1. RM image of lesion in the tarsal tunnel compressing the tibial nerve.

3. Case 2

The patient was a 60-year-old female complaining of pain localized in the posterior region of the medial malleolus of the right ankle, where Tinel's sign was positive. Ultrasound scanning showed a solid mass in the same region. The EMG showed an increase in the latency of the PTN. MRI showed a cystic lesion (diameter 1.4 cm) in the tarsal tunnel compressing the nerve (Fig. 1), which was localized between the flexor hallucis longus tendon and the tibialis posterior tendon. There was evidence of another smaller lesion inside the flexor longus hallucis tendon in the plantar medial region.

We removed the larger lesion and the patient was better for 6 months, but then developed pain and hypoesthesia in the plantar medial region. A new MRI confirmed the poorly defined cystic lesion in the flexor hallucis longus tendon. A further operation was carried out to remove the second lesion. We found a small swelling rising from the medial plantaris nerve and adhering to the longus hallucis tendon. This was removed without jeopardizing the nerve and tendon (Fig. 2). Histology showed a neurilemmoma (Antoni A type) infiltrating the tendon fibres. After the second operation, the patient had reduction of foot pain and dysaesthesia up to a two year follow up.

4. Case 3

The patient was a 48-year-old female complaining of burning pain in the medial malleolus region of the left ankle radiating to the big toe, the second and the third toe. The onset was 1 year earlier. EMG was normal but Tinel's sign was positive. Instead of highlighting any extrinsic causes of compression in the tarsal tunnel, the MRI showed an altered

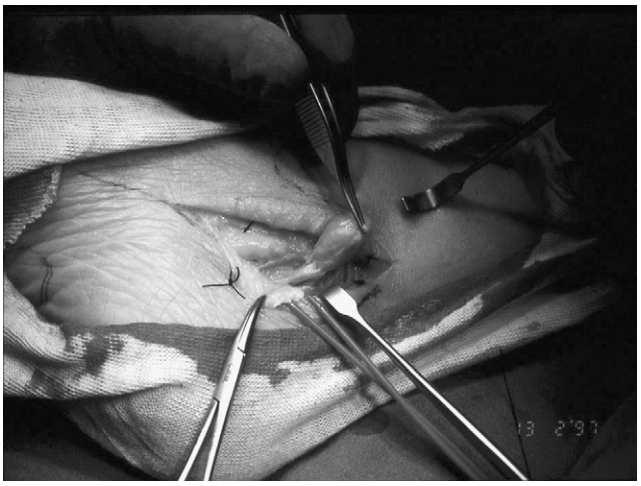

Fig. 2. Intraoperative image of neurilemoma of tibial nerve.

morphology of the PTN in T1 versus T2 images. As the patient underwent a medium contrasted MRI, we observed an irregularity of the nerve fibres.

We operated on the patient and after ligamentum laciniatum dissection, we discovered a well-vascularized mass compressing the PTN (Fig. 3) which was not shown by the MRI scan histology revealed an angioleiomyoma (Fig. 4). The patient had a resolution of foot symptoms at 1 year follow up.

5. Case 4

The patient was a 12-year-old male, affected by cerebral palsy, complaining of burning pain and paraesthesiae in the medial plantaris nerve region. Examination showed a severe pes planus with valgus talus (Fig. 5). The EMG was positive for PTN compression and the Tinel's sign was positive at the level of the talus head. In this case compression of the PTN occurred at the end of the tarsal tunnel and was due to

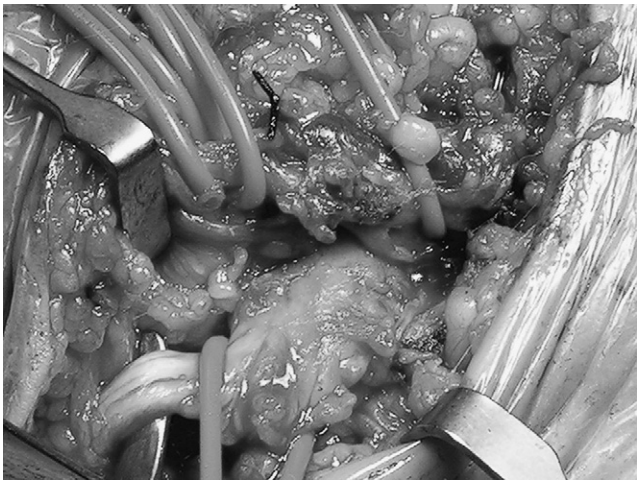

Fig. 3. Intraoperative image of angioleyomyoma of tibial nerve.