

CLINICALY MISDIAGNOSED SCHWANNOMA OF THE MEDIAL PLANTAR NERVE OF THE FOOT (A CASE REPORT)

Neron Popovski¹, Nenad Atanasov¹, Nikola Gramatnikovski², Ilir Shabani¹, Milan Samardziski¹

ПОГРЕШНО ДИЈАГНОСТИЦИРАН ШВАНОМ НА МЕДИЈАЛНИОТ ПЛАНТАРЕН НЕРВ НА СТАПАЛОТО (ПРИКАЗ НА СЛУЧАЈ)

Нерон Поповски¹, Ненад Атанасов¹, Никола Граматниковски², Илир Шабани¹, Милан Самарџиски¹

¹ University Clinic for Orthopedic Surgery, Skopje

¹ Универзитетска клиника за ортопедски болести во Скопје

² University Clinic for thoracic and vascular surgery, Skopje

² Универзитетска клиника за торако-васкуларна хирургија во Скопје

Апстракт

Метатарзалгијата е состојба која се одликува со болка, тапост или жарење кое се локализира во предниот или средниот дел на стапалото. Таа се смета повеќе за симптом отколку за посебна болест. Вообичаени причини за метатарзалгијата се: невриномот на просторот меѓу метатарзалните простори (познат како Мортонов невриномот), метатарзофалангеален синовитис, аваскуларна некроза на некоја од коските на стапалото или сезамоидните коски, воспалителен артритис или друго. Други состојби, како што е тарзалниот тунелен синдром, можат исто така да бидат преставени со болка или тапост во метатарзалниот предел. Ние прикажуваме пациентка со Шваном на нетипична локализација на медијалниот плантарен нерв на стапалото, кој предизвикувал метатарзалгија.

Клучни зборови: метатарзалгија, Шваном, медијален плантарен нерв.

ABSTRACT

Metatarsalgia is a condition of the foot characterized with pain, numbness or burning feeling located in the forefoot or midfoot region. Metatarsalgia is often referred to as a symptom, rather than as a specific disease. Common causes of metatarsalgia include neuroma between the toes (also known as Morton's neuroma), metatarsophalangeal synovitis, avascular necrosis, sesamoiditis, and inflammatory arthritis. Other conditions such as tarsal tunnel syndrome can also present with pain or numbness in the metatarsal region. We present a case of a patient with Schwannoma in atypical localization- at the medial plantar nerve of the foot causing severe metatarsalgia.

Key words: metatarsalgia, Schwannoma, medial plantar nerve.

Introduction

Metatarsalgia is a condition defined as a compression syndrome mechanically induced by intrinsic and extrinsic biomechanical factors that result in sharp pain, paresthesia and in some cases numbness of the forefoot. Metatarsalgia is often referred to as a symptom, rather than as a specific disease. Common causes of metatarsalgia include neuroma between the toes (also known as Morton's neuroma), metatarsophalangeal synovitis, avascular necrosis, sesamoiditis, and inflammatory arthritis.^{1,2} Sometimes pain irradiates in the midfoot or in the whole foot, making difficult to distinguish other problems such as: tarsal tunnel syndrome, neuroma or schwannoma of the foot nerves. We present a case of a patient with Schwannoma in atypical localization - the medial plantar nerve of the foot causing severe metatarsalgia.

CASE REPORT

A 50-year-old woman, presented with severe, sharp, disabling pain on the medial plantar side of her left foot irradiating to the first, second and third finger, prone to aggravation with certain activities, and diminishing with rest. She had no pain during rest in bed at night. There were no obvious anatomical anomalies. The symptoms started two years ago. General practitioner advised her to start with analgesic medications, but without improvement of the symptoms. She consulted an orthopedic surgeon in a different institution and she was diagnosed as having a tarsal tunnel syndrome based on the histo-

ry of her condition, clinical examination and (only) x-ray. Physical therapy and analgesic medications were suggested. The patient underwent two cycles of physical therapy in the following year without any changes of the condition. Since the conservative treatment did not give any result, a surgical treatment was suggested. The tarsal tunnel release surgery was performed 7 months ago. The operative and postoperative period passed without complications

but she continued to have the same problems after the surgery. The patient received analgesic medications few months before she came to our Clinic. On her first visit at our outpatient clinic in July 2008, orthopedic shoes made on a plaster model of her feet with metatarsal pad were prescribed. On the control examination, the patient complained that the symptoms were worse and even disabling. An urgent MRI of the left foot was advised. The MRI showed

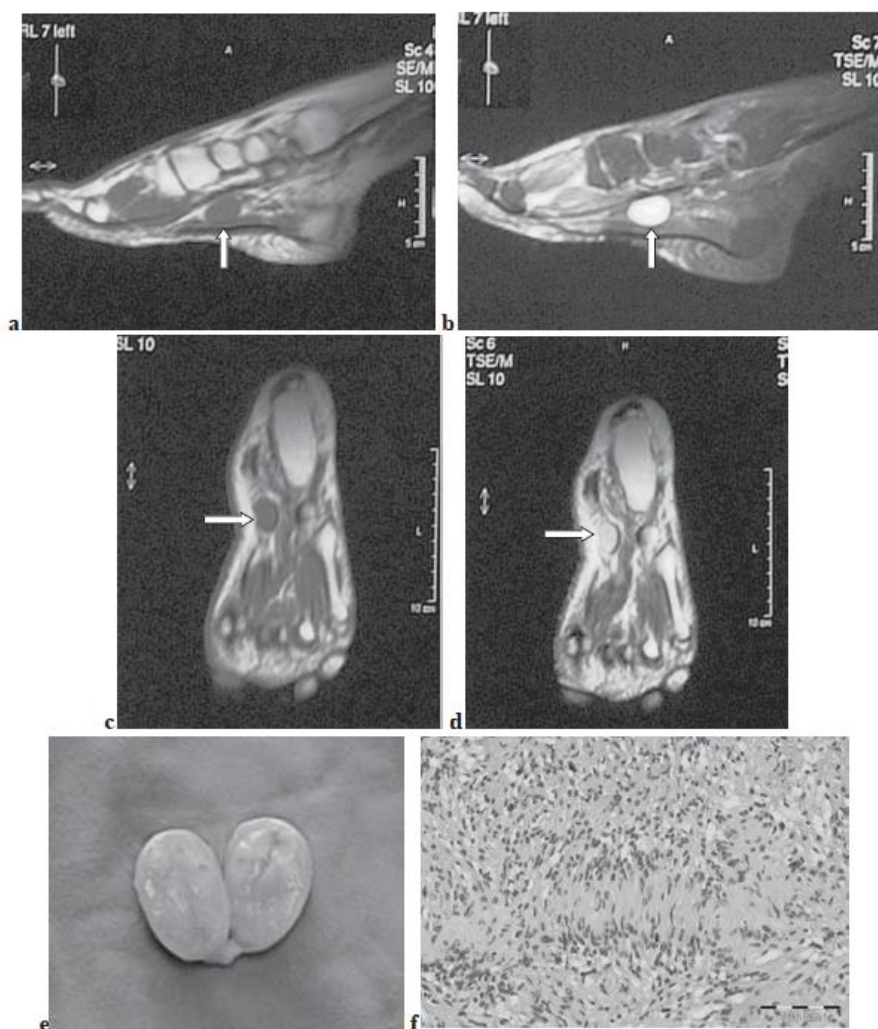


Figure 1 *a, b*) MRI cross section of the foot in T1 and T2 sequence (arrow showing Schwannoma), *c, d*) MRI transverse section of the foot in T1 and T2 sequence *e*) macroscopic appearance of excised and cut in half Schwannoma *f*) Verocay body surrounded by Anthony B cells (HE, x100).

a 2.5-centimeter in diameter, round, encapsulated mass that was differentially diagnosed as lipoma or neuroma (Fig. 1). A surgical extirpation of the tumor was suggested. The operation was conducted one week later at our institution. At the level of the medial cuneiform bone of the foot, a round encapsulated mass, surrounding the medial communicant branch of medial plantar nerve was found (Fig. 1e). Since the tumor could not be detached from the nerve, a neurectomy of the nerve proximal to the tumor was done. There were no complications in the operative and postoperative period. The excised tissue was sent for histological examination and the result confirmed it to be a Schwannoma (Fig. 1f). After surgery, the patient was relieved of all symptoms. Follow-up visits were carried out at three, six and twelve months after the excision of the Schwannoma. The patient had no pain and function of the left foot was normal at each consecutive control.

DISCUSSION

The tibial nerve enters the tarsal tunnel and divides it into a medial and a plantar nerve. They accompany their vascular supply separated only by a thin membrane. Having passed the medial (upper) canal of arterial and venous lacuna of the tarsal tunnel, the nerve lies behind the vessels situated above the abductor muscle of the first toe. The nerve crosses below the talus and the navicular bone, and then crosses the lateral margin of the abductor hallucis muscle lying between the fibro-muscular part of the muscle and the navicular tuber. In this region the medial plantar nerve is lying within the bone and fibro-muscular tunnel, where it can often be compressed.^(2,3,4) The symptoms in our patient were consistent with medial plantar nerve syndrome described as Jogger's foot in 1978 by Rask.⁽⁵⁾

The patient had a positive Tinel's sign and the symptoms aggravated with the orthopedic shoes that were made by a model of her feet.^(2,5) These two facts in most cases lead to Morton's neuroma as

differential diagnosis, but in our case the severity of the symptoms that were near to disabling and the non-responsiveness to physical therapy led to a condition more serious than irritation of the medial plantar nerve.^(6,7) Thus, MRI of the foot was proved to be the key for correct diagnosis of this condition.

There can be more than one cause of metatarsalgia, including: interdigital neuroma (also known as Morton's neuroma), metatarsophalangeal synovitis, avascular necrosis, sesamoiditis, and inflammatory arthritis.⁽⁷⁾ Other conditions such as tarsal tunnel syndrome can also present with pain or numbness in the metatarsal region. Metatarsalgia is a condition that occurs relatively frequently. Schwannoma of the medial plantar nerve is relatively rare condition, resulting in pain and numbness of the innervating area of the nerve. Often pain irradiates in mid-front or/and in posterior part of the foot, mimicking some of the former mentioned conditions. Due to this, in diagnosis and treatment of Schwannoma of the foot, detailed physical examination and appropriate MRI scans are essential.

REFERENCES

1. Scotti, T.M. The lesion of Morton's metatarsalgia (Morton's toe). *AMA Archives of Pathology*. 1957; 63 (1): 91-102.
2. Marko Pecina, Jelena Krmpotic-Nemancic, Andrew Markiewitz. *Tunnel Syndromes : peripheral nerve compression syndromes* (3ed). Boca Raton, Florida: CRC Press LLC, 2000; 267-271.
3. Hughes RJ, Ali K, Jones H, Kendall S, Connell DA. Treatment of Morton's neuroma with alcohol injection under sonographic guidance: follow-up of 101 cases. *AJR Am J Roentgenol*. 2007; 188(6):1535-9.
4. Wu KK. Morton's interdigital neuroma: a clinical review of its etiology, treatment, and results. *J Foot Ankle Surg*. 1996; 35(2):112-9; discussion 187-8.
5. Rask, M. R., Medial plantar neuropraxia (jogger's foot). Report of 3 cases. *Clin. Orthop*. 134: 193-195, 1978.
6. Kim JY, Choi JH, Park J, Wang J, Lee. An anatomical study of Morton's interdigital neuroma: the relationship between the occurring site and the deep transverse metatarsal ligament (DTML). *Foot Ankle Int*. 2007; 28(9):1007-10.
7. Morscher E, Ulrich J, Dick W. Morton's intermetatarsal neuroma: morphology and histological substrate. *Foot Ankle Int*. 2000; 21(7):558-62.