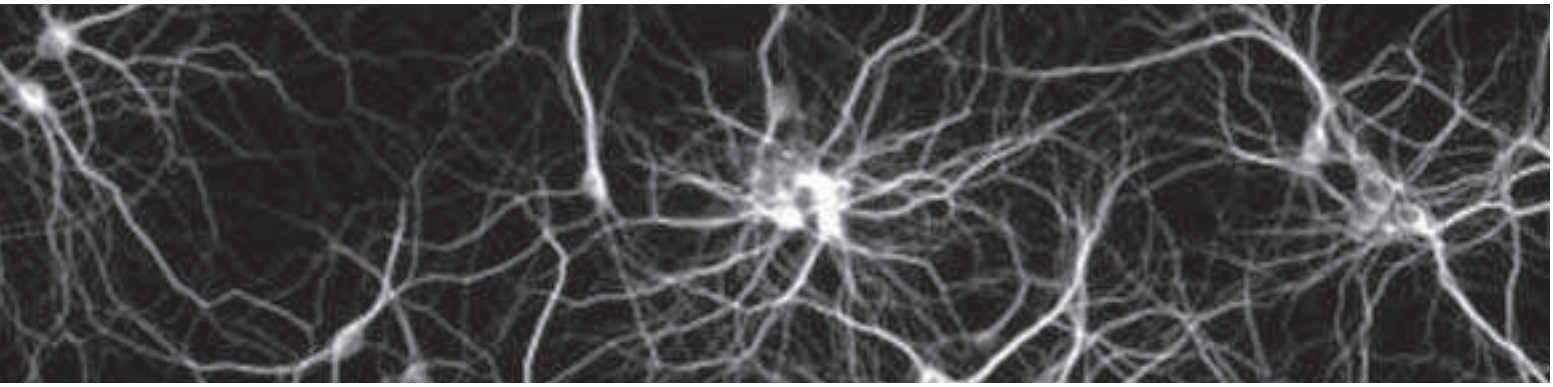

Neurinoma of the superficial peroneal nerve – case report

D. Matoković, M. Cesarik[1], V. Drkulec[1], M. Tomić Rajić[1]

ABSTRACT – Neurinoma is a benign tumor originating from Schwann cells of the myelin sheath of peripheral nerves. The tumor is benign, encapsulated, not infiltrating the nerve, slowly growing, of homogeneous structure, and symptoms produced by neurinoma may be misdiagnosed. In this report, successful operative treatment of a large neurinoma of the superficial peroneal nerve as a very rare location in a 69-year-old female patient is described. Operative treatment is successful if performed before the irreversible nerve lesions have developed because the tumor itself does not infiltrate the nerve and can be extirpated *in toto*.

Key words: ischialgia, neurinoma, superficial peroneal nerve

INTRODUCTION

Neurinoma is a benign tumor originating from Schwann cells of the myelin sheath of peripheral nerves. The tumor is benign, encapsulated, not infiltrating the nerve, slowly growing, and of homogeneous structure. Symptoms occur as the tumor grows, compressing the nerve and adjacent structure by its size. Its eccentric expansion allows for successful operative removal of the tumor. Neurinoma may occur in all nerves with a sheath made of Schwann cells. It is common in peripheral nerves of the skin; in the cerebellopontine angle, it involves eighth cerebral nerve, thus being called acoustic neuroma. In the literature, there are many synonyms for Schwann cell tumor, such as acoustic neuroma, schwannoma, neurinoma and neurilemoma (1). The tumor is benign and only 1% tend to transform to neurofibrosarcoma. It usually occurs in solitary form, whereas multiple localizations are found in neurofibromatosis. Neurofibroma is similar to neurinoma; histologically, however, besides Schwann cells it also consists of other cell types. Schwannomas arise from a single fascicle and grow displacing circumferentially the other fascicles within the nerve sheath neurofibromas arise from perineural fibrocytes. Schwannoma usually originates from the sensory fascicles in mixed nerves, while neurofibromas arise from motor parts.

CASE REPORT

In this report, successful operative treatment of a large neurinoma of the superficial peroneal nerve

Požega General County Hospital, Department of Orthopedics, Požega, Croatia

[1] Požega General County Hospital, Department of Neurology, Požega, Croatia

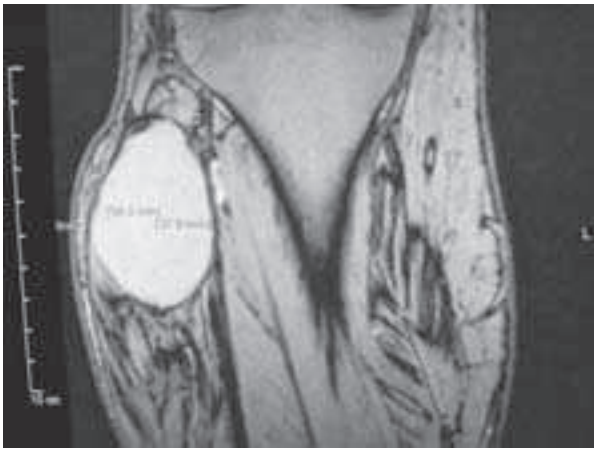

Fig. 1. *Coronal MRI of neurinoma*

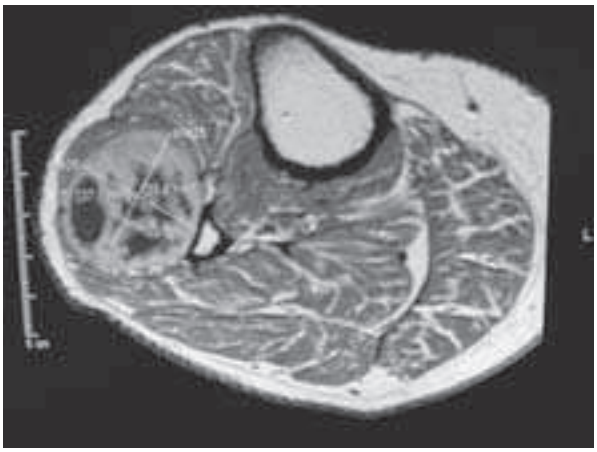

Fig. 2. *Horizontal MRI of neurinoma*

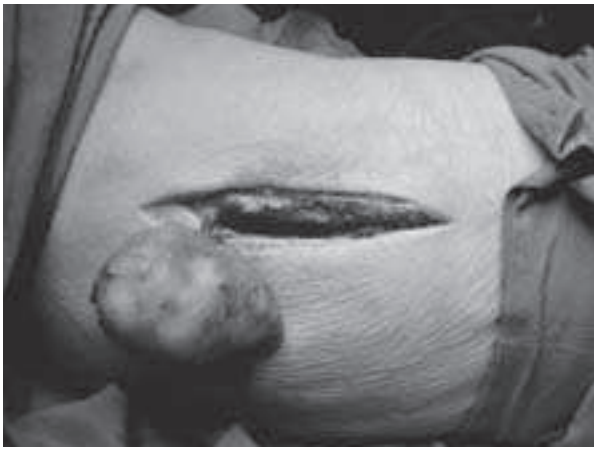

Fig. 3. *Intraoperative view of the superficial peroneal nerve neurinoma*

as a very rare location in a 69-year-old female patient is described. The patient was informed that data on her case would be submitted for publication and she gave her consent for it. Four years before presentation, the patient noticed a painless swelling on the outer aspect of her right leg. Now, she presented for examination due to ischiatic pain she had experienced for the past three months, radiating along the outer aspect of the leg from the knee towards dorsal aspect of the foot. On examination, an elastic tumorous egg-size growth, moderately sensitive to pressure, was found on the outer side of the right leg, below the head of the fibula. Tinel's sign was positive and paresthesia was present in the innervation area of the superficial peroneal nerve, especially dorsal aspect of the foot. The patient reported no neuromotor events.

Ultrasonography (US) and magnetic resonance imaging (MRI) of the upper part of the tibia showed a well delineated tumor of egg size (Figs. 1 and 2). Clinical symptoms, MRI and US indicated operative treatment and electromyoneurography (EMNG) was not done. The patient was operated on in general endotracheal anesthesia and tourniquet. A well-delineated encapsulated tumor, 5.6x3x3 cm in size, was attached to the superficial peroneal nerve by a narrow peduncle (Fig. 3). Histology showed it to be encapsulated tumor with the capsule made of collagenous fibers, and the tumor itself of thin bundles of elongated cells with cigar-like nuclei. On histochemical staining for S-100, it was strongly diffusely positive. On histology, it was characterized as neurinoma. Postoperative wound healing was normal and the patient was free from pain at 3-month follow up without sensory loss. Preoperative and 3-month postoperative visual analogue scale (VAS) score was 3 and 0, respectively.

DISCUSSION

Neurinoma of the superficial peroneal nerve in the neck of the fibula is rare, with only three cases reported till 2006, according to Medline database (2-4). Therefore, all possible causes of nerve irritation, such as intervertebral disk hernia, ischialgia, piriform muscle syndrome, peroneal tunnel syndrome, anterior tibial syndrome, superficial peroneal nerve syndrome, anterior tarsal canal syndrome, compartment syndrome, polyneuropathy, peroneal nerve trauma, pressure upon peroneal nerve due to wearing immobilization, orthosis or crossed legs, fracture or expansive process in the region of tibial head, lipoma, ganglioma or synovial cysts from popliteal region, or anatomic variability should be taken in consideration on differential diagnosis of the causes of pain, paresthesia or paresis in the innervation area of the superficial peroneal nerve (5-7). US, MRI and EMNG may help in making definitive diagnosis, especially if the tumor is small and not clinically evident (8,9). In some cases, making the diagnosis is a challenge

to therapist when schwannoma is too small. Very often, the symptoms are attributed to degenerative spinal pathology. Therefore, persistent ischialgia with irrelevant lumbar MRI should raise suspicion of a peripheral sheath tumor. Operative treatment is successful if performed before the irreversible nerve lesions have developed because the tumor itself does not infiltrate the nerve and can be extirpated *in toto*. Operative treatment can result in relief of the symptoms and preserve function.

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Address for correspondence: Damir Matokovic, MD, Opća županijska bolnica Požega, Odjel ortopedije, Osječka 107, 34000 Požega, Hrvatska; e-mail: damirmatokovic@gmail.com

Neurinom površne grane peronealnog živca – prikaz bolesnice

SAŽETAK – Neurinom je benigni tumor Schwanovih stanica ovojnice perifernih živaca. Dobroćudan je, inkapsuliran, ne infiltrira živac, raste polako, homogene je strukture, a simptomi koje izaziva mogu biti neprepoznati. U radu se opisuje uspješno kirurško liječenje rijetke lokalizacije velikog neurinoma površne grane peronealnog živca u 69-godišnje bolesnice. Operativni postupak je uspješan ako se učini prije nego nastanu ireverzibilne promjene živca, jer tumor raste ekscentrično i ne infiltrira živac pa ga se može odstraniti u cijelosti.

Ključne riječi: ishialgija, neurinom, površna grana peronealnog živca