Case report

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# Giant sciatic nerve Schwannoma — case report

**Konrad Wroński[1, 2], Leszek Frąckowiak[1, 3], Mariusz Koda[4]**

[1]Department of Oncology, Faculty of Medicine, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland
[2]Department of Surgical Oncology, Hospital Ministry of Internal Affairs with Warmia and Mazury Oncology Centre, Olsztyn, Poland
[3]Department of Gynecology and Gynecologic Oncology, Hospital Ministry of Internal Affairs with Warmia and Mazury Oncology Centre, Olsztyn, Poland
[4]Department of Pathomorphology, Białystok Oncology Centre in Białystok, Białystok, Poland

**Abstract**

The sciatic nerve is the largest and the longest nerve in the human body. Most Schwannomas (neurilemmomas, neurinomas) are benign neurogenic tumors arising from Schwann cells. These tumors have propensity for the cranial nerves, the extremities and the posterior mediastinum. Schwannomas are observed in any age group and there is no sex predilection. Schwannomas in sciatic nerve are extremely rare, with frequency less than 1%.

The authors of this article presented the case of a 48-year-old white woman who was admitted to the hospital because of giant sciatic nerve Schwannoma. The patient was suffering from pain in the thigh for two years. She underwent surgical operation and left the ward on the 4th day after the surgery. After the operation, the disease symptoms were alleviated. The author performed a literature review on sciatic nerve Schwannoma.

**Key words:** sciatic nerve, sciatic Schwannoma, surgery, treatment

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## Introduction

The sciatic nerve is the largest and the longest nerve in the human body. Most Schwannomas (neurilemmomas, neurinomas) are benign neurogenic tumors arising from Schwann cells. These tumors have propensity for the cranial nerves, the extremities and the posterior mediastinum [1, 2]. Schwannomas are observed in any age group and there is no sex predilection. Schwannomas in sciatic nerve are extremely rare, with frequency less than 1% [3–5].

## Case report

A 48-year-old white lady, Caucasian race, was referred to the Department of Surgical Oncology Hospital Ministry of Internal Affairs with Warmia and Mazury Oncology Centre in Olsztyn due to the giant sciatic nerve Schwannoma diagnosed in computer tomography. The patient reported pain in the left tight for two years. The pain usually occured early in the morning and there was no positive effect after physiotherapy. The pain and paresthesia in her foot became more severe four weeks before hospital admission. There was no trauma history of the sciatic nerve region. She had no other symptoms, drug abuse and there was no history of weight loss and loss of appetite. She had no surgery. There was no history of carcinoma in patient's family.

During physical examination of the left thigh, patient reported pain and isolated painful soft-tissue mass was detected in the posterior part of the tight. Blood tests were within normal limits. There was histopathological examination of the thick-needle aspiration biopsy before the planned surgery. The diagnose before surgery was: Schwannoma.

Magnetic resonance image of the left thigh showed 110 × 80 × 50 mm soft tissue mass which extended into the surrounding soft tissues (Fig. 1–3). The patient was taken to the operating room for excision of the giant sciatic nerve Schwannoma. After linear midline skin incision on the posterior surface of the left thigh, giant

**Figure 1. Magnetic resonance image of the left thigh shows 110 × 80 × 50 mm soft tissue mass**

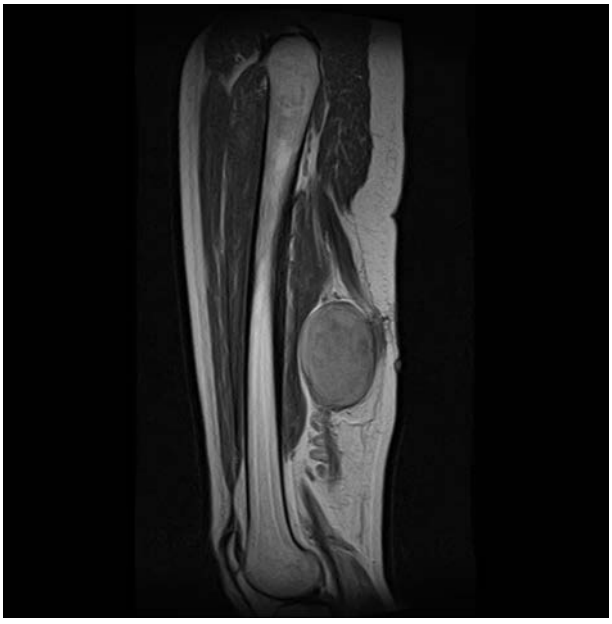

**Figure 2. Magnetic resonance image of the left thigh shows well-defined expansive mass associated with the sciatic nerve in the posterior compartment**

Schwannoma was seen in relation to the sciatic nerve. The pathological mass originated from the main sciatic nerve trunk. Complete excision of the Schwannoma was performed without damaging the main sciatic nerve trunk. The material was sent for routine pathological examination. The surgery lasted about 70 minutes.

Pathological examination showed areas of nuclear palisading, typical for Schwannoma (Fig. 4). The Ki-67 proliferation index was very low in the examined specimen (Fig. 5). The expression of S-100 protein was found the cytoplasm and nuclei of the tumor cells (Fig. 6]. After

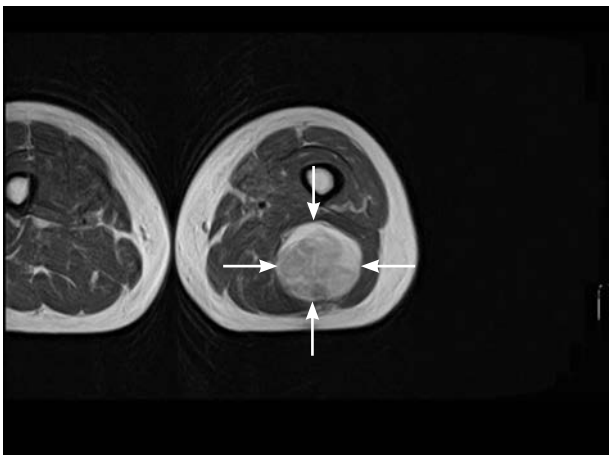

**Figure 3. Magnetic resonance image of the left thigh shows giant sciatic nerve Schwannoma**

**Figure 4. Hematoxylin and eosin stain showed the morphologic features of sciatic nerve Schwannoma**

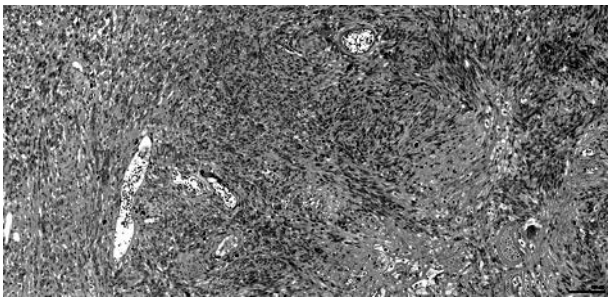

**Figure 5. The Ki-67 proliferation index was very low in the examined specimen**

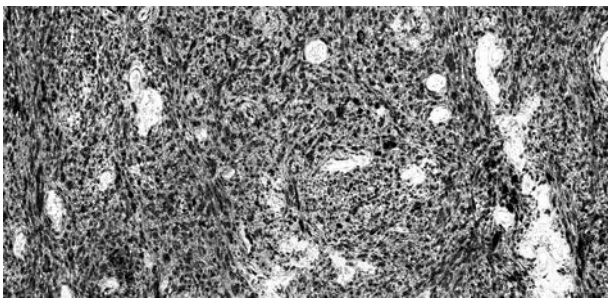

**Figure 6. Immunohistochemical examination shows that the S-100 protein was positive in some of the neoplastic cells**

the surgery, the patient felt good and did not complain of pain. After the operation, the disease symptoms were alleviated. The postoperative period was uncomplicated and the patient left the ward on the 4th day after the surgery.

## Discussion

The sciatic nerve is the major nerve of the human body. It is the longest and the widest nerve. The sciatic nerve is a mixed-function nerve because it contains both sensory neurons and motor neurons.

Peripheral nerve tumors are rare. Schwannomas are benign encapsulated slow-growing tumors which do not transverse through the nerve but remain in the sheath lying on top of the nerve.

Schwannomas originating from the sciatic nerve are extremely rare and usually present as a pathological mass in palpable examination or pain located in the thigh. Painful palpable examination is the most common clinical symptom of sciatic nerve Schwannoma [6–8]. Motor and sensory deficits are observed more often when the size of a tumor is more than 40 mm [9, 10]. Schwannomas most commonly are observed in adults between 20 and 50 years old.

Because of the rarity of sciatic nerve Schwannoma, it is necessary to have pre-operative diagnosis made by the radiologist who interprets the scans and by the pathologist who examines the needle biopsy specimen. Magnetic resonance imaging is an excellent examination which helps the surgeon team to choose the best treatment strategy during surgery. On T1-weighted images, Schwannoma has intermediate signal intensity similar to the muscles [5]. However, on T2-weighted, the tumor shows high signal [5]. If the heterogeneous enhancement is observed it means that there are cystic or necrotic forms of Schwannoma.

Radical surgical resection of the sciatic nerve tumor is the best treatment option. Before the surgery, Schwannomas should be differentiated from neurofibromas. On magnetic resonance imaging neurofibromas are more heterogeneous on T1 and T2-weighted images. But the definitive diagnosis is provided by the pathologist [11].

The risk of malignant transformation in Schwannomas is about 5%, but in the case of neurofibroma the potential for malignant transformation is about 15–16% [12].

## Conclusions

1. Giant sciatic nerve Schwannomas are rare tumors.
2. Schwannomas most commonly are observed in adults between 20 and 50 years old.
3. Radical surgical resection is the best treatment option.

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**Author's address:**
Konrad Wroński MD, PhD, MBA
General Surgery Consultant Department of Surgical Oncology
Faculty of Medicine
University of Warmia and Mazury in Olsztyn, Poland
Al. Wojska Polskiego 37, 10–228 Olsztyn
e-mail: konradwronski@wp.pl

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