

## A case of schwannoma of the common peroneal nerve in the knee

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### Abstract

Schwannomas are benign neurogenic tumors of peripheral nerves that originate from neural sheath. The aim of this case report is to bring to mind the schwannoma in the patient with knee pain. A 39-year-old woman presented with a complaint of knee pain of three months history. After surgical intervention, the patient's complaints completely disappeared in the post-operative period. This should come to mind in the differential diagnosis of knee pain.

### Introduction

Neurilemmomas (neurinoma-schwannoma) are benign, solitary, well-demarcated – usually as a capsule, slowly growing tumors that arise from the proliferation of active peripheral schwann cells.<sup>1,2</sup> They make up 5% of benign soft tissue tumors. They are frequently seen between the ages of 20 and 50. Schwannomas, or neurilemmomas, are the most common benign



Figure 1. Intraoperative view of the superficial peroneal nerve on the lateral side of the knee, with a mass arising from it.

peripheral nerve sheath tumours. Cases of common peroneal nerve schwannomas are very rare in the literature (Table 1).<sup>3-8</sup> They usually have a clinically silent course, though the present case highlights how a common peroneal nerve schwannoma can become symptomatic due to mechanical compression, resulting in pain, swelling or a lump. A thorough examination and prompt investigation helped us make a timely diagnosis and initiate appropriate treatment. Schwannomas should be included in the differential diagnosis of lumps in the vicinity of nerves. This case presentation highlights the importance of screening for the possibility of a peroneal schwannoma in patients presenting with knee pain despite nonspecific findings of physical examination.

### Case Report

A 39-year-old woman presented with a complaint of knee pain of three months history. Physical examination revealed a palpable mass on the peroneal nerve and numbness around the deep peroneal nerve.

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Routine laboratory diagnostic tests and x-rays showed no specific findings. Therefore, an MRI scan was obtained.

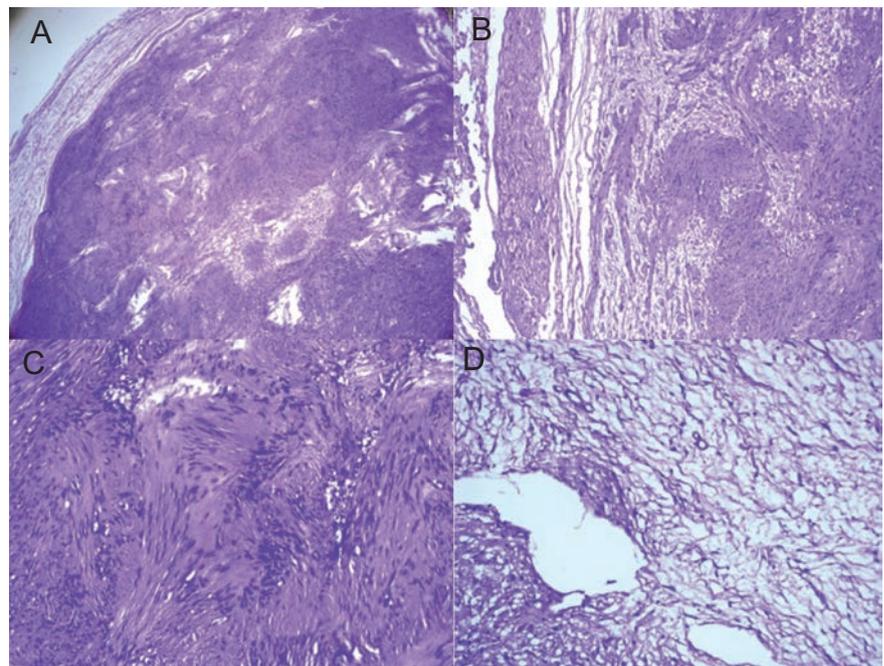


Figure 2. Microscopic images at various degrees of magnification of different areas of the schwannoma lesion. A) Under the outermost thin fibrous capsule are mostly Antoni A, and to a lesser extent, hypocellular Antoni B areas, hematoxylin and eosin (H&E), x40. B) The peripheral nerve bundle, located on the left of and contiguous to the schwannoma lesion, contains Antoni A and B areas, from which the roots of the lesion originate, H&E, x100. C) At a larger magnification, microscopic view of the Antoni A areas. Verocay bodies, showing a palisade arrangement of the nuclei, form elongated spindle-like cell groups within the network-like fibers at the center of the cytoplasm, H&E, x200. D) At a larger magnification, microscopic view of the Antoni B areas. They are relatively more hypocellular and contain enlarged blood vessels that are more hypocellular, edematous, and flaccid, H&E, x200.

## Discussion

On contrast-enhanced MRI T2 weighted imaging, an 11 mm mass was detected, with low signal intensity at the center and high signal intensity at the perimeter involving the common peroneal nerve and

demonstrating nerve continuity.

During surgery, a longitudinal incision was made (Figure 1) and the lesion was exposed by longitudinal cutaneous and subcutaneous incisions. The peroneal nerve was located and dissected. After longitudinal dissection of the perineurioma, the

lesion was excised with its roots in the common peroneal nerve.

The excised material was sent for histopathologic examination which showed a capsule formed in the epineurium, characterized by Antoni A and Antoni B areas, compatible with a schwannoma (Figures 2-4). The patient's complaints completely disappeared in the post-operative period.

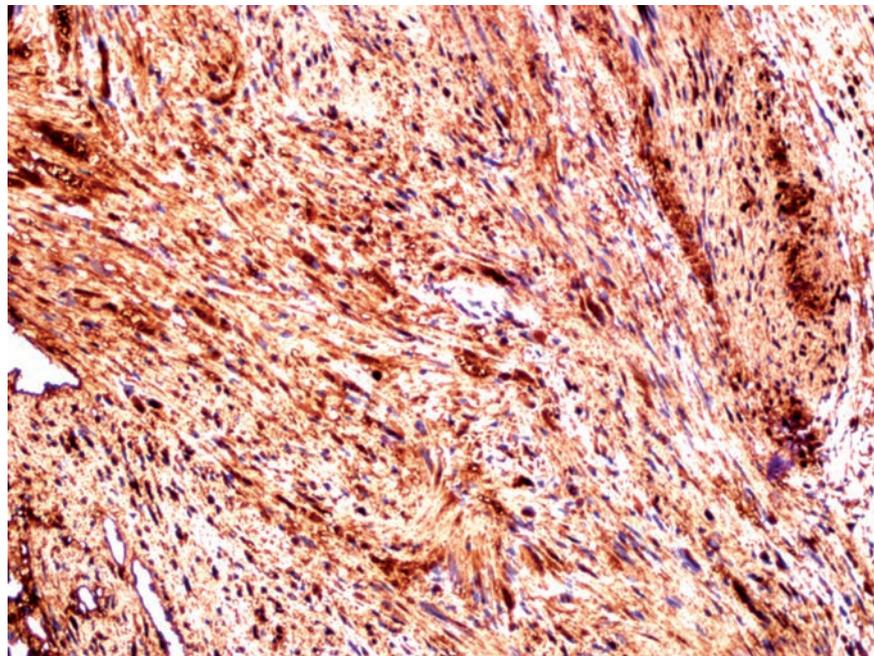


Figure 3. Strong and diffuse positive cytoplasmic nuclear immunohistochemical staining for S100, x200.

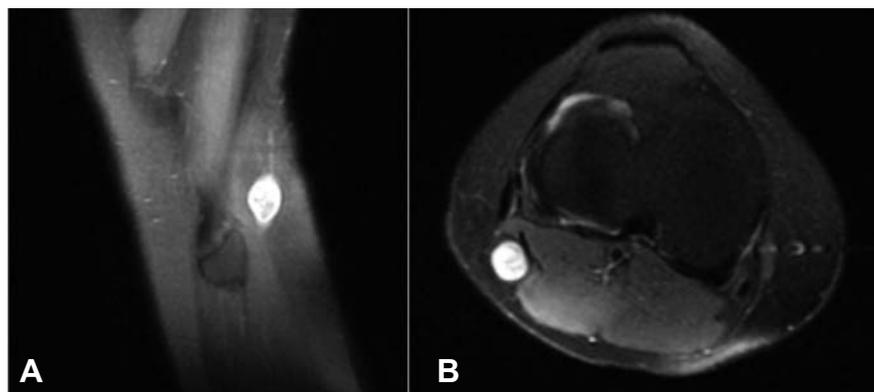


Figure 4. Sagittal (A) and axial (B) T2-weighted magnetic resonance images show a well-defined ovoid mass posterior to the fibula head, arising eccentrically from and which cannot be separated from the underlying common peroneal nerve.

Table 1. Some related case reports.

Authors	Location	Complaints	Outcome
Shariq <i>et al.</i> (2012) <sup>8</sup>	Knee	Knee lump	Required intralesional excision
Houshian <i>et al.</i> (1999) <sup>2</sup>	Knee	Pain and numbness	Successful
Mahitchi <i>et al.</i> (2001) <sup>7</sup>	Knee	Pain	Successful
Cato <i>et al.</i> (1995) <sup>6</sup>	Knee	Web space pain	Successful

## Conclusions

Schwannomas are benign lesions and their excision is generally curative. Malignant transformation is rare. They can occur in the sacral plexus and sciatic nerve in the pelvis, and in the ulnar and peroneal nerves in the extremities. Lesions often do not interfere with the anatomical or functional operations of nerve cells. The tumor can be removed with a careful dissection after a longitudinal incision of the perineurium. Nerve continuity must be maintained during surgery. Nerve dysfunction occurs rarely.

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