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Case Report

Oncology Section

# Surgical Management of Sciatic Schwannoma: A Rare Cause of Sciatica

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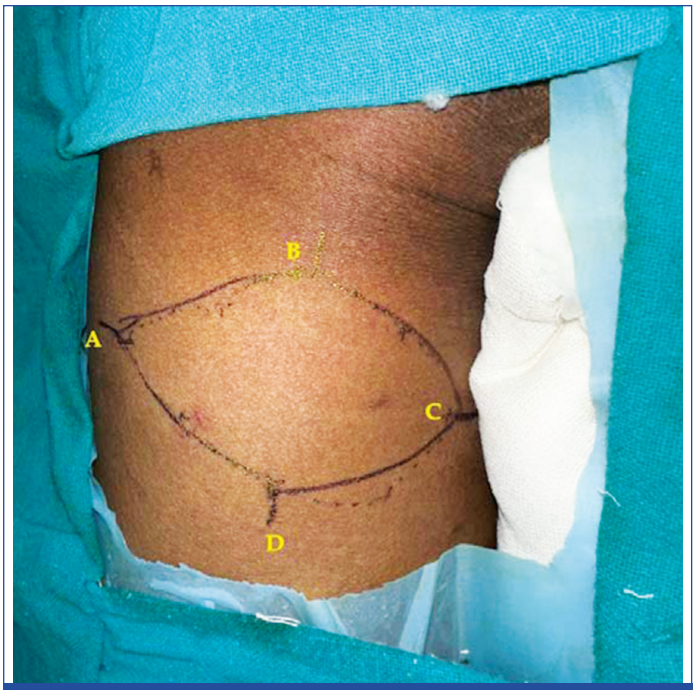
## ABSTRACT

Schwannoma are rare benign tumours of the peripheral nerve sheath, arising from the schwann cells. Sciatic nerve is the largest nerve of the human body, and sciatic schwannoma are rare, with incidence of <1% of total schwannomas. These tumours are often late diagnosed or misdiagnosed in view of varied clinical presentation. This is a case of a 42-year-old male with sciatic schwannoma, which was diagnosed after a year due to the presence of radiating pain moving towards the leg in difficulty in walking. Initial clinical presentation was noted as a small tender mass in the left thigh with progressive growth. The patient was initially managed medically for pain with Gabapentin (400 mg twice a day), but the presence of persistent pain led to surgical intervention by intensive screening using Magnetic Resonance Imaging (MRI) and conclude a diagnosis of sciatic schwannoma. It was successfully managed by surgical resection.

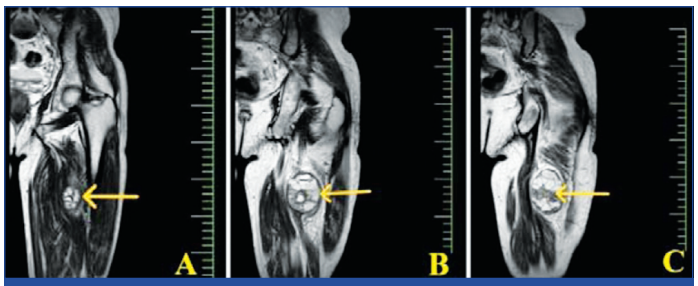
**Keywords:** Benign nerve sheath tumours, Nerve tumours, Sciatic nerve pathology, Schwannomatosis

## CASE REPORT

A 42-year-old male presented at the outpatient department with major complain of radiating pain in the left thigh and difficulty in walking with a nodule like swelling in his thigh. The pain started from the hips and moved toward the left leg, mimicking sciatic pain. The swelling was tender and was first observed before one year, which was progressive in nature. The pain as reported was scored 8 out of 10 on Visual Analogue Scale (VAS). Physical examination showed a mass of approximate size 3.9×5.0×6.1 cm [Table/Fig-1]. The patient was further subjected to radiological screening by MRI which showed a large heterogenous mass of 4.2×5.2×6.2 cm. The lesion was hyperintense on T2 and hypointense on T1 in located posterior medial plane of the thigh. It was found to be displacing adjacent muscles with loss of fat planes. Post-contrast lesion showed heterogenous enhancement. Femur was found to be normal without any evidence of avascular necrosis, osteomyelitis, and myositis [Table/Fig-2].



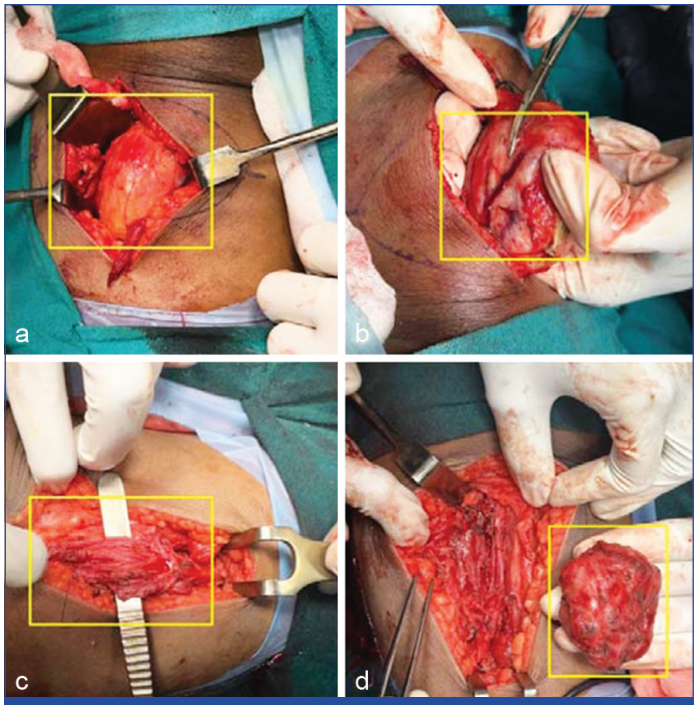

**[Table/Fig-1]:** Physical presentation of the patient: a) Lateral; b) Superior; c) Medial; d) Inferior side.



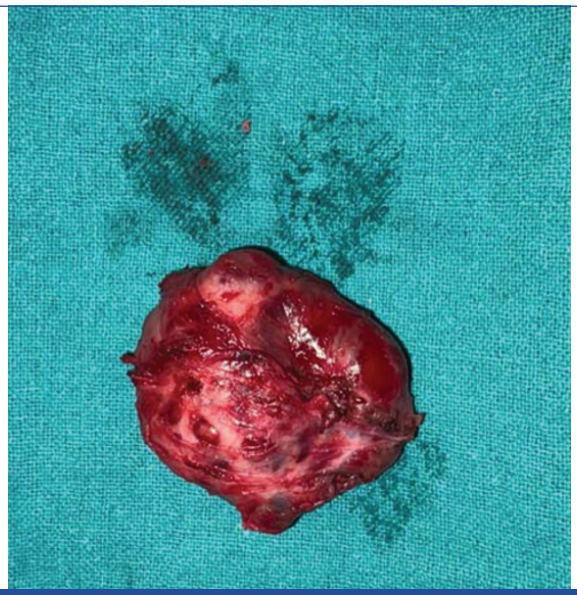

**[Table/Fig-2]:** Magnetic Resonance Image (MRI) of the thigh showing a large heterogenous hyperintense lesion on T2 and hypointense lesion on T1 in soft-tissue, displacing the adjacent muscles in the posterior medial part of the left thigh (A, B, C).

Based on the above findings, the lesion was subjected to Fine Needle Aspiration Cytology (FNAC), which showed spindle shaped nuclear cells in fascicles arranged in small parallels. Bipolar spindle nuclei were observed in cells with few showing ovoid nuclei and mild pleomorphism. These cytomorphological findings were suggestive of 'benign spindle cell neoplasm of neurofibroma/schwannoma'. The patient was planned for an excision of the tumour under spinal anaesthesia. Intraoperatively, the swelling was found to be adherent to the underlying sciatic nerve on the anterior aspect with the nerve found to be encasing the swelling (180 degrees). The tumour was carefully dissected from the nerve and separated from the nerve fibres in toto [Table/Fig-3]. The procedure was completed uneventfully. The excised specimen was sent for histopathological analysis [Table/Fig-4], which showed biphasic structures showing compact hypercellular Antoni A and myxoid hypocellular Antoni B areas, along with Verocay bodies, with cells which are narrow elongated and wavy with tapered ends interspersed in collagen fibres. These histological features are primarily associated with schwannoma thus, confirming the diagnosis [Table/Fig-5,6].

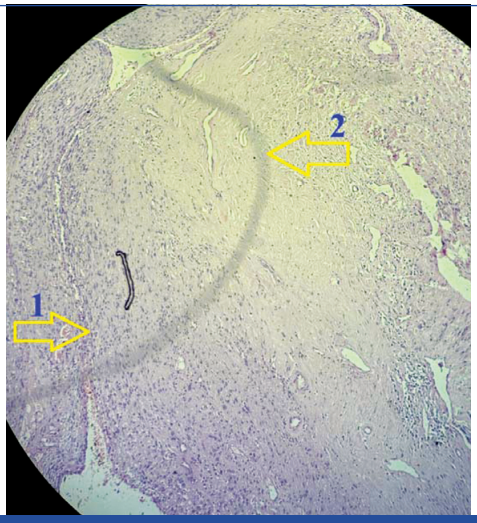
The patient was relieved from the pain and there was no Tinel and Lasegue's signs with normal sensations. On postoperative day 7, the patient reported mild pain at the suture site. Since the nerve remained intact and was not resected, there were no signs of foot drop or sensory disturbances such as tingling or numbness in the foot. He was discharged on the 7$^{th}$ postoperative day. At the third month follow-up, the patient was found recovering well with no signs of pain and resuming the normal routine with no sign of foot drop or any loss in sensation in the same limb. There was an



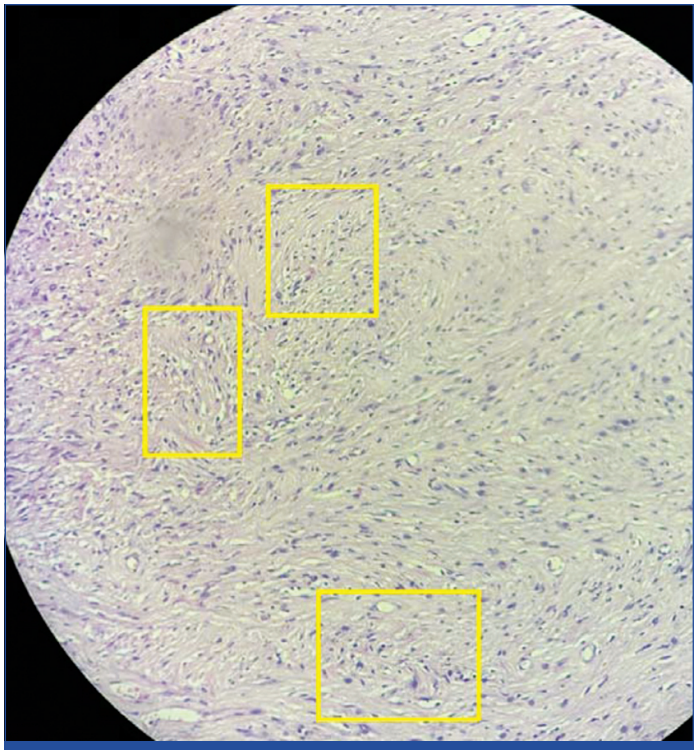

**[Table/Fig-3]:** Intraoperative image showing the adherent tumour to the underlying nerve: a) Tumour; b) Sciatica nerve adherent to tumour; c) Sciatica nerve; d) Tumour resected from nerve.



**[Table/Fig-4]:** Excised soft-tissue sarcoma over the posterior aspect of the left thigh measuring 6.0×4.5×1.5 cm.




**[Table/Fig-5]:** Haematoxylin and eosin staining of the specimen showing biphasic structures showing compact hypercellular Antoni: a) areas and myxoid hypocellular Antoni; b) areas. 1- Antoni A areas; 2- Antoni B areas.



**[Table/Fig-6]:** Haematoxylin and eosin staining of the specimen at 40x magnification. Yellow boxes showing Verocay bodies, with cells which are narrow elongated and wavy with tapered ends interspersed in collagen fibres.

improvement noted with a VAS of 3.The patient will be followed-up every three months until one year and six monthly thereafter till second year, followed by yearly follow-up till fifth year.

## DISCUSSION

Schwannomas are common benign tumours arising from the schwann cells, with more than half of these commonly noted in the head and the neck [1]. Schwannomas are a type of neurofibromatosis, but it has different physical and clinical presentations from neurofibromatosis type 1 and type 2. Though, a few clinical overlaps can be noted [2]. Schwann cell neoplasms in familial presentations are characterised by the presence of a heterozygous SMARCB1, NF2, LZTR1 and tumour suppressor gene mutations. These genetic associations are also observed in a few sporadic cases [3,4]. Duration of clinical symptomatic presentation can range from 3 to 240 months, with 33 months as average diagnostic time period, which is on a decreasing trend [1]. Schwannomas are common in all age groups. A recent review of literature reported age range between 21-79 years; however, it is more common in the age group of 30 to 50 years with no specific gender preference [1,5,6].

Schwannomas are very rare in extremities, and sciatic schwannomas account for <1% of the all the schwannomas [1,7]. Many cases have been reported in extremities and peripheral nerves; however, sciatic schwannomas are rarely reported [2]. A research report in 2023, reported a total of 33 cases diagnosed with sciatic schwannomas [1]. Sciatic schwannomas are encapsulated and occur both in solitary and multiples. These are associated with severe prolonged pain, which can be associated with numbness, tingling and weakness depending on the affected nerves. The associated pain is usually rated 8 or more on a VAS rating, the similar was observed in this case [2]. Sciatic schwannomas can be misdiagnosed or undiagnosed for a number of varied reasons and be managed on the basis of symptomatic presentation, which in most cases is pain [1].

Delayed diagnosis or misdiagnosis can be associated with adverse outcomes such as permanent or irreversible damage to organs involved and impaired functionality [7,8]. MRI can be helpful in diagnosing these tumours, which shows a peripheral hyperintense rim and central low intensity, and split fat sign, which are characteristic

features of schwannoma. A positive Tinel sign is also marked as a crucial factor in the diagnosis [1,5,9-11]. Histopathological analysis of schwannoma tumour has distinct features such as presence of Verocay bodies, aligned in rows enclosing the spindle shaped nuclei which are separated by acellular zones. Also, the presence of Antoni type A and type B cells can be noted [1,5]. A similar histopathology finding was noted in this case, with a long history. These are slow growing tumours with some cases reporting a period as long as 10 years to conclude the final diagnosis [1]. Most of the sciatic schwannomas are solitary presentations; however, there are cases reporting the presence of multiple or clustered appearance [1,5,9]. Surgical resection is the most common recommendation for the management of sciatic schwannoma, though it is based on symptomatic recommendation [2,5], with necessary precautions such as careful excision with precise skills to ensure less or no damage to the adjacent tissue structures, avoiding longitudinal dissections, which might carry a chance of disrupting vascular supply. In cases of small tumours, a vigilant extra capsular resection is recommended [12].

## CONCLUSION(S)

Sciatic schwannoma can be a diagnostic challenge with delayed or misdiagnosis, attributed to the associated pain mimicking the sciatic pain. These are commonly associated with prolong sciatalgia. Cases with prolong pain and sciatalgia should be noted with a suspicion for Sciatic schwannoma with surgical resection as preferred treatment.

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