Case Report

# Sciatic schwannoma: A rare entity

**Sanjay Kumar, Megha Ralli, Jyoti Sharma, Pradeep Sansanwal, Gurpreet Singh**

Department of Pathology, Pt. B.D. Sharma, PGIMS, Rohtak, Haryana, India

## ABSTRACT

Schwannomas are one of few truly encapsulated neoplasms of human body. These are composed of Schwann cells. In general, schwannomas have a predilection for the head, neck, mediastinum, and retroperitoneal regions, sciatic nerve involvement is rare. The patient presents with pain in hip region radiating along the lateral side of leg, may be associated with other neurological signs and symptoms. Treatment of symptomatic schwannomas consists of marginal excisional resection with emphasis on identification of the nerve fascicles and excision of the tumor stalk. Here, we present a case of sciatic schwannoma in a young female, which was diagnosed on histopathology.

**Key words:** Pelvic pain, schwannoma, sciatic

## INTRODUCTION

Schwannomas are the most common benign tumors of the peripheral nervous system, which are encapsulated and composed of Schwann cells. Involvement of the sciatic nerve is rare and represents less than one over 100 cases. The nerve might be affected by the tumor all along its course.[1] Schwannomas are most commonly occur in adults between 20 and 50 years of age. Their symptomatology usually mimics sciatic pain due to herniated disc.[2] Their diagnosis can be delayed for a long period of time, usually symptoms being attributed to lumbo-sacral degenerative pathology.[3] From all the benign sciatic tumors, 60% are represented by neurofibroma and 38% are schwannomas, rest having other histological types.[4] Unlike neurofibromas, schwannomas do not transverse through the nerve but remain in the sheath lying on the top of the nerve.[5] In general, schwannomas have a predilection for the head, neck, mediastinum, and retroperitoneal regions.[6] They are usually solitary lesions, but multiple lesions can be seen. Multiple schwannomas can be found in patients with neurofibromatosis type II. Here we present a case of sciatic schwannoma in a young female, which was diagnosed on histopathology.

**Address for correspondence:** Dr. Megha Ralli,
30/32 West Patel Nagar, New Delhi - 110 008, India.
E-mail: drmegharalli@gmail.com

**Access this article online**

Quick Response Code:

Website: www.ccij-online.org

DOI: 10.4103/2278-0513.169113

## CASE REPORT

A 23-year-old female presented in orthopedic outpatient department with posterior hip pain since 1 year. Her physical examination was within normal limits. Her ultrasonography revealed a large heteroechoic mass lesion of size 116 mm × 104 mm showing flow on color Doppler and a few cystic or necrotic areas seen in pelvic region and seemed to extend to pelvic bone. A contrast-enhanced magnetic resonance imaging (CEMRI) was advised for further evaluation. The CEMRI revealed a lesion involving sacrum with associated soft tissue mass which was hypointense on T1-weighted and heterogeneously hyperintense on T2-weighted images, showing multiple cystic lesions with fluid-fluid level. The soft tissue component was extending in presacral area and pushing rectum laterally. Radiologically and clinically, provisional diagnosis of chondrosarcoma giant cell tumor and aneurysmal bone cyst were made associated with sacral canal stenosis. Further, a biopsy was done to confirm the diagnosis.

On gross examination, we received multiple gray white soft tissue pieces measuring 1 cm × 0.8 cm × 0.6 cm. Microscopic examination of the lesion revealed densely packed spindle cells arranged in Antoni type A and Antoni



**Cite this article as:** Kumar S, Ralli M, Sharma J, Sansanwal P, Singh G. Sciatic schwannoma: A rare entity. Clin Cancer Investig J 2015;4:720-2.

type B areas [Figure 1]. The Antoni type A areas were composed of spindle cells arranged in palisading fashion or in organoid arrangement (Verocay bodies). The Antoni type B areas showed tumor cells separated by abundant edematous stroma [Figure 2]. Mitosis was < 2/10 hpf. On immunohistochemistry, these tumor cells were S-100 positive [Figure 3], thus confirming the neural origin of tumor. Hence, a final diagnosis of schwannoma was made.

The patient underwent surgical excision and is on regular follow-up.

## DISCUSSION

Schwannomas are one of the few truly encapsulated neoplasms of human body and is almost solitary (unless seen as a component of Recklinghausen disease type II).[7] They are also known as neurilemomas and are a benign peripheral nerve sheath tumor composed of well-differentiated Schwann cells.[8] One of the uncommon origins of the schwannomas is sciatic nerves, and they are more common at the females who are in the second to fifth decades.[9] Neoplastic involvement of the sciatic nerve has been reported in soft tissue malignancies, sarcoidosis, lymphoma, and infiltrating intermuscular lipoma, but sciatic schwannomas are rare.[10]

They generally arise in the sensory as opposed to the motor portion of nerves but can arise in association with any peripheral nerve and along the flexor surfaces of the extremities.[11] The nerve of origin can be demonstrated in the periphery, flattened along the capsule but not penetrating the substance of the tumor.[12] Treatment of symptomatic schwannomas consists of marginal excisional resection with emphasis on the identification of the nerve fascicles and the excision of the tumor stalk, thus preventing recurrence while preserving the parent nerve. Recurrence is rare, even when the excision is incomplete. Few studies mention recurrence following excisional resection.[8,12] Since it is a benign neoplasm that only recurs locally, every attempt should be made to preserve the nerve.[12]

Clinically, the patient presents with pain in hip region radiating along the lateral side of leg may be associated with other neurological signs and symptoms.[7] Our patient presented with pelvic pain which is rare and can be easily misdiagnosed on physical examination. There were no features of neurofibromatosis II in our patient. Most common presentation is sciatica which was observed by Chavan and Kullolli and Naik *et al*.[2,13] Rhanim *et al*. diagnosed sciatic schwannoma in patient presenting with right side lower leg and foot pain. The MRI findings in their case were similar to that in our case.[3] Ghaly reported a posterior tibial nerve schwannoma case who had been misdiagnosed as psychosomatic disorder for 10 years,[14] and also there are other case reports which

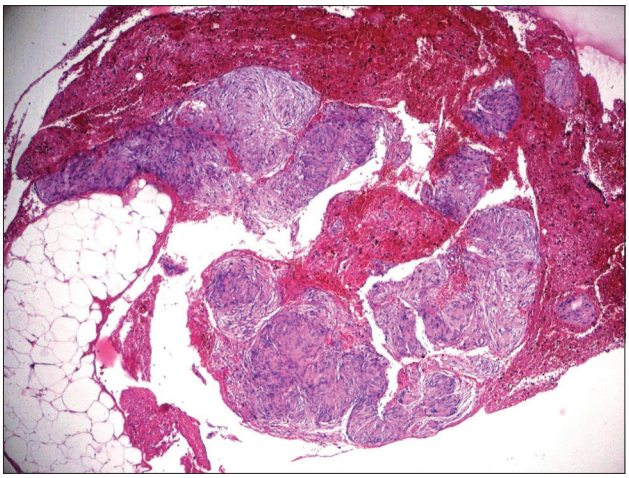

**Figure 1:** Densely packed spindle cells showing hypercellular (Antoni A) and hypocellular (Antoni B) areas (H and E, ×40)

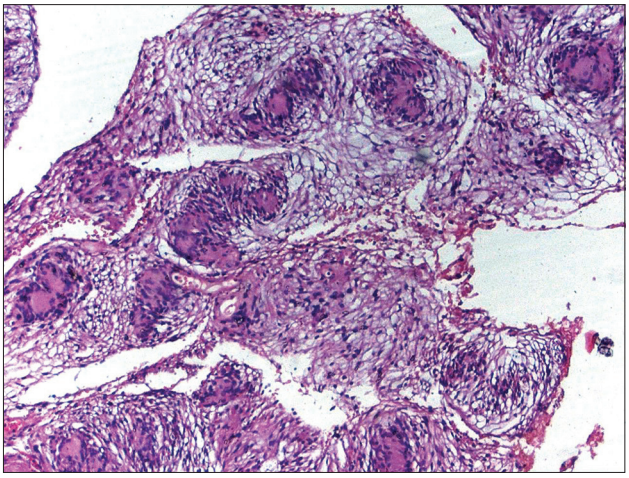

**Figure 2:** Antoni type B areas showed tumor cells separated by abundant edematous stroma with Verocay bodies (H and E, ×100)

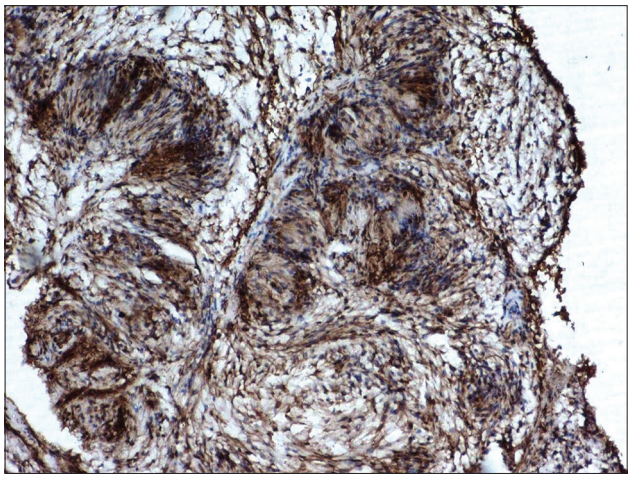

**Figure 3:** S-100 positivity in spindle-shaped tumor cells (immunohistochemistry, ×100)

exists mid-thigh sciatic nerve which mimics plantar neuropathy foot pain.[9]

Conventional schwannomas are composed of two organized cell patterns: Antoni A and Antoni B. These patterns are present in all the cases of conventional schwannoma in varying proportions. The Antoni A pattern is more organized with a palisaded appearance and an elongated, spindle-shaped cellular nucleus. A characteristic appearance in the Antoni A pattern is the Verocay body, which is a circular coalescence of elongated nuclei. The Antoni B pattern is characterized by a diffuse cellular structure with rounded nuclei.[7] This palisaded arrangement is not unique to schwannoma. It can also occur in leiomyoma, leiomyosarcoma, gastrointestinal stromal tumor, calcifying aponeurotic fibroma, and even in nonneoplastic smooth muscle. The rare occurrence of plexiform areas in schwannoma may cause them to be mistaken for neurofibroma. Most of these plexiform schwannomas are found superficially in the dermis or subcutaneous tissue, but they can also be deep seated.[15]

## CONCLUSION

Sciatic schwannoma, though rare, should be kept in mind while dealing with patients presenting with hip pain and pelvic mass. Schwannoma is a benign neoplasm and simple excision is the required treatment. Hence, thorough clinical, radiological, and histopathological examination should be done for making proper diagnosis and approaching to correct diagnosis would prevent unnecessary treatment options such as chemotherapy and radiotherapy.

**Financial support and sponsorship**
Nil.

**Conflicts of interest**
There are no conflicts of interest.

## REFERENCES

1. Rekha A, Ravi A. Sciatic nerve schwannoma. Int J Low Extrem Wounds 2004;3:165-7.
2. Chavan D, Kullolli G. Sciatica secondary to sciatic nerve schwannoma – A rare case report. Int J Pharm Biol Sci 2014;5:653-7.
3. Rhanim A, Zanati R, Mahfaud M, Berrada MS, Yaacoubi ME. A rare cause of chronic sciatic pain: Schwannoma of the sciatic nerve. J Clin Orthop Trauma 2013;4:89-92.
4. Gorgan M, Sandu AM, Bucur N, Neacsu A, Pruna V, Voina A, *et al*. Sciatic Nerve schwannoma: A case report. Rom Neurosurg 2008;XV:27-31.
5. Haspolat Y, Ozkan FU, Turkmen I, Kemah B, Turhan Y, Sarar S, *et al*. Sciatica due to schwannoma at the sciatic notch. Case Rep Orthop 2013;2013:510901.
6. Linder J. Diseases of the skin and connective tissues. In: Damjanov I, editor. Anderson's Pathology. 10th ed. St. Louis: Mosby; 1996. p. 2508.
7. Çakmak G, Ulusal AE, Bilgiç S, Tuncay C. Sciatic schwannoma – Rare cause of sciatica: A case report. J Clin Anal Med 2015;6:525-7.
8. Wilson AG Jr, Hofmeister EP, Thompson M. Recurrent schwannoma with bony erosion of the distal middle finger. Am J Orthop (Belle Mead NJ) 2007;36:E37-9.
9. Kralick F, Koenigsberg R. Sciatica in a patient with unusual peripheral nerve sheath tumors. Surg Neurol 2006;66:634-7.
10. Feinberg J, Sethi S. Sciatic neuropathy: Case report and discussion of the literature on postoperative sciatic neuropathy and sciatic nerve tumors. HSS J 2006;2:181-7.
11. Graham DI, Lantos PL, editors. Tumours of the Nervous System: Greenfield's Neuropathology. London: Arnold; 2002. p. 898-9.
12. Strickland JW, Steichen JB. Nerve tumors of the hand and forearm. J Hand Surg Am 1977;2:285-91.
13. Naik T, Premkumar A, Naik CS, Hulegar AA. Rare case of sciatic schwannoma. Asian J Neurosurg 2015;10:234-5.
14. Ghaly RF. A posterior tibial nerve neurilemoma unrecognized for 10 years: Case report. Neurosurgery 2001;48:668-72.
15. Agaram NP, Prakash S, Antonescu CR. Deep-seated plexiform schwannoma: A pathologic study of 16 cases and comparative analysis with the superficial variety. Am J Surg Pathol 2005;29:1042-8.