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CASE REPORT

A Large Schwannoma of Sciatic Nerve - A Case Report

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Abstract

Schwannoma, a benign tumor of the peripheral nerve sheath, though not very uncommon but its location in the sciatic nerve is relatively rare. Patients generally present with radiculopathy type pain radiating to the leg. These patients need exclusion of other common entities on clinical and radiological examination, before considering a differential diagnosis of sciatic nerve schwannoma. These patients generally lack complaint of low backache and has normal appearing lumbar spine on MRI. Since the lesion in the index case was located in the popliteal fossa, Becker's cyst needed exclusion. We report a rare case of sciatic nerve schwannoma in a 40-year-old female who presented with pain and soft tissue swelling in popliteal fossa of long duration and discuss the preoperative management. The patient underwent uneventful surgical resection along with preservation of lower limb motor and sensory function.

Keywords: Schwannoma, Sciatic nerve, Peripheral nerve tumor.

Introduction

Schwannoma is the most common benign peripheral nerve sheath tumor. It usually arises from cutaneous nerves of head and neck region, as well as from cranial nerves. The most common variant however is the acoustic neuroma of the eighth cranial nerve[1-3]. Schwannoma of the sciatic nerve is uncommon, accounting for 1% of all schwannomas, and since its symptoms mimic sciatica, there is often a delay in diagnosis[3-5].

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Case Report

A 40-year-old female presented with persistent dull aching pain of the left lower limb since two years, which got aggravated during walking. She was prescribed analgesics, physiotherapy and neuropathic pain related medications, without any significant benefit. On local examination, an ill-defined mass was noted at the centre of the left popliteal fossa, which on palpation was firm and smooth with mobility restricted to the transverse plane, and there was no fluctuation or fluid thrill/ bruit. Neurological assessment did not yield any obvious sensory or motor deficit in the affected limb.

Ultrasound revealed a solid, well defined, heterogeneously hypoechoic space occupying lesion seen in the left popliteal fossa measuring approximately 50x40x41mm that was seen compressing the vessel and nerve anteriorly (Fig.1). There was no calcification or vascular encasement. Magnetic resonance imaging (MRI) showed a solid, fusiform, well-defined mass measuring 56x43x41 mm in the left popliteal fossa located between the semimembrinosus and biceps femoris muscle. The sciatic nerve however could not be identified separately from the lesion (Fig. 2-3). Fine needle aspiration cytology (FNAC) was suggestive of schwannoma (Fig.4).

Left sciatic nerve was explored through a lazy S incision at the popliteal fossa along the vertical limb axis. The tumor was encapsulated and was taken out enmass by opening the epineurium, while preserving the sciatic nerve fascicle. (Fig. 5-7).

Histopathological examination showed an encapsulated spindle cell tumor with cells are arranged in interlacing fascicles of spindle shaped cells having minimally pleomorhic fusiform nuclei with wavy eosinophilic cytoplasm. Antoni A and Antoni B areas along with Verocay bodies confirmed a benign nerve sheath tumour, favouring schwannoma (Fig. 8).

During follow-up patient had significant pain relief without any neurologic deficit (Fig. 9).

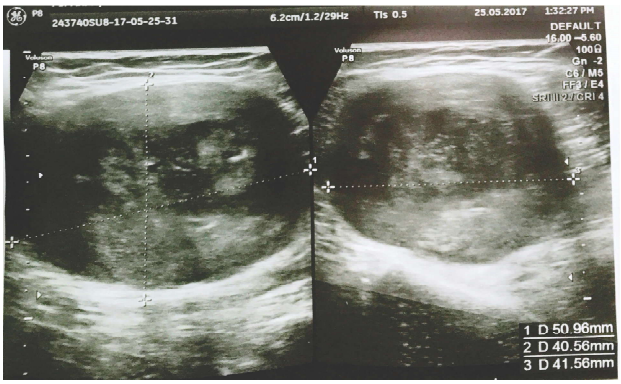

Fig. 1 The ultrasound imaging shows a solid well defined heterogeneously hypoechoic space occupying lesion seen in left popliteal fossa.

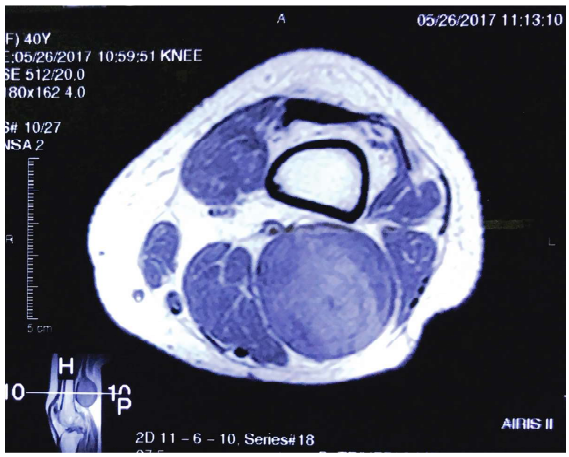

Fig. 2 T1 weighted MRI images in transactional view of left popliteal fossa showing heterogeneously hypointense lesion is T1W.

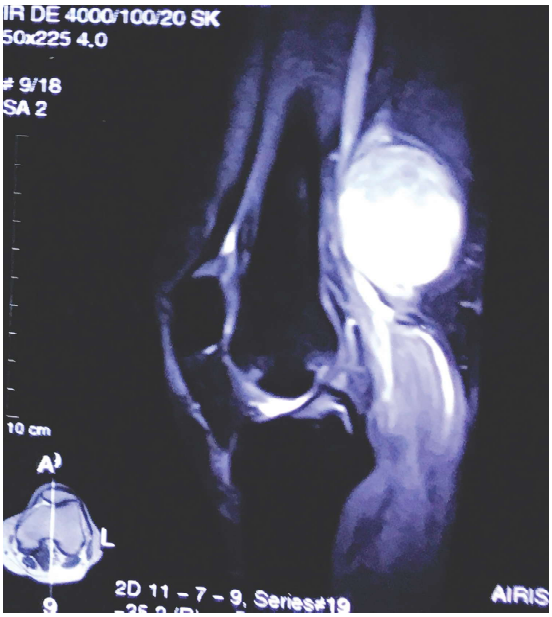

Fig 3: T2Weighted /STIR MRI imaging showing heterogeneously hyperintense with few area almost similar to fluid intensity (like necrosis) in left popliteal fossa.

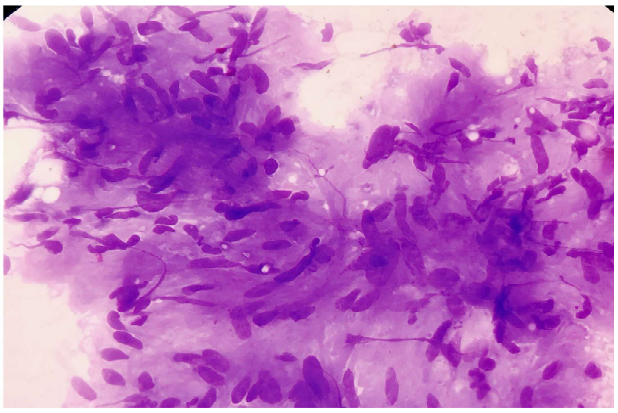

Fig. 4 FNA smear shows fragment of spindle shaped cells present in a fibromyxoid stroma. Single scattered cells are sparse. Cells have spindle shaped nuclei with tapering ends and moderate amount of fibrillary cytoplasm. No significant pleomorphism increased mitosis or necrosis is noted. (MGG stain, 400 x magnifications).

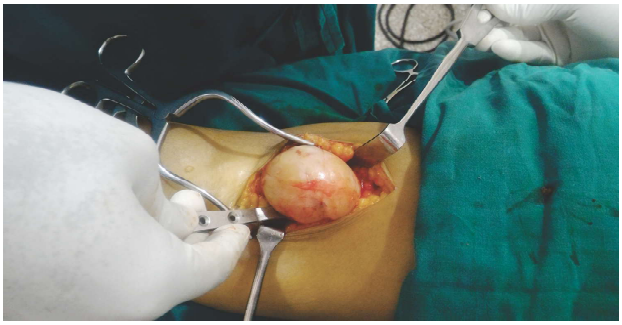

Fig. 5 Intra operative view, the tumor popped out from sciatic nerve.

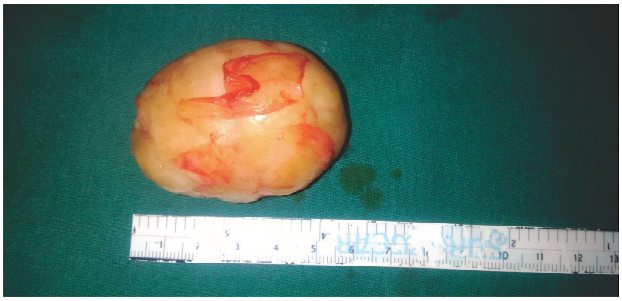

Fig. 6 After complete excision tumor in anteroposterior view.

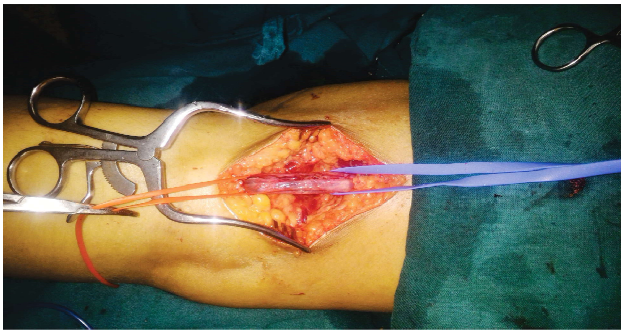

Fig. 7 Intraoperative picture left popliteal fossa showing intact Sciatic nerve with fascicle in continuity.

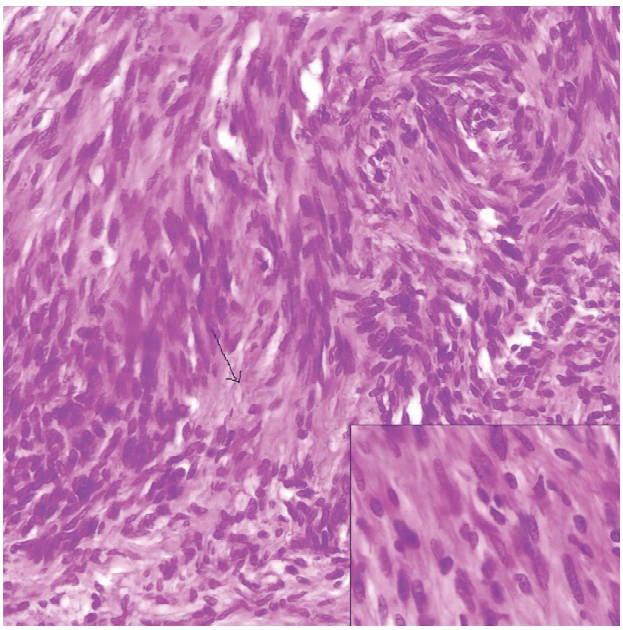

Fig. 8 On Histopathologial examination: section revealing an encapsulated spindle cell tumor, composed of hyper and hypocellular areas. Cells are arranged in interlacing fascicles of spindle shaped cells. Nuclear palisading forming Verocay bodies (arrow) is seen. Inset, cells have minimally pleomorhic fusiform nuclei with wavy eosinophilic cytoplasm. No necrosis and increased mitotic activity are seen. (hematoxylin eosin staining, magnification 400x, inset 1000x).

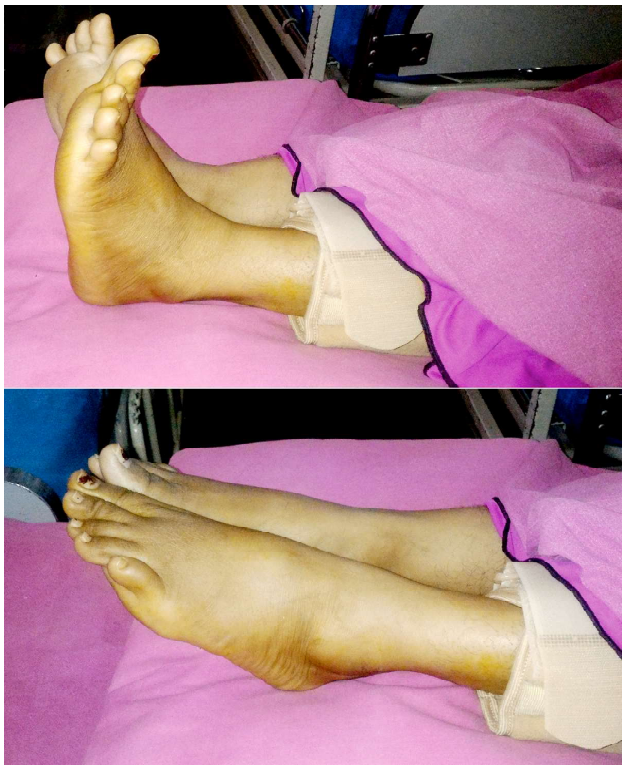

Fig. 9 One week post operative follow-up picture of lower limb showing no motor deficit comparing with contralateral side.

Discussion

Schwannoma is the most common benign tumour of the nerve sheath.[1] It usually involves the main trunk of the nerve, and found more often in the upper extremity. Affection of the nerves of the lower extremities, like the tibial nerve, is uncommon while involvement of the sciatic nerve is rare, with an incidence less than one in100 cases[1-3].

The commonest age of affection is 20-50 years, similar to the index case, without any gender predilection.[1] Schwannoma usually occur as a solitary lesion, while rarely it can occur as multiple lesions, in which case a differential diagnosis of neurofibromatosis, in terms of signs and symptoms with genetics alterations, need exclusion[5-6]. Majority of the lesions remain benign, with rare cases been reported to have a malignant transformation[2-6]. Clinically, a patient of sciatic nerve schwannoma presents with radicular pain, which more often than not mimics other lumbar pathology, till subsequently confirmed[6]. Detailed history and clinical examination, keeping all differential diagnosis in mind, in view of the long history of radicular pain, without any neurological deficit which is poorly controlled by analgesics and supportive therapy, remains the cornerstone to successful diagnosis of this rare entity. Ultrasound in combination with MRI of the spine and the course of the sciatic nerve confirms the clinical suspicion in all such cases[7]. Final confirmation rests with histopathological examination of the surgical sample.

In contrast to the primary differential diagnosis viz. neurofibromas, schwannomas are usually solitary, encapsulated, well-circumscribed tumors, located eccentrically on the nerve roots, and originates mostly from the proximal nerves or spinal nerve roots. On the hand neurofibromas are multiple in number, are unencapsulated, and cause fusiform enlargement of the distal nerves[1]. Schwannomas arise from a single fascicle and tends to displace other fascicles within the nerve sheath circumferentially as they grow in size, in contrary to neurofibromas that arise from perineural fibrocytes, and have cells that share many histological features with Schwann cells[1]. Schwannomas usually originate from the sensory fascicles in mixed nerves, while neurofibromas arise from motor parts. In neurofibromas fascicular bundles are more intimately involved, unlike schwannomas[1]. Other rare tumors of the nerve that warrants consideration are intra-nervous lipomas, hemangiomas of Schwann's sheath and neurofibrolipomas. Mucoid cysts are another rare

benign tumor-like lesions arising from the peripheral nerves near joints with rapid growth, that needs exclusion[7,8].

Surgical excision constitutes the treatment of choice. Schwannomas can be enucleated while preserving nerve continuity,[2,3] as reported in the present case. The sciatic nerve fascicles may be incorporated with the tumor capsule, which can be preserved using magnification and microsurgical techniques, and occasionally may need sacrifice of some fibres for oncological clearence[3,8].

Though schwannoma remains a rare entity in the sciatic nerve but clinical suspicion in a patient with long standing leg pain without any obvious lumbar pathology, combined with ultrasonography and MRI helps to exclude other pathology in this vicinity. However, final confirmation rests with histopathological examination.

Conflicts of interest

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

References

1. Kralick F, Koenigsberg R. Sciatica in a patient with unusual peripheral nerve sheath tumors. Surg Neurol. 2006; 66:634-637
2. Rekha A, Ravi A. Sciatic nerve schwannoma. Int J Low Extrem Wounds. 2004;3:165–167
3. Nawabi DH, Sinisi M. Schwannoma of the posterior tibial nerve: the problem of delay in diagnosis. J Bone Jt Surg Br. 2007;89:814-816
4. Ghaly RF. A posterior tibial nerve neurilemoma unrecognised for 10 years: case report. Neurosurgery. 2001;48:668–672
5. Topsakal C, Akdemir I, Tiftikci M, Ozercan I, Aydin Y. Malignant schwannoma of the sciatic nerve originating in a spinal plexiform neurofibroma associated with neurofibromatosis type 1-case report. Neurol Med Chir (Tokyo). 2001;41:551-555
6. Huang JH, Simon SL, Nagpal S, Nelson PT, Zager EL. Management of patients with schwannomatosis: report of six cases and review of the literature. Surg Neurol. 2004;62:353-361
7. Padua L, Commodari I, Zappi M, Pazzaglia C, Tonali PA. Misdiagnosis of lumbar-sacral radiculopathy: usefulness of combination of EIVG and ultrasound. Neurol Sci. 2007;28:154-155
8. Lamond RC, Fox B. Management of peripheral nerve tumors. Limb Preservation. 2004:11