Cash Report

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Sural nerve schwannoma: a case report

Chandrakant R. Gharwade*, Al-Iqyan Fidvi J., Ameya Bindu, Shamol Banerjee, Pranav G. Jawade

Department of Plastic Surgery, St. George Hospital (under) Grant Govt. Medical College & Sir J.J Group of Hospitals, Mumbai, Maharashtra, India

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*Correspondence:

Dr. Chandrakant R. Gharwade, E-mail: crgharwade@gmail.com

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ABSTRACT

The differential diagnosis for a swelling on the posterior aspect of lower leg is very few. The least of all suspected is a Benign peripheral nerve sheath tumor that too a schwannoma. Though schwannomas can be found in any part of the body especially with a predilection for head and neck, on the contrary they are extremely rare in the extremities especially the lower extremity. Here we present one of the few cases of a solitary schwannoma, confirmed on Histopathology, arising from the sural nerve of the right leg which did not present with any other symptoms even though itself being of a considerable size. The tumor was successfully removed with no postoperative complications and recurrence on follow up.

Keywords: Sural Nerve, Schwannoma, Asymptomatic, Solitary, Uneventful excision, No neurological deficit

INTRODUCTION

A solitary swelling over the posterior aspect of the leg has limited differential diagnosis. The first clinical diagnosis that springs into the mind on examining a nonsymptomatic swelling is either a ganglion or a lipoma or even a fibroma.¹ Tumors of the soft tissue can arise from anywhere in the body. The soft tissues consist of adipose tissue, fibrous tissue, musculature, vascular structures, and peripheral nerves.2 'Benign Peripheral Nerve Sheath Tumors' include 'Schwannomas' (PNST) and 'Neurofibromas'. Schwannomas are benign peripheral nerve sheath tumors composed exclusively of 'Schwann Neurofibromas followed by schwannomas (neurilemmomas), are the commonest benign peripheral nerve sheath tumors in the lower extremity.³ Sural nerve schwannoma is exceptionally rare. This study presents an unusual case of solitary asymptomatic schwannoma originating from the sural nerve in an elderly female.

CASE REPORT

A 60 year- old female patient presented with history of a slowly growing, swelling with dull aching pain over the posterolateral aspect of the distal 1/3rd of right leg since 2 years without any diurnal variation in size of the swelling. Examination revealed a vertically oriented oval approximately 6 x 4 cm in dimensions, solitary, firm, non-tender mass, which was freely mobile in both horizontal and vertical directions. It was non-fluctuating & pulsatile. There was no motor or sensory deficit distal to the swelling and 'Tinel's sign' was absent. The patient's past medical and family history was insignificant. The patient had no similar swellings on any other part of the body. Preoperative sonography with color doppler revealed a heterogeneous well defined region which was present in the subcutaneous plane. It showed mild vascularity with RI > 0.8. There were few anechoic cystic areas and hyperechoic linear areas within. All these features suggested a possibility of a neurogenic tumor



Figure 1: Sural nerve schwannoma with distal neural continuity.

Patient was posted for 'exploration & excisional biopsy' under spinal anesthesia. Under tourniquet control, a vertical skin incision was taken over the swelling and with subcutaneous dissection it was observed that the tumor was in close proximity & along the sural nerve. The tumor and the proximal and distal portions of the affected nerve were exposed (Figure A and B). Under loupe magnification, it was observed that the tumor was arising from the nerve tissue itself and the nerve fibers were pushed to the periphery of the tumor. A longitudinal incision was carefully made in the epineurium. The epineural layers were gently peeled out until the shiny surface of the tumor was exposed. The entire tumor mass was subsequently shelled out in one piece without damage to the fascicles & was sent for histopathological examination. Post-operative recovery was uneventful with no neurological deficit.



Figure 2: Sural nerve schwannoma with proximal neural continuity.

Grossly, the smooth-surfaced tumor was yellow-white. Microscopically (Figure C and D), the tumor sections revealed a well circumscribed tumor comprised of hypercellular and hypocellular area (Antoni A and Antoni B). The individual tumor cells were spindle shaped with moderate amount of eosinophilic cytoplasm and oval to spindle shaped nuclei. Also seen are areas of cystic

degeneration and thick walled hyalinised blood vessels. There was no evidence of atypical or increased mitosis. These features confirmed the diagnosis of schwannoma.

After 1 year of follow up patient had normal examination of the ankle and foot. There was no recurrence of the tumor.

DISCUSSION

The sural nerve is a sensory nerve that lies close to the small saphenous vein and provides sensory innervation to the lateral surface of the foot and ankle. It is typically composed of two merging components. Its medial component is from the tibial nerve and lateral component from the lateral sural cutaneous nerve or common perineal nerve

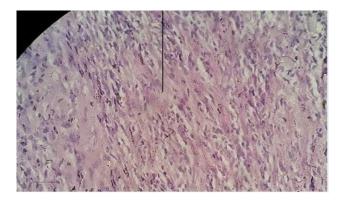


Figure 3: Hypercellular areas, Antoni A (Red) and Hypocellular, Antoni B (Blue).

The most common benign soft tissue tumor is a cystic hygroma (22%), followed by lipoma (17.2%) and hemangioma (11.9%). Of these, schwannoma was seen in 5% cases as shown in the studies of Dabak et al. 5



Figure 4: Nuclear palisades with verrucae bodies.

Schwannomas are benign slow-growing neoplasms that exhibit differentiation toward nerve sheath. Though schwannomas may arise anywhere, they are more common in the head and the neck region. Extremity schwannomas are quite rare. They have a predilection for growing in major nerves and hence affect the flexor aspects of the extremities.

Solitary schwannoma originating from sural nerve is extremely rare; only few cases have been described in literature. 4,6,7 The most common complain associated with them is that the tumor present is with a palpable mass and symptoms usually occur with compression of surrounding structures or dysfunction of the nerve. It is difficult to diagnose the type of benign peripheral nerve sheath tumor from ultrasonography alone and especially if the status of the origin nerve cannot be commented on.^{8,9} The closest differential to a BPNST on USG is a ganglion cyst.9 Differentiation of schwannomas from neurofibromas is of a great surgical importance because schwannomas can be easily shelled out while preserving nerve contiguity in contrast to neurofibromas where the nerve is incorporated within the mass, and the required surgery includes resection and subsequent nerve grafting to preserve and restore function. As being situated in lower third of leg, swelling of a size approximately 6 x 4 cm is considerable as a large size & there being a very little room for space expansion, any mass along the nerve without any neurological symptoms is a very uncommon finding.

Also as suggested by Kim et al that removal of schwannoma carried a risk of post-operative neurological deficit because of damage to fascicles. But in the present case scenario, the fascicles were all bundled up at the periphery and were easily and safely dissected from the encapsulated tumour, with the result that the patient had no neurological deficit in the postoperative period.

In conclusion, we thus present a rare case report of a solitary asymptomatic schwannoma originating from the sural nerve in a 60 years old female patient. Clinicians should consider schwannoma as a possible diagnosis for a well-defined, oval, subcutaneous mass in the posterior aspect of the lower leg and asserting the notion of an approach with discretion for diagnosis of swellings in these areas.

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institutional ethics committee

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