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Schwannoma Of Lateral Sural Cutaneous Nerve: A Rare Case

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ABSTRACT

INTRODUCTION:

Peripheral nerve sheath tumors (PNSTs) are extremely uncommon, with most of these tumors being benign. Schwannomas, which are benign tumors of the peripheral nerve sheath, are made up entirely of Schwann cells.

AIM AND OBJECTIVE:

To study about the rare finding of schwannoma of the lateral sural nerve in a patient that presented with pain and localized swelling over the right ankle

MATERIAL AND METHODS:

A 51-year-old female patient presented with complains of pain over right ankle to the orthopedic specialist clinic of Krishna Hospital, Karad. Examination and investigations revealed a painful mass surrounding the sural nerve. MRI diagnosed it to be a sural nerve tumor. Surgical excision followed by histopathological study confirmed the diagnosis. The following case report discusses this patient's presentation along with information about schwannomas and their frequency in the lower limb, recommendations for investigation and management.

RESULTS:

Solitary schwannoma arising from the lateral sural nerve is an extreemely rare finding. The most common complain associated with the tumour is that it presents as a palpable, painful mass over the posterolateral aspect of the ankle and the and associated neurological symptoms usually occuring due to compression of the nerve or the surrounding structures.

CONCLUSION:

Hence, clinicians must consider schwannoma as a possible diagnosis for a well defined, oval, subcutaneous mass in the posterior aspect of the lower leg and should approach it with discretion for diagnosis of swellings in these areas.

1. INTRODUCTION

A solitary swelling on the posterior aspect of the leg has a limited number of differential diagnoses, such as lipoma, neuroma, schwannoma, and neurofibroma. Peripheral nerve sheath tumors (PNSTs) are exceedingly rare, with most being benign. Schwannomas are one type of PNST, defined as slow-growing, benign neurogenic tumors composed exclusively of Schwann cells.

Neurofibromas, followed by schwannomas (neurilemmomas), are the most common benign peripheral nerve sheath tumors in the lower extremity. However, schwannomas of the sural nerve are exceptionally rare. The sural nerve provides sensory input to the lateral ankle and foot and is composed of two parts: the medial component from the tibial nerve and the lateral

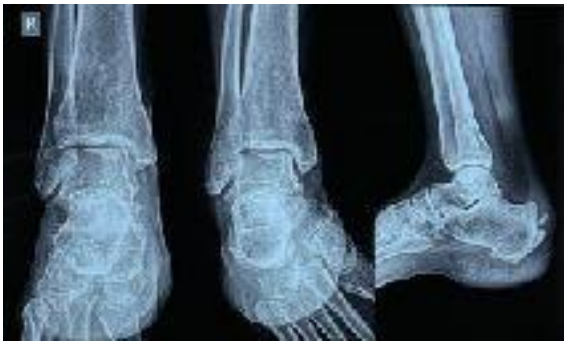
component from the common peroneal nerve.

While schwannomas can occur anywhere in the body, especially in the head and neck, they are extremely rare in the extremities, particularly the lower extremities. This study presents an unusual case of a solitary, asymptomatic schwannoma originating from the sural nerve in an elderly female

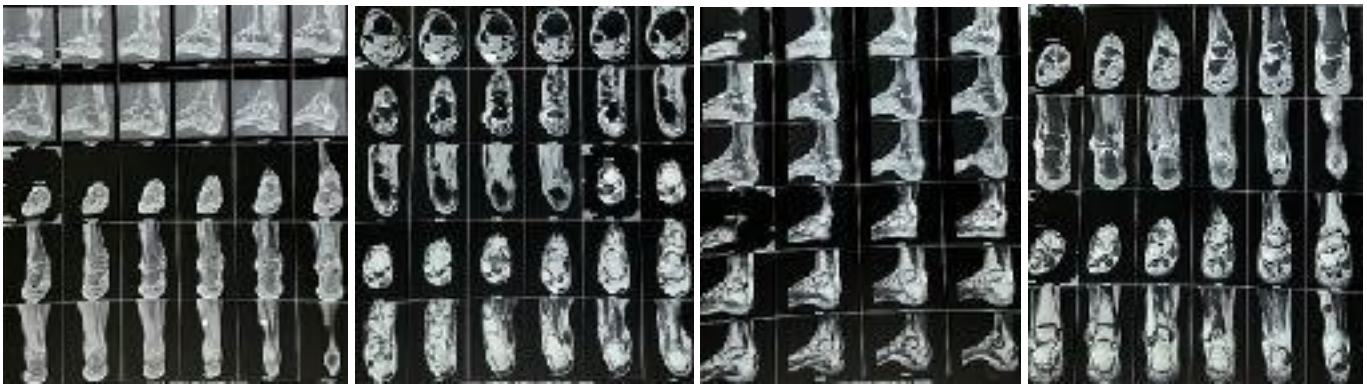
2. MATERIAL AND METHODS

A 60-year-old female patient presented with complaints of a slow-growing swelling accompanied by dull, aching pain on the posterolateral aspect of the distal third of her right leg, persisting for two years. Examination revealed a solitary, spherical swelling approximately 3 x 3 cm in size, soft in consistency, tender, and immobile. The swelling was non-fluctuating and non-pulsatile, with normal overlying skin and no discharging sinuses.

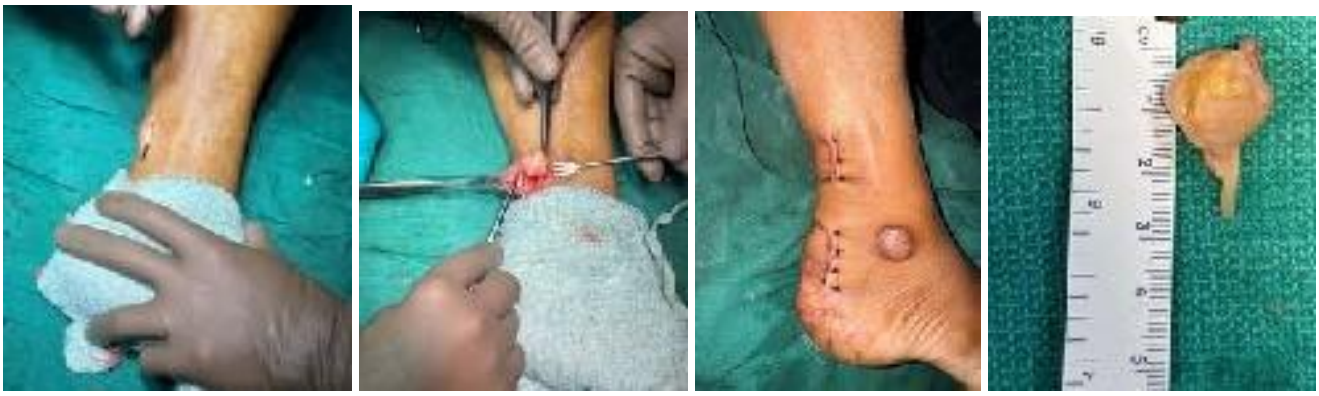
There was no motor or sensory deficit distal to the swelling, and no similar swellings were found elsewhere on the patient's body. For two years, the patient had been conservatively managed with NSAIDs without any further diagnostic investigations, under the assumption that the swelling was a calcaneal spur. At Krishna Hospital, we acknowledged her complaints and conducted further investigations, including an MRI and X-rays, to reach an accurate diagnosis and provide appropriate management.



Sagittal and axial images of MRI of the right knee showing hypointense signal on T1 images and hyperintense signal on T2 images of the mass



The patient underwent surgical excision of her schwannoma along with excision of the retro - calcaneal bursa with calcaneum spur excision under spinal anesthesia in ventral decubitus under tourniquet control. During the operation, we were able to individualize the nodule along close proximity to the lateral sural nerve by small direct approach. A longitudinal incision was then carefully made in the epineurium. The epineural layers were gently peeled out until the shiny surface of the tumour was exposed. The entire tumour mass was subsequently excised in one piece without damage to the fascicles.



Post-operative recovery was uneventful with no neurological deficit

The obtained tissue was sent for histopathological examination and the findings were as follows –

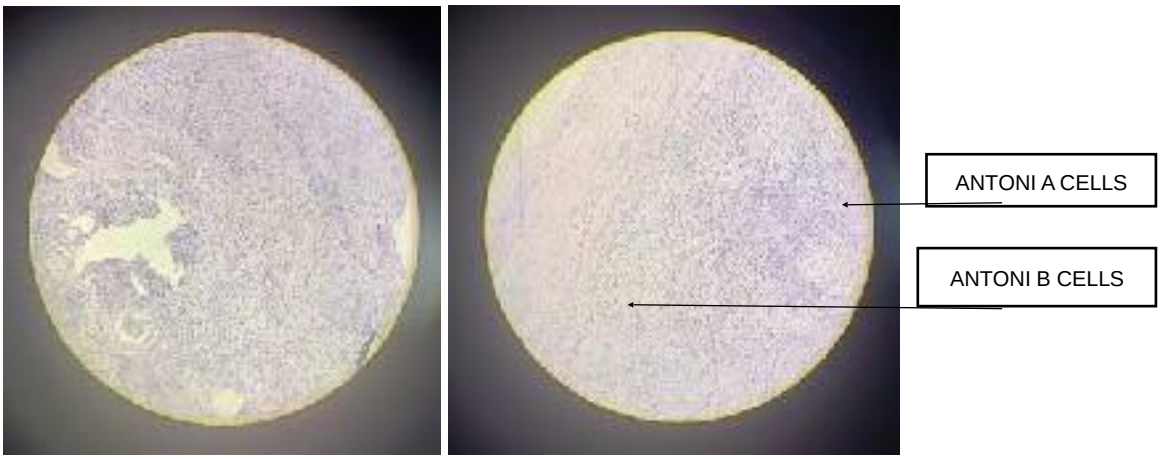
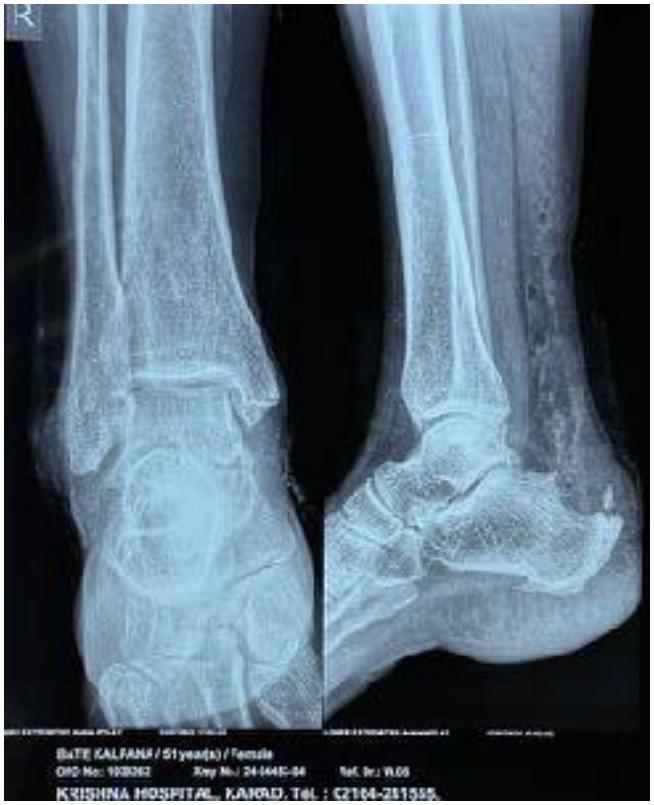
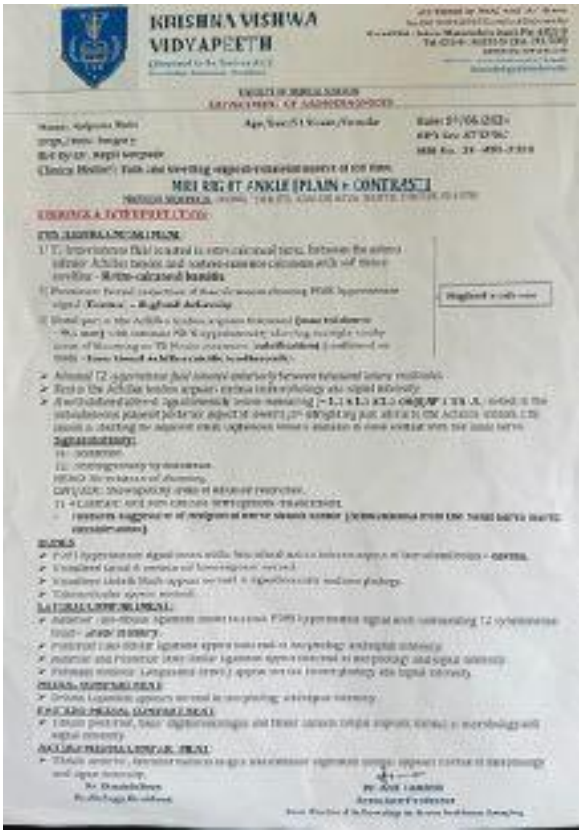


Fig 1: Spindle sharped neoplastic cells with many nuclei, without atypia and thick walled hyalinized vessels (100x h&e)Fig 2: Encapsulated tumor with Antoni A and Antoni B areas (100x h&e)





- The patient, along with Schwannoma of sural nerve was also associated with a painless, solitary, hard swelling over the posterior aspect of heel over the calcaneum which was diagnosed as Haglund Syndrome, as noted on the MRI.
- Haglund Syndrome consists of the following –

1) Retrocalcaneal Busitis
2) Haglund Deformity
3) Insertional Achilles Calcific Tendinopathy

3. RESULTS AND DISCUSSION

Schwannomas are the most common type of nerve tumors. Typically solitary, they predominantly occur in the head, neck, and upper extremities. The exact cause of schwannomas is not well understood, though some researchers suggest traumatic factors and autosomal dominant inheritance may play a role. These tumors can appear at any age but are most common between ages 30 and 60, with no gender preference.

The lateral sural cutaneous nerve, a branch of the common peroneal nerve, provides sensory innervation to the lateral surface of the foot and ankle. Schwannomas of this nerve are characterized by slow-growing swellings that form a capsule made up of the perineurium of the nerve bundle and the deepest layers of the epineurium, surrounding well-differentiated Schwann cells. These tumors may remain asymptomatic until they compress a nearby neurovascular bundle. The most common symptom is a palpable mass, with other symptoms arising from the compression of surrounding structures or nerve dysfunction.

Distinguishing schwannomas from neurofibromas is crucial because schwannomas can be easily enucleated while preserving the nerve, whereas neurofibromas, which incorporate the nerve, require resection and subsequent nerve grafting to maintain nerve function. Radiographic investigations for schwannomas include x- rays to check for bony involvement, ultrasonography to identify a solid, sharply delineated, ovoid, hypoechoic homogeneous mass, and MRI. On MRI, schwannomas appear isointense or hypointense relative to skeletal muscle on T1-weighted images and show heterogeneous hyperintensity on T2-weighted images. Postcontrast enhancement on T1-weighted images is important, often revealing a well-defined mass with a capsule, indicative of a target sign.

The preferred treatment for schwannomas is microscopic enucleation, which has been associated with good functional outcomes in 90% of cases and no pain in 80% of cases. Complete resection minimizes the risk of recurrence. Intraoperative nerve stimulation can help differentiate functional and nonfunctional fascicles for more accurate enucleation. In one case, the patient reported no pain after a four-year follow-up.

4. CONCLUSION

This case report explores patients' clinical manifestations of a lower extremity schwannoma. Though rare, in patients with increasing lateral leg pain with a found tumor, a sural nerve tumor should be on the physician's differential.

A thorough clinical examination completed by an MRI is a huge help in diagnosis. So, clinicians should consider schwannoma as a possible diagnosis for a well-defined, oval, subcutaneous mass in the postero-lateral aspect of the knee.

Written informed consent was obtained from the patient for publication of this paper and the accompanying images

REFERENCES

[1] Knight D.M., Birch R., Pringle J. Benign solitary schwannomas: a review of 234 cases. J. Bone Joint Surg.Br. 2007 Mar;89(3):382–387. doi: 10.1302/0301-620X.89B3.18123. PMID: 17356155. [PubMed] [CrossRef] [Google Scholar]

[2] Kim D.H., Murovic J.A., Tiel R.L., Moes G., Kline D.G. A series of 397 peripheral neural sheath tumors: 30-year experience at Louisiana State University Health Sciences Center. J. Neurosurg. 2005 Feb;102(2):246–255. doi: 10.3171/jns.2005.102.2.0246. PMID: 15739552. [PubMed] [CrossRef] [Google Scholar]

[3] Giannestras N.J., Bronson J.L. Malignant schwannoma of the medial plantar branch of the posterior tibialnerve (unassociated with von Recklinghausen's disease). A case report. J. Bone Joint Surg. Am. 1975 Jul;57(5):701–703. PMID: 807584. [PubMed] [Google Scholar]

[4] Gelpi E., Vicente-Pascual M. Clinical Neuropathology image 1-2017: incidental schwannoma of the posterior root. Clin. Neuropathol. 2017;36(1):3–4. doi: 10.5414/NP301010. 2017 Jan. PMID: 27966428; PMCID: PMC5312171. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

[5] Nawabi D.H., Sinisi M. Schwannoma of the posterior tibial nerve: the problem of delay in diagnosis. J. Bone Joint Surg. Br. 2007 Jun;89(6):814–816. doi: 10.1302/0301-620X.89B6.19077. PMID: 17613510. [PubMed] [CrossRef] [Google Scholar]

[6] Schweitzer K.M., Jr., Adams S.B., Jr., Nunley J.A., 2nd Multiple schwannomas of the posterior tibial nerve: a case series. Foot Ankle Int. 2013 Apr;34(4):607–611. doi: 10.1177/1071100712470916. Epub 2013 Jan 22 PMID: 23559618. [PubMed] [CrossRef] [Google Scholar]

[7] Spiegl P.V., Cullivan W.T., Reiman H.M., Johnson K.A. Neurilemoma of the lower extremity. FootAnkle. 1986 Feb;6(4):194–198. doi: 10.1177/107110078600600404. PMID: 3957182. [PubMed] [CrossRef] [Google Scholar]

[8] Agha R.A., Franchi T., Sohrabi C., Mathew G., for the SCARE Group The SCARE 2020 guideline: updating consensus Surgical CAse REport (SCARE) guidelines. Int. J. Surg. 2020;84:226–230. [PubMed] [Google Scholar]

[9] Liebau C., Baltzer A.W., Schneppenheim M., Braunstein S., Koch H., Merk H. Isolated peripheral neurilemoma attached to the tendon of the flexor digitorum longus muscle. Arch. Orthop. Trauma Surg. 2003Apr;123(2–3):98–101. doi: 10.1007/s00402-003-0481-4. Epub 2003 Mar 25 PMID: 12721688. [PubMed] [CrossRef] [Google Scholar]

[10] Kehoe N.J., Reid R.P., Semple J.C. Solitary benign peripheral-nerve tumours. Review of 32 years' experience. J. Bone Joint Surg. Br. 1995 May;77(3):497–500. PMID: 7744945. [PubMed] [Google Scholar]

[11] Lin J., Martel W. Cross-sectional imaging of peripheral nerve sheath tumors: characteristic signs on CT, MR imaging, and sonography. AJR Am. J. Roentgenol. 2001 Jan;176(1):75–82. doi: 10.2214/

[12] ajr.176.1.1760075. PMID: 11133542. [PubMed] [CrossRef] [Google Scholar]

[13] Mangrulkar V.H., Brunetti V.A., Gould E.S., Howell N. Unusually large pedal schwannoma. J. Foot AnkleSurg. 2007 Sep-Oct;46(5):398–402. doi: 10.1053/j.jfas.2007.06.002. PMID: 17761326. [PubMed] [CrossRef] [Google Scholar]

[14] Williams P., Warwick R., editors. Gray's Anatomy. 36th edn. Vol. 1115. Churchill Livingstone; Edinburgh, London,Melbourne and New York: 1980. [Google Scholar]

Riedl O., Frey M. Anatomy of the sural nerve: cadaver study and literature review. Plast. Reconstr. Surg. 2013 Apr;131(4):802–810. doi: 10.1097/PRS.0b013e3182818cd4. PMID: 23542252. [PubMed] [CrossRef] [Google

Scholar]

[15] Sidani C., Saraf-Lavi E., Lyapichev K.A., Nadji M., Levi A.D. Acute presentation of brachial plexus schwannoma secondary to infarction. Neuroradiol. J. 2015 Jun;28(3):333–336. PMID: 26246106; PMCID: PMC4757285. [PMC freearticle] [PubMed] [Google Scholar]

[16] Arabi H., Khalfaoui S., El Bouchti I., Rokhsi R., Benhima M.A., Saidi H., Elktaibi A. Meralgia paresthetica with lumbar neurinoma: case report. Ann. Phys. Rehabil. Med. 2015 Dec;58(6):359–361. doi: 10.1016/j.rehab.2015.07.389. Epub 2015 Oct 23 PMID: 26476472. [PubMed] [CrossRef] [Google Scholar]

[17] Albert P., Patel J., Badawy K., Weissinger W., Brenner M., Bourhill I., Parnell J. Peripheral nerve schwannoma: areview of varying clinical presentations and imaging findings. J. Foot Ankle Surg. 2017 May-Jun;56(3):632–637. doi: 10.1053/j.jfas.2016.12.003. Epub 2017 Feb 22. PMID: 28237565. [PubMed] [CrossRef] [Google Scholar]

[18] Jack C.M., Jones G., Edwards M.R., Singh S.K. A case report of three peripheral schwannomas attached to the Achilles paratenon. Foot (Edinb.) 2010 Jun-Sep;20(2–3):78–80. doi: 10.1016/j.foot.2010.04.002. Epub 2010 May 20.PMID: 20493679. [PubMed] [CrossRef] [Google Scholar]

[19] Kwok K.B., Lui T.H., Lo W.N. Neurilemmoma of the first branch of the lateral plantar nerve causing tarsal tunnelsyndrome. Foot Ankle Spec. 2009 Dec;2(6):287–290. doi: 10.1177/1938640009349868. Epub 2009 Oct 6 PMID: 20400427. [PubMed] [CrossRef] [Google Scholar]

[20] Beaman F.D., Kransdorf M.J., Menke D.M. Schwannoma: radiologic-pathologic correlation. Radiographics. 2004Sep-Oct;24(5):1477–1481. doi: 10.1148/rg.245045001. PMID: 15371621. [PubMed] [CrossRef] [Google Scholar]

[21] Koga H., Matsumoto S., Manabe J., Tanizawa T., Kawaguchi N. Definition of the target sign and its use for the diagnosis of schwannomas. Clin. Orthop. Relat. Res. 2007 Nov;464:224–229. doi: 10.1097/BLO.0b013e3181583422. PMID: 17767081. [PubMed] [CrossRef] [Google Scholar].

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