A Rare Tumor of Hand: A Case Report

Manoj P Kushwaha, MBBS, (FCPS); Shilu Shrestha, MBBS, MS; Ashok K Banskota, MD, FACS
Department of Orthopedics, B & B Hospital, Gwarko, Lalitpur, Nepal
Hospital and Rehabilitation Center for Disabled Children (HRDC), Janagal, Kavre, Nepal

Address for Correspondence:
Manoj P Kushwaha, MBBS, (FCPS)
Department of Orthopedics, B & B Hospital, Gwarko, Lalitpur, Nepal
Hospital and Rehabilitation Center for Disabled Children (HRDC), Janagal, Kavre, Nepal
Email: mapsmanoj10@gmail.com

Received, 17 November, 2017
Accepted, 3 December, 2017

Schwannomas are benign, intracapsular peripheral nerve sheath tumors also known as neurolemmomas. They are mainly seen between the 3rd and 6th decades of life.
Appears as soft swelling which increases its size gradually and most of the time, it is asymptomatic. Symptoms depends on the location, size and nerve involved.
On examination these lesions are soft to firm in consistency, mobile in perpendicular to direction of nerve fiber and immobile in longitudinal direction.
Xray, Ultrasonography are nonspecific imaging modality, however MRI study helps in diagnosing the Schwannoma.
Main treatment modality is complete excision of the tumor without damaging the nerve fiber from sheath of which it arises. Recurrence is rare after complete excision.
Keywords: benign, peripheral nerve sheath schwannoma, tumor.

A 57-year-old male presented to orthopedics out-patient clinic OPD with complaints of swelling on the volar surface of right hand over the 2nd metatarsal bone for last 7 years, gradually increasing in nature and had grasping difficulties, tingling sensation in the index finger on and off and mild pain in the same finger. Patient has no such swelling in other parts of the body. There was no discoloration of the skin (cafe au-lait spots).

On examination of the hand revealed there was 2x3cm of oval mass around the 2nd metatarsal joint right hand, which was firm in

consistency, painful on deep palpation, mobile in perpendicular direction and fixed in longitudinal direction. Tapping over the swelling causes tingling sensation over the index finger. Sensation and power of the hand and fingers on both radial and ulnar aspects were intact.

X-ray of hand was done which showed no bony lesion and other abnormalities **(Figure 1)**.

To evaluate further musculoskeletal ultrasound **(Figure 2)** of that region was done which revealed that there is a well-defined, oval shaped, hypoechoic lesion of heterogeneous echotexture, at the radial aspect of the right pam proximal to the right second metacarpophalangeal joint, lateral to and abutting flexor digitorum tendon with minimal peripheral color flow on color Doppler examination and small anechoic area within, DD GCT of flexor tendon sheath with central necrotic area.

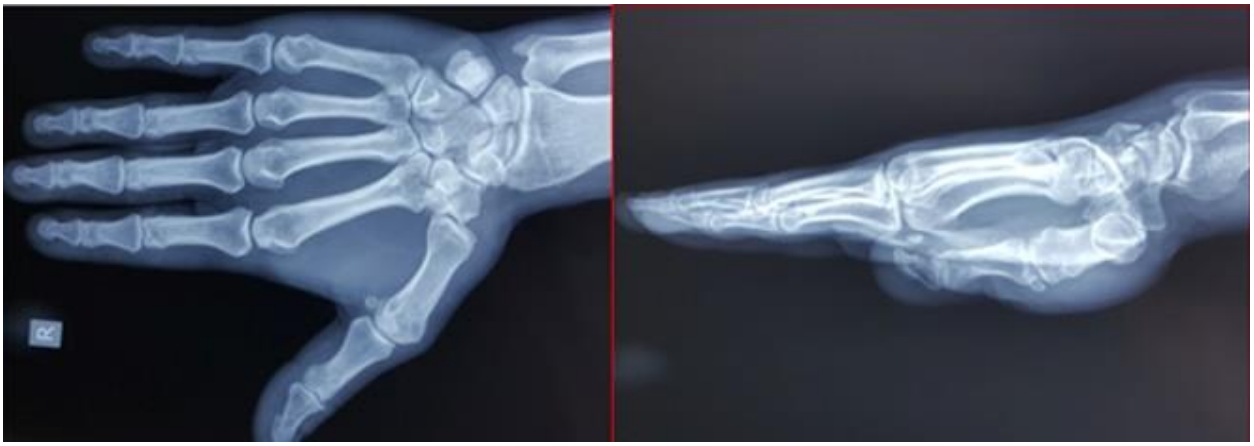

Figure 1: X-ray of the right hand, AP and Lateral showed no bony lesion

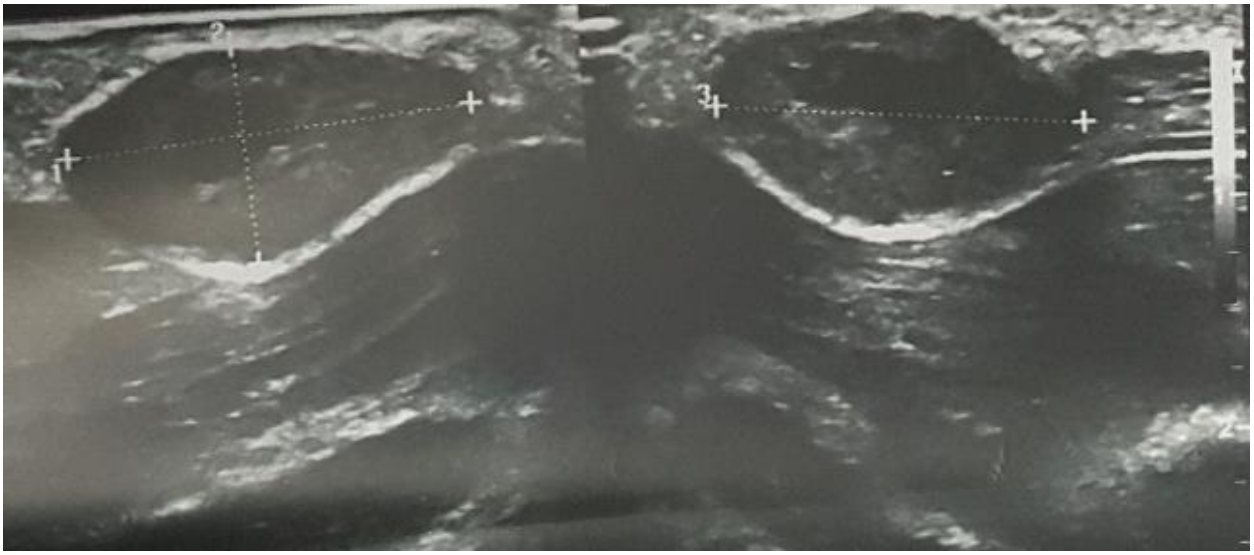

Figure 2: Ultrasonography of the hand showing well defined mass, 1.6cm x 0.9cm x 1.5cm

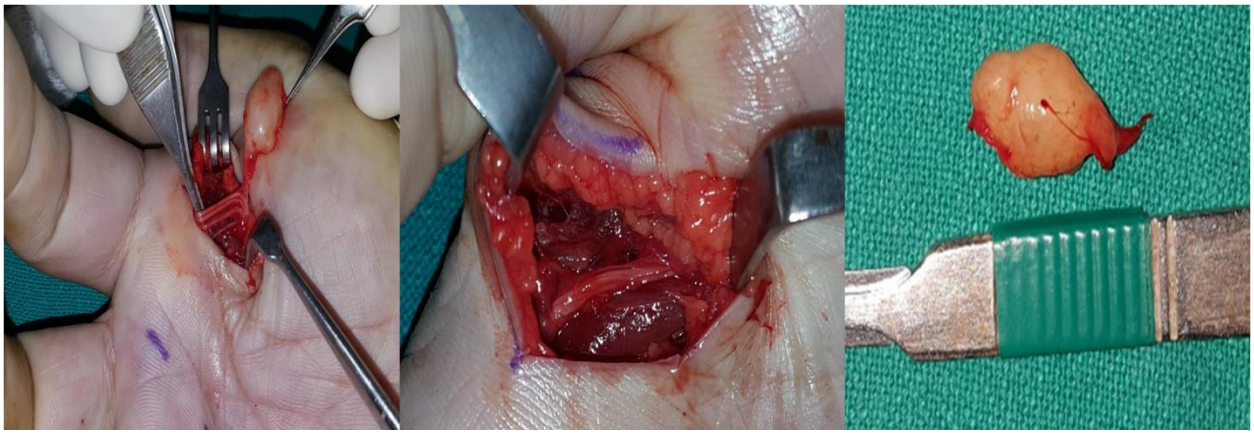

Figure 3: Intra-operative picture showing dissection of the mass from median nerve and complete excision

Patient was planned for excisional biopsy of the mass.

Patient under general anesthesia and with tourniquet application, a longitudinal incision given over the mass, meticulous dissection was done with use of micro instruments and magnifying loop mass was exposed ,which was lying just beneath the extensors group of muscles and was arising from the nerve (median nerve) supplying to the right index finger on the volar surface **(Figure 3)**. Mass was encapsulated in thick capsule and was excised in-toto without any damage to the nerve fiber.

Mass was sent for Histopathological examination, which revealed Schwannoma (Schwannoma of the median nerve)

Discussion

Schwannomas (neurilemmoma) benign tumors originating from Schwann cells. Most common location is neck. Most commonly occur in the head and neck involving the brachial plexus and spinal nerves, with the upper and lower extremities being less often affected.[1] Most commonly seen third to fifth decades of life as solitary encapsulated lesions and associated with neurofibromatosis type 2. Incidence is reported as 0.62 per 100,000 population.[1-5] They usually grow slowly and appear as painless swellings for several years before diagnosed.[6] They are usually solitary and benign lesions; however, they can be multiple suggesting an underlying tumor predisposition syndrome.[7]

Most are asymptomatic but can become painful or cause functional deficits depending on the type of nerve involved and size of the tumor or can produce pain, a positive Tinel's sign or a Tinel's like sensation and sensory alterations.[8] The tumors are transversely mobile but immobile longitudinally, likely due to their nested intraneural location.

Clinical diagnosis of a schwannoma is not always straightforward due to the large differential diagnosis, it shares many features of soft tissue tumors like neurofibroma,

ganglion cysts, malignant tumors, lipomas, and xanthomas.[9] Physical examination is non-specific. Radiographic (magnetic resonance imaging investigations are helpful in finding the origin of the tumor and the relationship of masses with nearby structures. MRI can differentiate malignant versus benign with good sensitivity and specificity; however, it cannot differentiate schwannomas and neurofibromas.[10] On histopathological examination, a schwannoma has a true capsule composed of epineurium. Immunohistochemistry reveals a strongly positive S- 100 protein that is specific for schwannomas and helps to rule out neurofibromas.

The main treatment is to enucleate the tumor without damaging the paternal nerve.

It is uncommon for schwannomas to recur in identical locations. Das *et al*. (2007) found that surgical removal of schwannomas was successful in alleviating preoperative symptoms, while maintaining nerve functioning in 89% of their cases.[11]

Conclusion

Schwannoma is rare tumor of hand and requires high suspicion for diagnosis. Physical examinations are nonspecific however tinnel's sign may be positive. This tumor is longitudinally immobile but transversely mobile. The main stay of treatment is complete enucleation of the tumor without damaging the underlying nerve. Recurrence is rare.

References

1. Nawabi DH, Sinisi M. Schwannoma of the posterior tibial nerve: the problem of delay in diagnosis. J Bone Joint Surg Br 2007;89:814-6.
2. Strickland JW, Steichen JB. Nerve tumors of the hand and forearm. J Hand Surg 1977;2:285-91.
3. Ozdemir O, Ozsoy MH, Kurt C, Coskunol E, Calli I. Schwannomas of the hand and wrist: long-term results and review of the literature. J Orthop Surg (Hong Kong) 2005;13:267-2.
4. Adani R, Tarallo L, Mugnai R, Colopi S. Schwannomas of the upper extremity: analysis of 34 cases. Acta Neurochir (Wien) 2014;156:2325-30.
5. Tang CYK, Fung B, Fok M, Zhu J. Schwannoma in the upper limbs. Bio Med Res Int 2013:167196.
6. Ozdemir O, Ozsoy MH, Kurt C, Coskunol E, Calli I. Schwannomas of the hand and wrist: Long- term results and review of the literature. J Orthop Surg (Hong Kong) 2005;13:267- 72.
7. Gonzalvo A, Fowler A, Cook RJ, Little NS, Wheeler H, McDonald KL, *et al.* Schwannomatosis, sporadic schwannomatosis, and familial schwannomatosis: A surgical series with long- term follow- up. Clinical article. J Neurosurg 2011;114:756- 62.
8. Ogose A, Hotta T, Morita T, Yamamura S, Hosaka N, Kobayashi H, *et al.* Tumors of peripheral nerves: Correlation of symptoms, clinical signs, imaging

features, and histologic diagnosis. Skeletal Radiol 1999;28:183- 8.

9. Ogose A, Hotta T, Morita T, Yamamura S, Hosaka N, Kobayashi H, *et al*. Tumors of peripheral nerves: Correlation of symptoms, clinical signs, imaging features, and histologic diagnosis. Skeletal Radiol 1999;28:183- 8.
10. Furniss D, Swan MC, Morritt DG, Lim J, Khanna T, Way BL, Athanasou NA, et al. A 10-year review of benign and malignant peripheral nerve sheath tumors in a single center: clinical and radiographic features can help to differentiate benign from malignant lesions. Plast Reconstr Surg. 2008;121:529-33.
11. Das S, Ganju A, Tiel RL, Kline DG. Tumors of the brachial plexus. Neurosurg Focus 2007;22:E26.