International Journal of Research and Review
Volume 11; Issue: 12; December 2024
Website: www.ijrrjournal.com
Case Report *E-ISSN: 2349-9788; P-ISSN: 2454-2237*

Masquerading Tumour: A Case of Digital Schwannoma

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DOI: https://doi.org/10.52403/ijrr.20241219

ABSTRACT

Background: The authors present a rare case of schwannoma located at posteromedial aspect of middle finger of the right hand. Soft tissue masses are quite common, however schwannomas which are benign nerve sheath tumours are uncommonly found on distal parts of the digits.
Methods: A 40-year-old woman presented to the outpatient department, with a history of a swelling increasing over the period of 1 year. Radiographic investigations were done and the patient was posted for an excision.
Results: Biopsy of the excised mass revealed it to be a schwannoma, negative for malignancy.
Conclusions: It is quite a task to differentiate a schwannoma from other soft tissue masses like lipomas. Radiographic investigations are quite fundamental to better understand the localisation, association with musculature, vasculature and vital bony structures.

Keywords: Masquerading tumour, digital schwannoma.

INTRODUCTION

Soft tissue mass of the hands is common and usually of benign pathology. They commonly arise from bone, skin, tendons, blood vessels, or nerves. Schwannomas, however, typically affect individuals in their 5th and 6th decade of life, with the average age of presentation at about 56 years [1]. Schwannomas are a class of benign, encapsulated nerve sheath tumours composed of Schwann cells which are neural crest cell derivatives. The incidence reported in the Asian population was 1.37 cases per 100,000 patients/year. Total prevalence was accounted for 0.8% to 2% of all tumours of the hand. Schwannomas can not only be present on the hand but be present on multiple different sites such as upper and lower extremities, head, mediastinum, and trunk. On the extremities, they usually are present on flexor surfaces, with upper extremity more than twice likely involved than lower extremity.[2]
This type of tumour can have symptomatic and asymptomatic presentation. Symptoms can manifest in the form of sensory loss, dysesthesia, and/or weakness due to compression of surrounding nerve structures. Radiographic investigations are crucial to understand the mass, localise the structures and figure out further plan for excision. [3]
Since, this patient presented slightly earlier in presentation with respect to age, we decided to send the excised specimen for biopsy.

METHODS

A 40-year-old woman with no known comorbidities presented to the outpatient department for the evaluation of a swelling over middle phalanx of the middle finger of the right hand. The mass had been growing over the period of 1 year. The patient had no comorbidities. On taking history and examination, it was revealed that the mass was painless, mobile, and tender on palpation. The mass was thought to be approximately 1×2cm [Fig 2.1] [Fig 2.2]. The patient requested removal and was posted for excision. Radiological examination such as MRI of right middle finger was advised before planning the surgery [Fig 1.1] [Fig 1.2]. Magnetic resonance imaging showed a well-defined elongated shaped lobulated altered intensity mass like lesion measuring approximately 11×10×28mm noted in posteromedial aspect of middle finger in subcutaneous plane closely abutting posteromedial aspect of middle phalanx, also closely abutting flexure tendon. The procedure and diagnosis, its side effects and the necessity of surgery was explained to the patient and informed consent was obtained. The patient agreed and wanted to go ahead with the procedure.

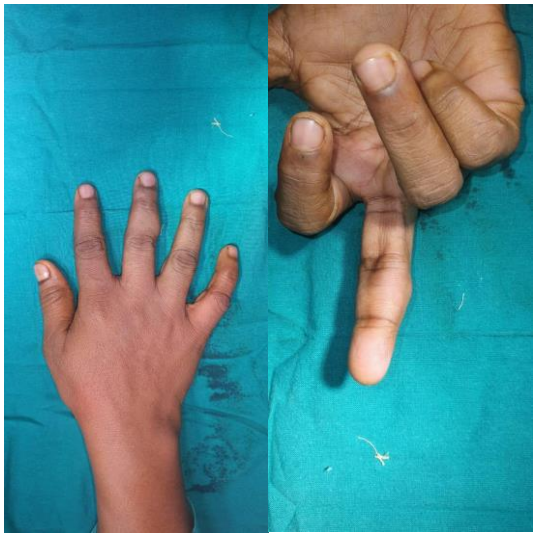

Fig 1.1 **Fig 1.2**

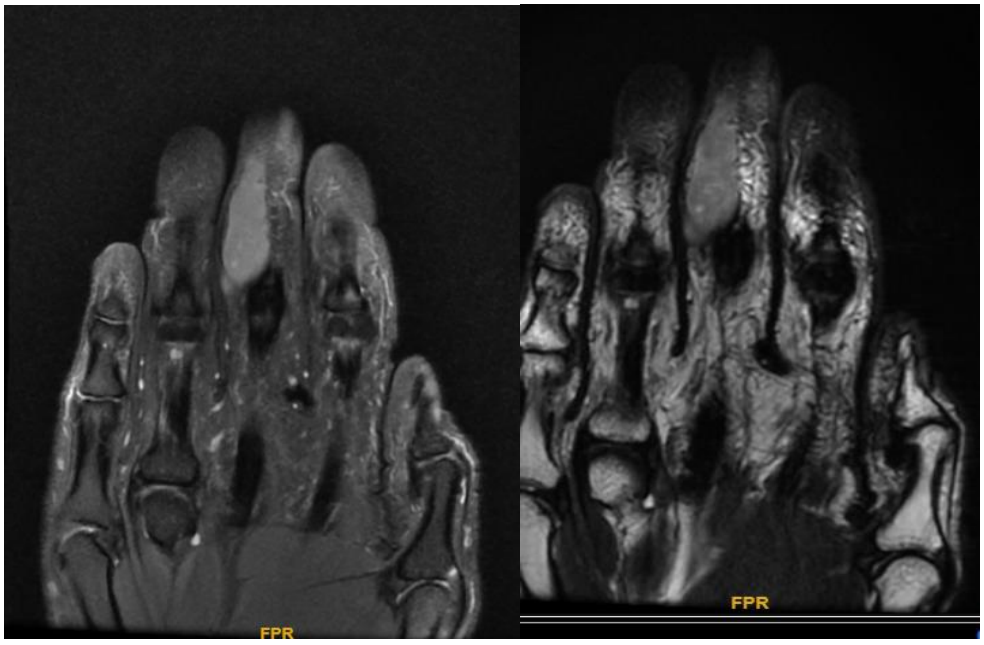

Fig 2.1 **Fig 2.2**

RESULTS

After confirming the informed consent, patient was prepared pre-op and shifted to the operation theatre. Patient was placed in supine position, given local anaesthesia and prepped in typical surgical fashion. Under local anaesthetic, Lazy S incision was taken over swelling (middle phalanx), skin was incised, capsule over swelling was incised, and dissection was done all around the swelling. Swelling was excised. [Fig 2.1]. Nerve fibres were involved. Haemostasis was achieved. There were no neurological deficits.

The removed mass was a white solid nodule measuring 3.5cm ×0.6cm [Figure 2.2] [Figure 2.3] and was sent for HPE analysis. Histopathological analysis revealed the mass to be a well encapsulated tumour comprising of spindle cells having elongated wavy nuclei and eosinophilic cytoplasm. Cellular areas composed of aggregates of spindle cells with palisaded nuclei forming Verocay bodies were seen. Hypocellular oedematous areas with thick-walled blood vessels were also seen. No significant atypia and mitotic activity or necrosis was observed; hence, it was considered non-malignant and labelled a schwannoma.

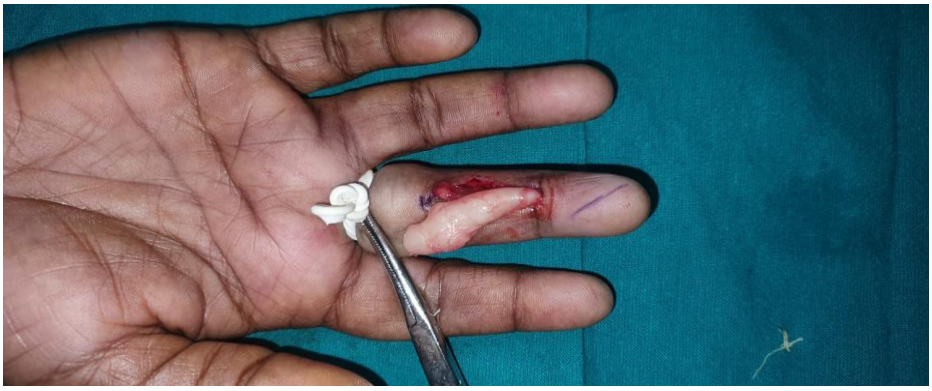

Fig 2.1

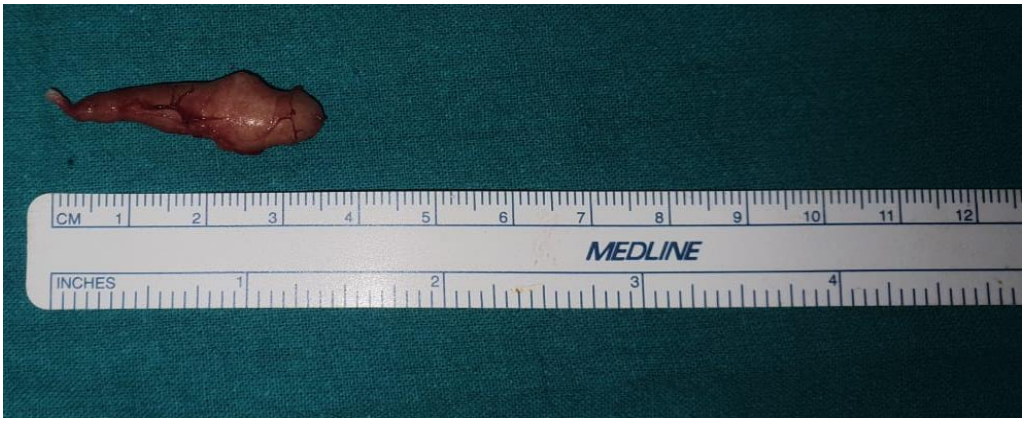

Fig 2.2

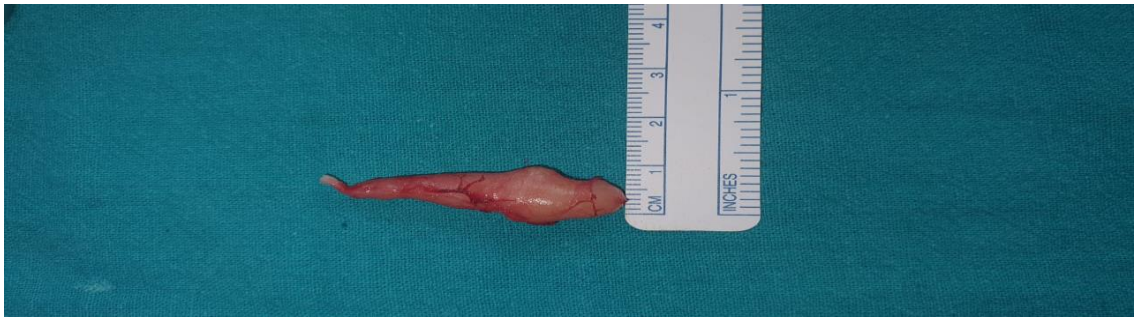

Fig 2.3

DISCUSSION

Most often, schwannomas have an asymptomatic presentation. It is elementary to understand the location of the tumour with respect to surround tissue, bone, vasculature and musculature before proceeding with surgery. Up to 90% of schwannomas present as a solitary and hence multiple presentations of tumour and recurrences warrant a genetic evaluation. [4]

These types of masses should be diagnosed and confirmed by radiographic imaging and further evaluated with histopathological examination to rule out malignancy.

MRI proves to be the most useful out of all instrumental investigations. Ultrasound can also be used and is quite useful and prudent before surgery. [5] MRI was preferred in this patient because of suspicion of involvement with surrounding structures.

The literature on peripheral schwannomas, especially of hand and specifically of digits continues to be very sparse. Some studies suggest managing smaller and asymptomatic masses conservatively and reserving surgical management only for those tumours that are larger in size and symptomatic. [6]

Pre-operative biopsy in such cases is contraindicated to minimise and limit the degree of nerve damage. Recurrences have rarely been reported and if reported are generally thought to occur due to incomplete excision.

Studies published so far are limited while describing schwannomas of digits. Few studies that were published discuss

Few studies discussed the possibility of occurrence of schwannomas due to trauma, foreign bodies that in turn stimulate growth of Schwann cells. Hence, it can be considered as a possibility in patients who have suffered traumas or such involving the hand. Schwannomas are thought to occur due to loss of function of merlin which is an important cytoskeleton protein functioning at the cell membrane and nuclear or genetic changes that involve the NF2 gene.

A study done by Yuk Kwan Tang et all did a study trying to understand fascicular involvement and the incidence of occurrence of schwannomas with fascicular involvement, and proposed a new algorithm to preoperatively stratify patients who may benefit from interfascicular graft in case of fascicular involvement. [7]

Another study by Phalen G included 17 patients and discussed important features to be kept in mind while trying to make a differential diagnosis as it can be thought of as a ganglion cyst because of similar consistency. [8]

Declaration by Authors

Ethics: *Informed consent was given by all human subjects involved in the case described in this paper. All authors have conformed to all appropriate institutional guidelines, including information about institutional review board approval.*

Disclosures: *The authors disclose no relevant financial or nonfinancial interests.*

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How to cite this article: Atul Gowardhan, Durva Dighe, Priyanka Ganjkar, Rohit Dhanawate, Poonam Sarnaik. Masquerading tumour: a case of digital schwannoma. *International Journal of Research and Review*. 2024; 11(12): 160-164. DOI: *https://doi.org/10.52403/ijrr.20241219*

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