



Median nerve schwannoma with a diagnostic delay of 8 years: a case report

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Introduction: Schwannomas are benign tumors of the peripheral nerve sheath, and the median nerve is the most commonly involved nerve. These benign tumors of the peripheral nerve sheath are very rare; they are clinically and radiologically similar to most other benign swellings of the hand; thus, they are often misdiagnosed.

Case Presentation: A 41-year-old lady presented with an 8-year-long history of swelling over the distal forearm. The tumor measured 3.5 × 3.5 × 3.5 mm and was located over the flexor aspect of the distal part of her right forearm. Schwannoma was suspected from the clinical presentation and imaging, but the final diagnosis was established only after the surgery and histopathological analysis. At the follow-up after 1 year, the patient is doing well and her symptoms have not recurred.

Conclusion: Imaging characteristics of schwannoma can be misinterpreted as some other condition, making the preoperative diagnosis very difficult and important. Thus, clinicians should be aware of such swellings, especially those that have been unnoticed or misdiagnosed, and provide optimal diagnoses to confer good outcomes.

Keywords: case report, excision, median nerve, nerve sheath, schwannoma, tumor

Introduction

Benign tumors of the peripheral nerve sheath are uncommon clinical entities, and schwannoma is the most common benign tumor of the peripheral nerves. Amongst the peripheral nerves, the median nerve is the most commonly involved and the schwannomas of the median nerve comprise 0.1–0.3% of all hand tumors^[1]. Being rare, it could be easily mistaken for other common clinical conditions like ganglion cysts and carpal tunnel syndrome^[2,3]. Also, imaging characteristics of schwannoma can be misinterpreted as some other condition, making the preoperative diagnosis very difficult and important^[4]. This case report has been reported in line with SCARE (Surgical CASE Report) criteria^[5].

HIGHLIGHTS

- Schwannomas are benign tumors of the peripheral nerve sheath, and the median nerve is the most commonly involved nerve.
- These benign tumors of the peripheral nerve sheath are very rare.
- Imaging characteristics of schwannoma can be misinterpreted as some other condition, making the preoperative diagnosis very difficult and important.

Herein, we report a case of median nerve schwannoma that presented with an 8-year-long history of swelling in the distal forearm.

Case presentation

Our patient is a 41-year-old lady who presented to our center complaining of swelling in the flexor aspect of the distal part of her right forearm, which she first noticed almost 8 years ago. The swelling gradually increased in size, and now she describes it to be the size of a ping pong ball. She complained of having developed numbness over the right hand and occasional pain over the swelling for 2 years. On further questioning, she gave a history of difficulty gripping and buttoning for 2 years. No history of significant trauma could be recalled, and no history of pain or stiffness in the joints was reported. On clinical examination, there was a single non-painful solid mass 4 × 4 cm in size over the right wrist. The mass was not adherent to the overlying skin, non-pulsatile, and mobile in the transverse direction but immobile in the vertical direction. The swelling was firm, non-fluctuant, and noncompressible. The surface of the swelling was smooth, with no elevation in the temperature compared to the surrounding skin. The swelling was non-tender, but she complained of

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hyperesthesia in the lateral aspect of her right palm. On percussion over the swelling, she developed paresthesia over the flexor aspect of her hand. No cutaneous pigmented lesions were found.

On an ultrasound (US) examination, a 4 cm long, well-circumscribed mass was found near the neurovascular bundle of the flexor aspect of the distal forearm. On MRI examination, the lesion had a homogenous low signal intensity underneath the forearm flexor tendon on T2 images (Fig. 1). No peritumoral edema was present, and a line of fat surrounded the tumor. Based on the long history of the patient, and the clinical, US, and MRI features, the diagnosis of a nerve sheath tumor arising from the median nerve was supported and the patient was scheduled for an excisional biopsy. Figures 2 and 3 show intraoperative and postoperative images of the mass. After histopathological examination, a diagnosis of median nerve schwannoma was established. At a 1-year follow-up, she is free of symptoms with a well-healed excisional site.

Discussion

Schwannomas of the limbs have a predilection for the peroneal and ulnar nerves, and only 7% of schwannomas involve the median nerve^[6], representing 0.1–0.3% of all benign soft tissue tumors of the hand^[1]. They are encapsulated, slow-growing nerve sheath neoplasms separated from the surroundings and occur most commonly in the third to sixth decades of age^[7]. Since they are slow-growing, the nerve function can adapt to the pressure effects of the tumor, thus rarely presenting with symptoms initially; it is challenging to make an early diagnosis of schwannoma^[2]. They commonly present as solitary lesions, but occasionally they can be multiple (schwannomatosis) or can be associated with neurofibromatosis^[8].

Clinical manifestations of median nerve schwannoma range from being asymptomatic to having pain and paresthesia involving the median nerve distribution with a positive Tinel's sign^[2]. If the schwannoma becomes big enough to be palpated from the outside, a firm mass with mobility only in the transverse direction can be palpated. The presence of motor deficits is very rare and, if present, should raise the suspicion of malignancy. This clinical presentation can be confused with that of a ganglion cyst, carpal tunnel syndrome, lipoma, fibroma, xanthoma, or neurofibroma^[2].

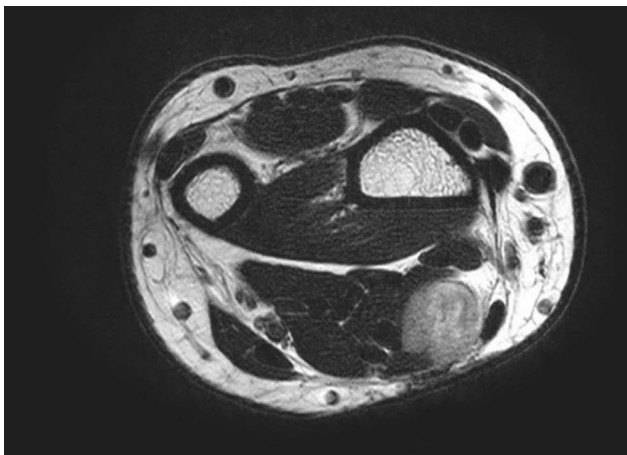


Figure 1. Axonal T2-weighted image showing homogenous low signal intensity underneath the flexor tendon of the forearm.



Figure 2. Intraoperative image showing a mass measuring 4×4 cm on the flexor aspect of the distal part of her right forearm.

Ultrasonographic findings of schwannomas can range from being a homogenous mass with cystic content to a heterogeneous mass with hemorrhage, calcifications, and fibrosis continuous with the nerve from which it arises^[4].

MRI angiography is the gold standard for imaging of peripheral nerve tumors, with a correct preoperative diagnosis in up to 91% of cases^[9]. On MRI, schwannomas show hypointensity on T1-weighted images and hyperintensity on T2-weighted images, and the intensity of the signals represents the histological composition of the neoplasm^[6,10]. Moreover, imaging can be very useful in determining the anatomical location, size, and extent of the tumor and its relationship with the median nerve, which is very instrumental in reaching a preoperative diagnosis and the appropriate planning of surgical therapy.

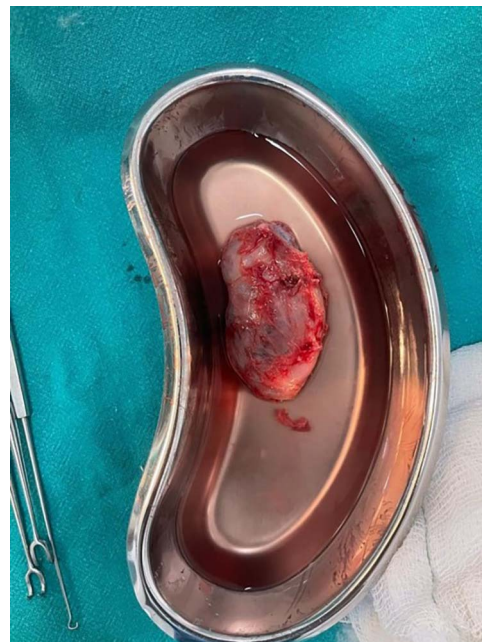


Figure 3. Postoperative image showing an excised mass.

All symptomatic or rapidly increasing schwannomas of the median nerve must be excised^[11]. In most cases, circumferential dissection can be done between the fascicles to reach the tumor and deliver it, but in some cases, due to bundle infiltration, no clear macroscopic separation between the tumor and nerve fascicles could be appreciated, heralding the need for excision of the fascicles to ensure the complete resection of the tumor^[9,12]. Recurrence of median nerve schwannomas following total excision is unlikely in most of the cases^[13], but up to half of the patients undergoing surgery can develop neurological deficits^[14]. Early diagnosis of the tumor before the nerve is infiltrated, followed by microsurgical excision of the tumor, can be very instrumental in the preservation of nerve function^[15].

Conclusions

Schwannomas are benign tumors of the peripheral nerve sheath, and the median nerve is the most commonly involved nerve. These benign tumors of the peripheral nerve sheath are very rare; they are clinically and radiologically similar to most other benign swellings of the hand, thus they are often misdiagnosed. Also, imaging characteristics of schwannoma can be misinterpreted as some other condition, making the preoperative diagnosis very difficult and important. Thus, clinicians should be aware of such swellings, especially those that have been unnoticed or misdiagnosed, and provide optimal diagnoses to confer good outcomes.

Ethical approval

Not required. B.P. Koirala Institute of Health Sciences.

Consent

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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All data about the case are available as a part of the article and no additional source data are required.

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