Digital schwannomas: A diagnosis in retrospect

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Abstract
Schwannoma is a common peripheral nerve sheath tumor. It is rare to find them on the digits. We report two cases of expansile swelling on the fingers. The definitive diagnosis was revealed only after biopsy. Schwannoma should be included in the differential diagnosis of any swelling arising from the digits.

Keywords: Finger, Hand, Schwannoma, Surgical excision.

Introduction
Soft tissue tumors are frequently encountered in the hand surgeon's practice. Ganglion is the most common hand tumor followed by giant cell tumor (GCT) and soft tissue tumors.[1] Soft tissue tumors include a variety of tumors like lipoma and its variants, fibroma and peripheral nerve sheath tumor.[2] Peripheral nerve sheath tumor includes neurofibroma and schwannoma, schwannoma being the most common among these.[3] Schwannoma is a benign proliferation of Schwann cells. It grows slowly eccentrically over the peripheral nerve and is usually solitary. Histologically, schwannoma has the consistent appearance of differentiated Schwann cell and has 2 components: highly ordered dense arrays of spindle cells (Antoni A areas) and a hypo cellular region of connective tissue with less organized spindle cells (Antoni B areas).[4] Immunohistochemistry helps in differentiating schwannomas from neurofibromas.

The management consists of excision biopsy and regular follow up. The recurrence of this tumor type is extremely rare. The malignant transformation is also very unusual[5].

Case Report
Case 1
A 56 year old female presented with a painless, slow-growing lesion over left little fingertip. She did not complain of any neurological deficit in the fingertip. There was no prior history of trauma. Examination revealed a soft non tender, non- fluctuant swelling of 2x1 cm (Fig. 1). It was not fixed to the bone and the patient showed no signs of sensory loss or movement impairment. X ray showed normal bony architecture and FNAC was non diagnostic. Surgical excision was planned under digital nerve block. Intra operatively the lesion was seen to be well encapsulated and arising from the radial digital nerve (Fig. 2A). It was easily dissected off the digital nerve. The skin was noted to be thinned out over the swelling and not adherent to the tumor. The excision included a small island of skin since there was stretching of skin over the swelling (Fig. 2B). The excised tumor measured 1.5x1 cm in dimension. After excision the skin was closed primarily. The histopathological analysis showed benign type of schwannoma (Fig. 3). There was no neurological deficit of the involved finger.

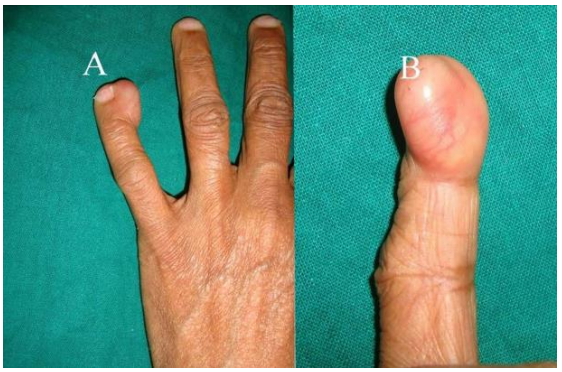

Fig. 1: Pre-operative picture- case 1

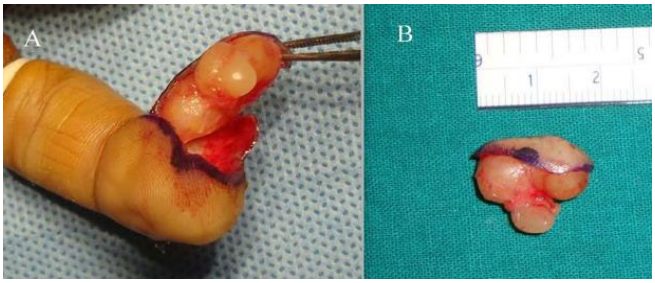

Fig. 2: A. Intraoperative view **B.** Excised lesion- case 1

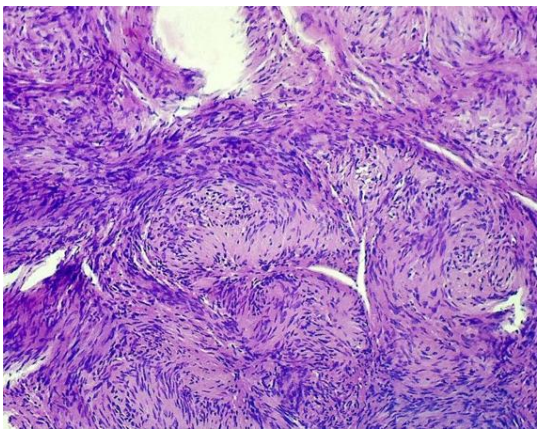

Fig. 3: Histology showing benign schwannoma with focal pallisading -case 1

Case 2

A 45 year old female patient presented with a lesion at the base of her ring finger. It was first noticed six months before. The lesion was painless and did not affect movement or sensation of the finger. On examination, it was firm, non-tender and immobile. A preoperative MRI revealed a well defined, homogenously enhancing lesion separate from the adjacent proximal phalanx (Fig. 4 A&B). The tumor was well encapsulated and could be excised off the corresponding digital nerve (Fig. 4C). The diagnosis of schwannoma was made following histopathological examination.

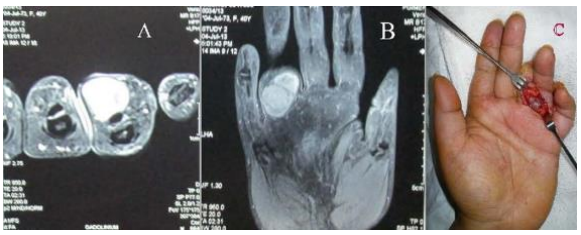

Fig 4: A&B- MRI showing the lesion in the volar aspect not involving the tendons- case 2 **C.** Intra operative picture**.**

Discussion

Peripheral nerve sheath tumors, including schwannomas occur commonly in head and neck, trunk, abdominal wall and retroperitoneum. These tumors are not common in hand, especially on the fingers. In the forearm, they involve either ulnar or median nerves.[6] Multiple plexiform variety of schwannoma may also involve the fingers.[7]

Lincoski et al[8] analyzed 208 soft-tissue tumors of hand and forearm, and found out that twenty-four (11.5%) of them were benign nerve tumors. The occurrence rate was the third most common following GCT of tendon sheath and inclusion cyst. 85.7% of the digital tumors were dorsally located. The authors also noticed that neurological symptoms were less significant in both schwannoma and neurofibroma. Three out of the twelve schwannomas were locatedon the fingers mostly on the dorsum. In both of our patients, the location of the tumor was on the volar side and there were no neurological symptoms.

Hung et al. described 23 nerve sheath tumors of the upper extremity and only 1 of them involved the digit. The accuracy of FNAC was also very poor, reaching only 13%. In both of our patients the FNAC was inconclusive.

Takase et al. analysed 20 patients with upper extremity neurilemmomas, in none of whom the digit was involved the digit. The authors have shown that these tumors commonly involved a single nerve and symptoms and recovery rate depend on duration of the tumor growth.

The digital lesions are noticed early and bring the patient to the surgeon. The management of these lesions is surgical excision under loupe magnification without injuring the nerve fibers. In the presented cases, we used magnification of 4.5 X for complete tumor excision without injuring the nerve.

Even though peripheral nerve sheath tumors are rare, they should be kept in mind as differential diagnosis of a slow-growing painless soft tissue tumor over the digit.

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None.

Conflit of Interest

None.

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