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Case Report

Giant cell tumor of flexor tendon sheath of little finger: a case report

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ABSTRACT

Giant cell tumor of the tendon sheath is a benign proliferative lesion of synovial origin that may affect the joints, bursae and tendon sheaths. We report the case of a giant cell tumor of the tendon sheath arising from the flexor tendon sheath of 5th finger of left hand of a 44 year old male patient. The patient underwent ultrasound examination and subsequently magnetic resonance imaging.

Keywords: Giant cell tumor of the tendon sheath, Ultrasonography, Benign soft tissue tumor

INTRODUCTION

Giant cell tumor is a benign nodular rumor which is found on the tendon sheath of hands and feet and is widely considered as the second most common tumor of the hands after ganglion cysts.[1,2] It generally presents between the 3rd and 5th decade and the patient generally presents with a painless lesion which is slowly growing benign lesion of the soft tissues.[3]

It is sometimes even referred to as localized nodular tenosynovitis or pigmented villonodular proliferative synovitis.[4]

The accepted treatment for such tumors is considered local excision with the preservation of the underlying tendons, digital arteries, and nerves. The tumor is generally enclosed by a pseudo-capsule which facilitates in its en-bloc excision. There is high incidence of "satellite lesions" for which a thorough examination should be done. Theunderlying bone may show erosions in that case curettage to remove the cortical shell is advised.[5,6]

The local recurrence is noted at almost 14% hence adjuvant radiotherapy should be considered.[6]

CASE REPORT

A patient aged 44 years, by occupation presented to the Orthopaedic Department of Kempedowda Institute of Medical sciences with the history of swelling over the volar aspect of middle phalanx of left hand little finger since one month which was painless and was the patient didn't have any restriction of movements of the little finger. The swelling with a pin head in size when first noted by the patient and gradually progressed to the present size. On examination it was a firm swelling 1×1 cm present over the volar aspect of middle phalanx of left hand little finger which was mobile in horizontal direction, was not adherent to the underlying bone nor to the skin. The swelling didn't become less prominent on flexion of the distal phalanx (Figure 1).

Patient underwent an ultrasonogram of the swelling and it was reported to be a hypoechoic lesion measuring 11×7 mm in the superficial plane with no vascularity likely to be a hematoma and fine needle aspiration cytology (FNAC) was suggested.

FNAC yielded scanty grey white material which on microscopy revealed multiple osteoclast like

multinucleated giant cells interspersed with mononuclear cells with round nuclei and a heammorhagic background.

Figure 1: Swelling over the volar aspect of middle phalanx of left hand little finger.

Figure 2: Preoperative X-ray

X-ray didn't show any bony erosions of the bone underlying the lesion (Figure 2).

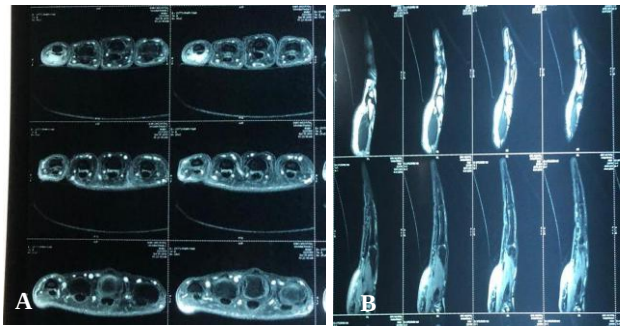

Figure 3 (A and B): MRI showing hypointense lesion within the flexor tendon sheath.

Magnetic resonance imaging (MRI) was done for the hand which showed a lesion which was isointense in T1 hypointense in T2 and a short-TI inversion recovery (STIR) hypointense lesion within the flexor tendon sheath in the palamar aspect of the 5th finger middle phalanx with no evidence of any extension to underling bone or any satellites lesions (Figure 3).

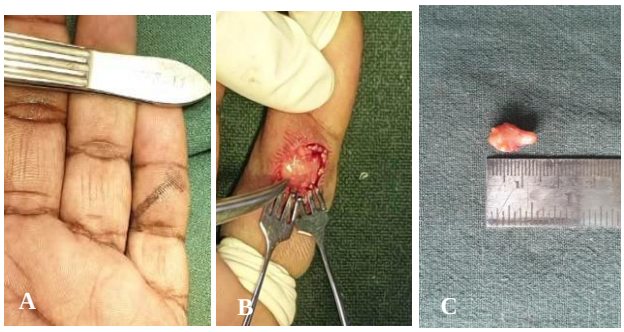

Figure 4 (A-C): Operative procedure showing incision and isolation of pseudocapsule.

The patient was operated under wrist block and digital tourniquet where an oblique incision was made over the middle phalanx of the little finger and the soft tissues were dissected with blunt dissection under a microscope and the tumor was found to be covered with a pseudocapsule. It was isolated with ease from the underlying tendon and the tendon integrity was found to be intact and the wound was closed (Figure 4).

The sample hence obtained was grayish white in colour, spherical in shape with diameter of 11 mm.

This sample was sent for histopathological examination which showed in gross sample a well circumscribed lesion.

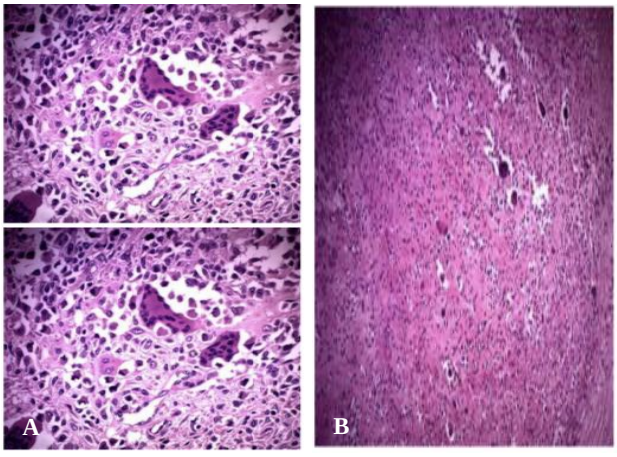

Figure 5 (A and B): Microscopy of tumor cells composed of numerous spindle cells with interspersed giant cells.

Microscopy revealed tumor cells composed of numerous spindle cells with interspersed giant cells. Cells showed occasional mitosis with minimal atypia and no areas of malignancy were identified (Figure 5).

DISCUSSION

Jaffe et al first described the Giant cell tumors of Tendon sheath in 1941, where they said that it had origins similar to pigmented villonodular synovitis with the major difference being that such a tumor grew outwards from the sheath while pigmented villonodular synovits grew inwards from the lining into the joint.[7] All giant cell tumor of the tendon sheath cells are known to contain heamosedirin in their cytoplasm. Typically these tumors are shown to be hypervascular on ultrasonogram but in our case the tumor was not showing any vascularity.[8]

MRI of such lesions along with plain radiograph are suggested to know the extent of the tumor and the underlying bone erosions. This allows for proper surgical planning.

These tumors are second most common palpable mass lesions along the flexor tendons after ganglion cysts the difference being these lesions are solid as compared to the cystic nature of the ganglion cysts these differences can be delineated on ultrasonography.[9]

On STIR sequence (fat suppression) the paramagnetic effect of the heamosiderin is exaggerated due to increased magnetic susceptibility resulting in areas of very high signal intensity.

Lesions often show moderate enhancement following intravenous gadolinium-diethylenetriamine penta-acetic acid (Gd-DTPA) administration due to the numerous proliferative capillaries in the collagenous stroma.[10]

Surgical excision for these tumors is the accepted treatment of choice with adjuvant radiotherapy widely accepted as a modality for reducing recurrence by many authors. In spite of all precautions taken a recurrence rate of nearly 14% is noted and various factors like pressure erosions on the underlying bone, presence of degenerative joint disease, extension into the interphalangeal joint along with incomplete excision are often blamed for the high recurrence rates.[11]

The site of the tumor is another important factor noted for recurrence where tumors of the thumb are known to recur at a higher rate where the tumors lie in close proximity to the neurovascular bundle and often extending into the joint capsule which prevents complete excision of the tumors.[11]

Using a microscope while operating allows for clear resection of the tumor margins and is known to reduce the recurrence rates.[12]

CONCLUSION

Giant cell tumor is a slow growing lesion of the tendon sheath and is the second most common lesion in the flexor tendons after ganglion cysts. The lesion can erode the underlying bone. the preferred treatment is en-bloc resection. It has a high recurrence rate post treatment.

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REFERENCES

1. Darwish FM, Haddad WH. Giant cell tumour of tendon sheath: experience with 52 cases. Singapore Med J. 2008;49(11):879-82.
2. Uriburu IJF, Levy VD. Intraosseous growth of giant cell tumors of the tendon sheath (localized nodular tenosynovitis) of the digits: report of 15 cases. J Hand Surg Am. 1998;23:732-6.
3. Suresh SS, Zaki H. Giant cell tumor of tendon sheath: case series and review of literature. J Hand Microsurg. 2010;2(2):67-71.
4. Phalen GS, McCormack LG, Gazale WJ. Giant-cell tumor of tendon sheath (benign synovioma) in the hand: evaluation of 56 cases. Clin Orthop. 1959;15:140-51.
5. Booth KC, Campbell GS, Chase DR, Linda L. Giant cell tumor of tendon sheath with intraosseous invasion: a case report. J Hand Surg Am. 1995;20(6):1000-2.
6. Wright CJE. Benign giant-cell synovioma. An investigation of 85 cases. Br J Surg. 1951;38(151):257-71.
7. Jaffe HL, Lichtenstein L, Sutro CJ. Pigmented villonodular synovitis, bursitis and tenosynovitis. Arch Pathol. 1941;31:731-65.
8. van Holsbeeck MT, Introcaso JH. 2nd ed. Musculoskeletal ultrasound. Mosby; St Louis: 2001.
9. Middleton WD, Teefey SA, Boyer MI. Hand and wrist sonography. Ultrasound Q. 2001;17:21-36.
10. Middleton WD, Patel V, Teefey SA, Boyer MI. Giant cell tumors of the tendon sheath: analysis of sonographic findings. Am J Roentgenol. 2004;183:337-9.
11. Reilly KE, Stern PJ, Dale JA. Recurrent giant cell tumors of the tendon sheath. J Hand Surg Am. 1999;24:1298-302.
12. Ikeda K, Osamura N, Tomita K. Giant cell tumour in the tendon sheath of the hand: importance of the type of lesion. Scand J Plast Reconstr Surg Hand Surg. 2007;41:138-42.

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