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Case Report

A CASE REPORT OF GIANT CELL TUMOUR OF TENDON SHEATH PRESENTED WITH ATYPICAL CORTICAL EROSION AND REVIEW OF LITERATURES

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ABSTRACT
Giant cell tumour of tendon sheath (GCTTS) had been described in literature since years and there are multiple case series mentioning various treatment protocols to minimize recurrence. Here, we present a case of GCTTS involving distal interphalangeal joint of middle finger with atypical cortical erosion on lateral aspect of middle phalanx. We excise the tumour under operating microscope and use phenol as chemical cauterisation to prevent recurrence and confirm diagnosis of GCTTS on histopathological examination.

Keywords: *GCTTS, Cortical Erosions*

INTRODUCTION
Giant cell tumour of the tendon sheath (GCTTS) is the second most common tumour of the hand after ganglion cysts (Darwish and Haddad, 2008; Uriburu and Levy, 1998). It is a slowly growing, usually painless benign lesion of soft tissues. According to Fotidias *et al.,* (2011) the giant cell tumour of the tendon sheath affects more often women, with a male to female ratio 1:1.4 and the mean age ranged from 30 to 50 years. The most frequent tumour location is the index finger (29.7%) (Fotidias *et al.,* 2011). Other tumour sites are the thumb (12.9%), the middle (24.6%), the ring (16.8%) and little (16%) fingers (Uriburu and Levy, 1998; Al-Qattan, 2001; Ikeda *et al.,* 2007; Ozalp *et al.,* 2004; Kotwal *et al.,* 2000). The vast majority of patients presents with a painless swelling (84.3%) (Uriburu and Levy, 1998; Al-Qattan, 2001; Ozalp *et al.,* 2004; Kotwal *et al.,* 2000). Sensory disturbances of the digits are recorded in 4.5% of cases (Darwish and Haddad, 2008; Uriburu and Levy, 1998; Al-Qattan, 2001; Ozalp *et al.,* 2004; Kotwal *et al.,* 2000). The average duration of symptoms ranges from 6 to 30 months (Darwish and Haddad, 2008; Uriburu and Levy, 1998; Al-Qattan, 2001; Ikeda *et al.,* 2007; Ozalp *et al.,* 2004; Kotwal *et al.,* 2000). Only 5% of the patients has a definite history of soft tissue trauma at the time of initial presentation (Darwish and Haddad, 2008; Uriburu and Levy, 1998; Al-Qattan, 2001; Ikeda *et al.,* 2007; Ozalp *et al.,* 2004; Kotwal *et al.,* 2000). Despite its benign character, local recurrence after excision has been reported in up to 45% of cases (Kotwal *et al.,* 2000).

CASES
A case of 22 year old male presented with swelling of right middle finger at distal interphalangeal joint (DIP) and inability to flex the DIP joint. Patient was asymptomatic before 5 month, then, he started complaining of gradually increasing swelling on DIP joint of right middle finger which was associated with occasional pain at same site and progressive flexion deformity of DIP joint. There was no history of recent trauma or other constitutional symptoms. There was no history of similar complaints in other joints.

On examination, patient was conscious and well oriented to time, place and person and vitally stable. There was smooth globular swelling of approximately 2*2 cm in size on radial border of DIP joint of right middle finger with firm consistency and freely mobile skin over it without local rise of temperature or tenderness [Figure 1, 2]. The DIP joint was kept in flexion attitude of 10' and movements at DIP and PIP joint was pain free. There was no scar, sinus or dilated veins on affected site. The capillary refill on affected finger was normal with normal sensation. There was no similar deformity in other fingers or in opposite hand.

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Patient was evaluated with routine blood investigation which was within normal limits. X-rays of right hand shows cortical erosions on radial border of middle phalanx of right middle finger with surrounding soft tissue swelling [Figure 3]. MRI of affected area shows Giant cell tumour of tendon sheath of middle phalanx of middle finger, eroding the nearby cortex [Figure 4].

We posted patient for excisional biopsy under ring block. Under all aseptic precautions, after painting and drapping of operative site, we took curvilinear incision of approximately 3cm on radial aspect of DIP joint of middle finger and raised soft tissue flap under operating microscope. There were multiloculated, firm, globular swelling attached with tendons [Figure 5], which were released from all surrounding attachments and confirm the removal of all bites of abnormal tissue. After proper wound wash, we used 50% phenol for chemical cauterisation and then wound was closed with ethilon 3-0 and aseptic dressing was applied. Sample [Figure 6] was sent for histopathological examination which confirms the diagnosis of Giant cell tumour of tendon sheath [Figure 7].

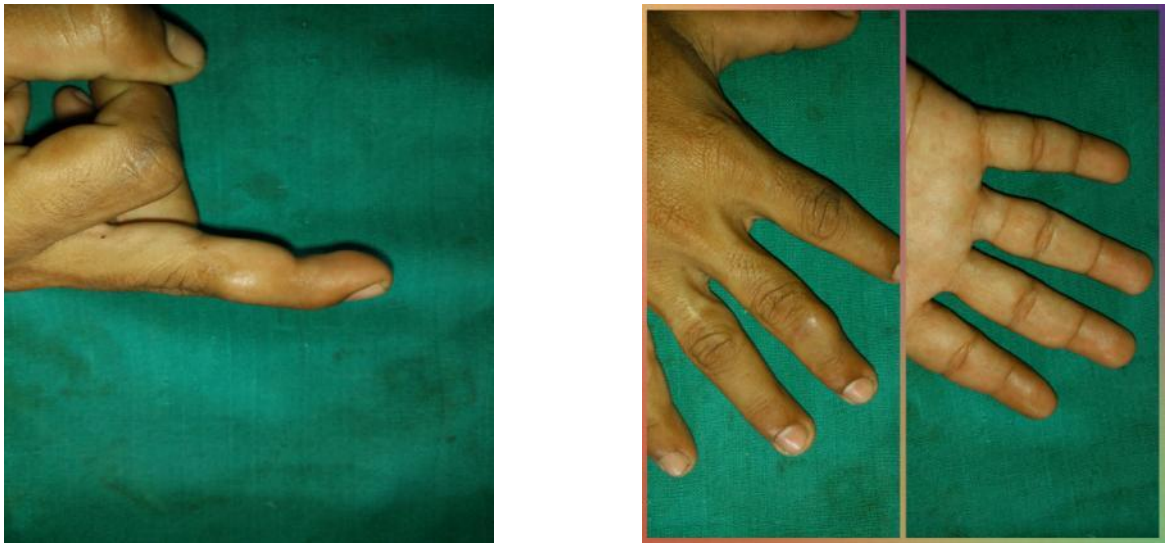

Figure 1, 2: Clinical Picture of Tumour

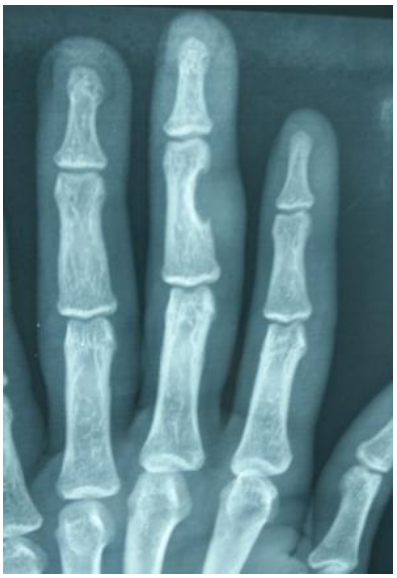

Figure 3: X-ray of Right Hand Showing Cortical Erosion of Middle Phalanx

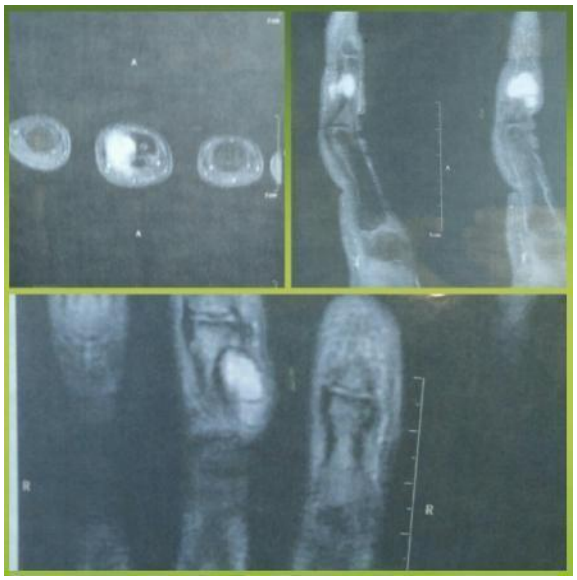

Figure 4: MRI Picture of Middle Finger Showing GCCTS

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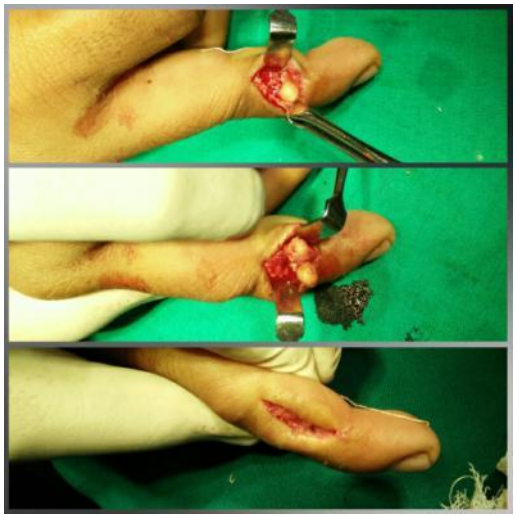

Figure 5: Intraoperative Picture Showing Lobular Appearance of Tumour

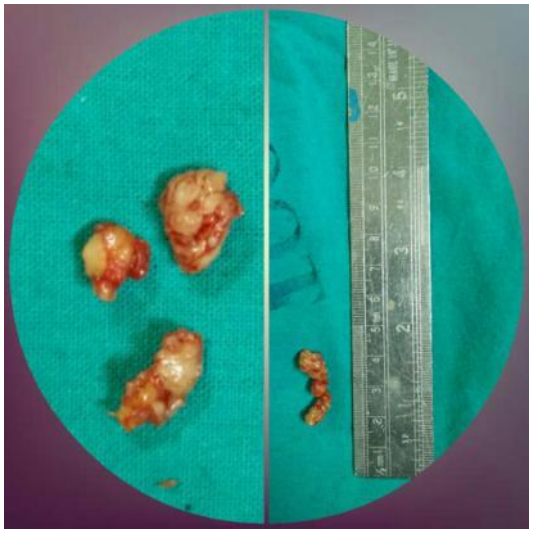

Figure 6: Excised Tissue Specimen

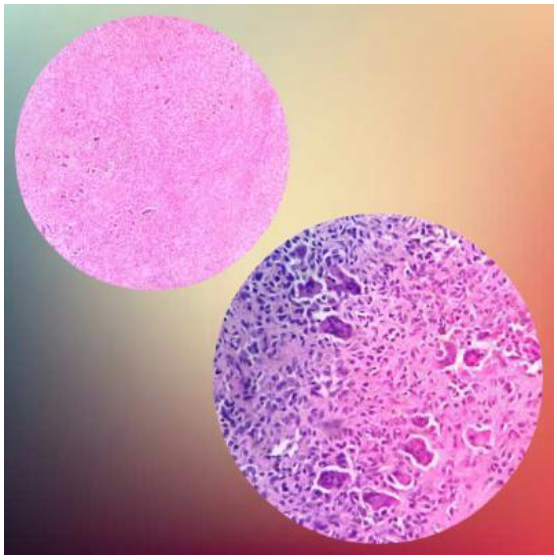

Figure 7: Histopathological Examination of Excised Tissue Confirming Diagnosis of GCTTS

DISCUSSION

Giant cell tumour has been described by multiple names which indicates disagreement as to the aetiology of giant cell tumours. The prevailing divergence is between a neoplastic and inflammatory origin of disease with multiple studies presenting evidence for each.

Grossly, GCTTS is a multilobular and generally well-circumscribed tumor. It may be partially or completely encapsulated and may have extensions and/or satellite lesions connected by as little as a few strands of fibrous tissue (Wright, 1951; Glowacki, 2003). Coloration varies from gray to yellow-orange with some brownish areas, depending on the amounts of hemosiderin, collagen, and histiocytes present in the tumour (Glowacki, 2003). Histologically, giant cell tumour is composed of 4 main cell types, namely the principal synovial cell, multinucleated giant cell, foam cell, and histiocyte-like cell (Monaghan *et al.*, 2001). These cells are contained within a fibrous collagenous stroma, form synovial-lined spaces, and are often surrounded by a thin, fibrous capsule (Wright, 1951; Glowacki, 2003; Monaghan *et al.*, 2001).

Some authors describe an association with rheumatoid arthritis (Glowacki, 2003) while others describe an association with osteoarthritis (Reilly *et al.,* 1999) however, these findings are not replicated across large numbers of studies.

Various factors have been described predictive of recurrence, including pressure erosion on radiographs, location at the interphalangeal joint, presence of degenerative joint disease and incompletely excision or satellite lesion. Reilly *et al.,* (1999) and Grover *et al.,* (1998) noticed that bone erosion, as confirmed in plain X-rays, might be a reason for recurrence. However, Kitagawa *et al.,* (2004) did not support this theory, he advocated the bone involvement was due to simple erosion, caused by the pressure effect of the tumour, and was not a true invasion. Lowyck and De Smet (2006) did not find significant correlation of recurrence with pressure erosions, or degenerative joint disease, neither with the location at the distal interphalangeal joint. Al-Qattan (2001) commented that bony indentation due to pressure from the overlying tumour should not be considered as intra osseous invasion and is not associated with a higher recurrence rate.

Microscopic excision has been described to prevent recurrence. Ikeda *et al.,* (2007) reported recurrence in only one case of 18 reported when they used the operating microscope. In the only case of recurrence, the case recurred as microscope was not used. Ozalp *et al.,* (2004) recommends using a magnifying loupe to excise the satellite lesions after excision of the nodules. Kotwal *et al.,* (2000) recommended postoperative radiotherapy of 20 Gy in divided daily doses of 2 Gy in case of possible incomplete excision, presence of mitotic figures and bone involvement.

Conclusion

Though Giant cell tumour of tendon sheath is one the most common tumour of hand, diagnosis becomes difficult in some cases due to its variable presentation. Complete excisional biopsy under appropriate magnification is the key to prevent recurrence.

No Conflict of Interest

REFERENCES

Adams EL, Yoder EM and Kasdan ML (2012). Giant cell tumor of the tendon sheath: experience with 65 cases. *Eplasty* **12** e50.

Al-Qattan M (2001). Giant cell tumors of tendon sheath: classification and recurrence rate. *Journal of Hand Surgery* **26B** 72-75.

Darwish FM and Haddad WH (2008). Giant cell tumour of tendon sheath: experience with 52 cases. *Singapore Medical Journal* **49**(11) 879-882.

Fotidias E, Papadopoulos A, Svarnas T *et al.* (2011). Giant cell tumour of tendon sheath of the digits. A systematic review. *Hand* **6** 244-249.

Glowacki KA (2003). Giant cell tumors of tendon sheath. *Journal of Hand Surgery American* **3**(2) 100-7.

Grover R, Grobbelaar AO, Richman PI *et al.* (1998). Measurement of in- vasive potential provides an accurate prognostic marker for giant cell tumor of tendon sheath. *Journal of Hand Surgery* **23B** 728-731.

Ikeda K, Osamura N and Tomita K (2007). Giant cell tumour in the tendon sheath of the hand: importance of the type of lesion. *Scandinavian Journal of Plastic and Reconstructive Surgery and Hand Surgery* **41** 138-142.

Kitagawa Y, Ito H, Yokoyama M *et al.* (2004). The effect of cellular proliferative activity on recurrence and local tumour extent of localized giant cell tumour of tendon sheath. *The Journal of Hand Surgery British* **29** 604- 607.

Kotwal PP, Gupta V and Malhotra R (2000). Giant cell tumour of the tendon sheath- is radiotherapy indicated to prevent recurrence after surgery? *The Journal of Bone & Joint Surgery* **82B** 571-573.

Lowyck H and De Smet L (2006). Recurrence rate of giant cell tumors of the tendon sheath. *European Journal of Plastic Surgery* **28** 385-388.

Monaghan H, Salter DM and AlNafussi A (2001). Giant cell tumour of tendon sheath (localized nodular tenosynovitis): clinicopathological features of 71 cases. *Journal of Clinical Pathology* **54**(5) 404-7.

Ozalp T, Yercan H, Kurt C *et al.* (2004). Giant cell tumor of tendon sheath of the hand. *Acta Orthopaedica et Traumatologica Turcica* **38** 120-124.
Reilly KE, Stern PJ and Dale JA (1999). Recurrent giant cell tumors of the tendon sheath. *Journal of Hand Surgery American* **24** 1298-1302.
Uriburu IJF and Levy VD (1998). Intraosseous growth of giant cell tumors of the tendon sheath (localized nodular tenosynovitis) of the digits: report of 15 cases. *Journal of Hand Surgery American* **23** 732-736.
Wright CJE (1951). Benign giant-cell synovioma. An investigation of 85 cases. *British Journal of Surgery* **38**(151) 257-71.