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Tenosynovial Giant Cell Tumor Of Index Finger-A Case Report

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Abstract:
Introduction: *Tenosynovial Giant Cell tumors (TGCT) are common benign tumors, involving hands and feet. The most common site of origin is from the flexor-extensor tendon sheath lining. However, it has been reported to arise from extra-articular joint capsules or manifest as intra-articular pigmented villonodular synovitis. Here we report a case of Extraarticular TGCT arising from the index finger metacarpal phalangeal joint capsule, sparing the tendon sheath without bone or joint involvement.*
Case presentation: *A 30-year-old gentleman presented with painless swelling in the right index finger for the past 1½ years, which was insidious in onset and progressed gradually. On examination, a single firm painless spherical mobile swelling was present on the palmer aspect of the right index finger metacarpal phalangeal joint. An excision biopsy was done which showed a Tenosynovial giant cell tumor (localized type).*
Discussion: *Tenosynovial giant cell tumor (TGCT)is a broad term encompassing all the tumors arising from the tendon sheath, the bursae, and the synovial lining of the joint space. The treatment of extraarticular Localized GCT is primarily complete en-mass excision of the tumor. Recurrence rate ranging from 7-45% has been reported.*
Conclusion: *Tumor arising from the joint surface requires meticulous capsular repair to prevent secondary joint seeding or joint degeneration. Simple en-mass excision remains the gold standard treatment of extraarticular TGCT*

Keywords: *Teno synovial giant cell tumor; Soft tissue tumors.*

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I. Background

A tenosynovial giant cell tumor (TGCT) is a benign tumor of uncertain pathogenesis. It occurs in joints, tendons, and synovial bursas. First described in the international literature by Jaff et al in 1941, it has been given different names including nodular tenosynovitis or (pigmented) villonodular synovitis or tenosynovitis, and bursitis. TGCT may be either localized or diffused(1). The localized type of the tumor is most commonly found in finger joints while subtypes of diffuse-type TGCT may be distinguished as intra-articular and extra-articular. The lesion may appear anywhere in the synovium, but in 80 to 90% of cases, it occurs in hand joints and infrequently in the knee and foot joints. Despite being benign tumors, TGCTs are associated with a high rate of recurrence after surgical excision. There is a lack of clearly defined treatment protocols for these tumors and simple excision with or without adjuvant radiotherapy remains the gold standard of treatment(2).

II. Case presentation

A 30-year-old gentleman came to the General Surgery Outpatient Department with a complaint of swelling in the right index finger for the past 1 ½ years. The swelling was insidious in onset, Started as small (approximately 0.5 x 0.5 cm), and later gradually progressed over 1 ½ years to the current size (approximately 3 x 2cm). The patient complained of cosmetic deformity and interference with activities of daily living. The swelling was not associated with pain. No history of trauma. There is no history of fever. No history of weight loss or loss of appetite. No history of similar swelling in the past or any other region of the body. On examination patient's general condition was fair. Vitals were stable and Systemic examination was unremarkable.

Local examination: Single, firm, spherical swelling of size 3x2 cm present in the right index finger metacarpal phalangeal joint (Fig 1.1). The swelling was firm in consistency, with no warmth, non-tender, horizontal

mobility present with vertical mobility restriction & well-defined margins The skin over the swelling was non-pinchable.

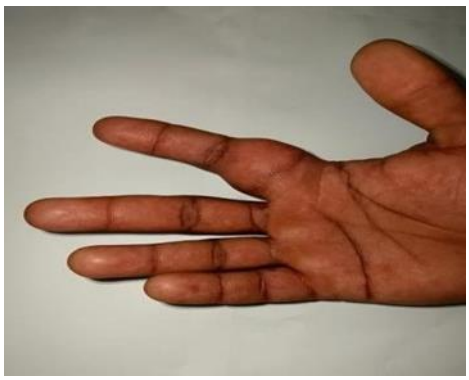


Figure1.1 – Showing swelling in the right index finger

III. Intra-operative findings

We proceeded with an excision biopsy. A Z-plasty incision was made in the right index finger palmar aspect. Layers were dissected and a 3 x 3 x 2 cm nodular, firm mass was noted (Fig 1.2). The excised specimen was sent for biopsy.

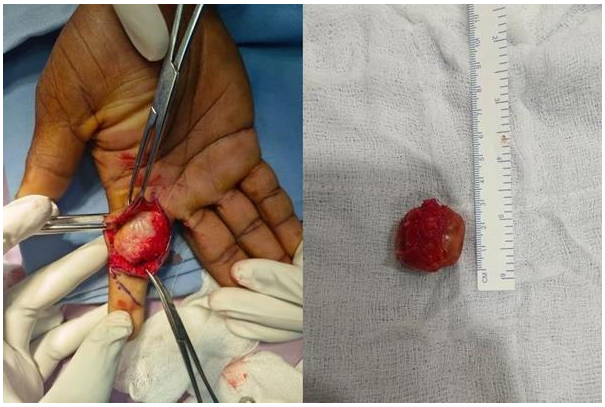
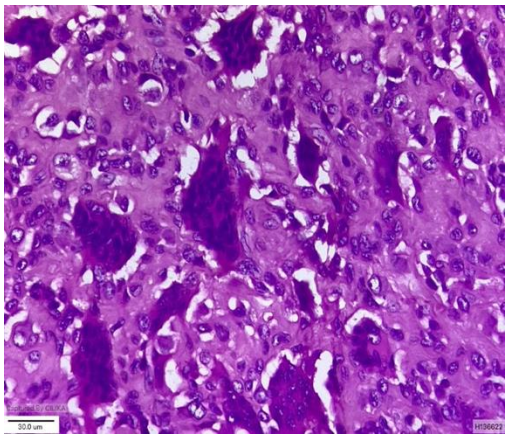


Figure: 1.2a–Showing nodular firm mass
1.2b – excised lesion

IV. Histopathology

Examined sections revealed the tumor cells are round to polygonal, mononuclear cells with indistinct eosinophilic cytoplasm and round to oval vesicular nuclei with prominent nucleoli. Numerous singles and clusters of multinucleated osteoclastic-type giant cells are seen. Foci of hyalinization and xanthomatous change are present. No evidence of atypia /necrosis was noted with features suggestive of a Tenosynovial giant cell tumor (Localized type).



V. Discussion

Tenosynovial Giant Cell Tumor (TGCT) was first described in 1852 by Chassaignac who called it, a "Malignant tumor of the tendon sheaths". TGCT occurs in all age groups, with a peak incidence in the third to fifth decades. The tumor has a predilection for the older age group with a female preponderance. Women are affected twice as commonly as men. TGCT is most commonly located on the palmar aspect of fingers of the hands, involving the first three fingers, with the index being most often involved. The tumor classically presents as a solitary, slow-growing, lobulated mass. Most cases are asymptomatic, but others may rarely present with pain, decreased mobility & triggering of the affected digit, and rarely with numbness in the fingertip[(3)]. Tenosynovial GCT is a broad term encompassing all the tumors arising from the tendon sheath, the bursae, and the synovial lining of the joint space. TGCT can be classified based on the site of the origin as Extra-articular (arising from tendon sheath/bursa) and Intra-articular (also known as pigmented villonodular synovitis). Extra-articular TGCT can be further divided into Localized GCT and diffuse-type GCT. Extra-articular GCT is the most common type[(4)]. Al-Qattan outlined an alternative classification of TGCT based on the operative appearance[(5)]. Type 1 included tumors enveloped in a pseudo-capsule, further subclassified depending on capsule thickness and multi-lobulation. Type-2 tumors were not encapsulated and were subclassified by the presence of satellite, diffuse-type, or multicentric lesions. All recurrences in their series were type 2 lesions. This classification serves as an important guideline while deciding the plan of treatment, as Type 1 tumors can be managed by excision alone while Type 2 tumors would need adjuvant therapy to prevent a recurrence[(1)]. Histologically TGCT lesion is lobulated and circumscribed, pseudo-encapsulated in a collagenous stoma, with a medley of different cell types: eosinophilic round cells, osteoclast- like multinucleate giant cells, xanthoma cells, histocytes, lymphocytes with hemosiderin deposition. MRI is considered to be the most accurate imaging test for diagnosis. The treatment of Extra-articular localized GCT is primarily complete en-mass excision of the tumor with clear margins. Recurrence rate ranging from 7-45% has been reported. Recurrences are treated with re-excision along with the use of adjuvant treatment if deemed necessary[(2)].

VI. Conclusion

Tumor arising from the joint surface requires meticulous capsular repair to prevent secondary joint seeding or joint degeneration. Simple en-mass excision remains the gold standard of treatment for extra-articular Tenosynovial Giant Cell Tumor[(1)].

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