

CASE REPORT

GIANT CELL TUMOUR OF THE TENDON SHEATH: A CASE REPORT

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ABSTRACT: INTRODUCTION: The giant cell tumor of tendon sheath is among the more common soft tissue tumors of the hand. It is a slowly progressive, usually painless, rubbery mass predominating on the radial three digits of the hand and is typically identified adherent to the digital flexor tendon sheath of the hand. The histology is variable but the tumors consistently contain multinucleated giant cells and xanthoma cells. **CASE PRESENTATION:** A case report of a 57 years old female patient who came with a diffuse, painless swelling on the radial aspect of middle finger of the right hand at the Orthopedic OPD of our institution. **MANAGEMENT & OUTCOME:** A planned operative procedure was done. After clinical examination and other investigations, a careful excision of the mass was done by detaching it from the underlying tendon sheath. The tissue was sent for biopsy to two different labs for examination. The reports were confirmed as Giant Cell tumor of the tendon Sheath. **DISCUSSION:** A giant cell tumors of the tendon sheath (GCTTS) is an uncommon and usually benign lesion that arises from the tendon sheath though they are the second most common tumors of the hand. Recurrence rates are as high. A recent study found that following surgical excision, the only lesions that recurred were those that originally had multiple discrete tumors. Tumors composed of single masses did not recur following surgical excision. MRI may be helpful in determining the anatomic extent of the lesion.

KEYWORDS: Giant cell tumor, Tendon Sheath, Recurrence, Benign neoplasm, Excision.

INTRODUCTION: Giant cell tumor of tendon sheath (GCTTS) is clinically a slow growing soft tissue mass that develops over a period of months to years. It is the second commonest tumor of the hand Trauma, inflammation; metabolic disease and a neoplastic etiology are considered as etiological factors. It is a slowly progressive, usually painless, rubbery mass predominating on the radial three digits of the hand and is typically identified adherent to the digital flexor tendon sheath of the hand. It is notorious for its recurrence. Many factors are considered as causing recurrence, including proximity to the distal interphalangeal joints, presence of degenerative joint disease, pressure erosions in the radiographs, increased mitotic activity.¹

CASE PRESENTATION: A 57 years old female patient presented to the Orthopedic OPD of our institution with a diffuse, painless swelling on the radial aspect of middle finger of the right hand. The onset of the swelling was insidious and developed to the present size during the course of 15 months. The swelling was painless most of the time but pressure on the swelling while carrying out daily activities produced dull aching pain. The patient was apprehensive about the development of swelling and hence approached for consultation. A detailed history and clinical examination was undertaken. After surgical excision, wound was washed and closed. Capillary filing and oxygen saturation was checked.

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MANAGEMENT AND OUTCOME: A planned operative procedure was carried out. Local infiltration of Xylocaine 2% was given by the ring method at the base of the middle finger. After setting of anesthetic effect, a linear incision was made over the mass. A tourniquet was applied to control bleeding and clearing the surgical field. Special care was taken to excise the tumor in total, retaining the capsule, with margin of normal tissue. The operating field was searched for presence of satellite lesions or daughter cysts. The entire specimen was then subjected to histopathological examination at two different labs, and the margins were observed for clearance.

DISCUSSION: A giant cell tumor of the tendon sheath (GCTTS) is an uncommon and usually benign lesion that arises from the tendon sheath though they are the second most common tumors of the hand, with simple ganglion cysts being the most common. It is unclear whether these lesions represent neoplasm or simply reactive masses.¹ Clinically these masses typically present in the hand (although they are found elsewhere also) with localized swelling with or without pain. They are slow growing. Typically, they present in 3rd-5th decades and have a slight female predilection with a M: F ratio of 1.5-2.1:1.² They have been divided macroscopically into localized or diffuse forms, and appear as rubbery multinodular masses that are well circumscribed. They have an enveloping fibrous capsule, and the cut surface is variably coloured depending on the relative proportions of fibrous tissue, hemosiderin and pigmented foam cells.³

As is true for most soft-tissue tumors, the etiology of giant cell tumors of the tendon sheath is unknown. Pathogenetic theories have included trauma, disturbed lipid metabolism, osteoclastic proliferation, infection, vascular disturbances, immune mechanisms, inflammation, neoplasia, and metabolic disturbances. Probably the most widely accepted theory, as Abimelac et al proposed, is that of a reactive or regenerative hyperplasia associated with an inflammatory process.^{4,5} Histochemical evidence shows that the mononuclear cells and giant cells present in these lesions resemble osteoclasts, suggesting a bone marrow-derived monocyte/macrophage lineage for these tumors.

The tumor is histologically identical to pigmented villonodular synovitis (PVNS)⁶ and is composed of fibroblasts and multinucleated giant cells, foamy histiocytes and inflammatory cells on a background fibrous matrix. Giant cell tumors of the soft tissue are classified into 2 types: the common localized type and the rare diffuse type.⁷

The rare diffuse form is considered the soft tissue counterpart of diffuse pigmented villonodular synovitis (PVNS) and typically affects the lower extremities. Its anatomic distribution parallels that of PVNS, with lesions most commonly found around the knee, followed by the ankle and foot; however, the diffuse form occasionally affects the hand. Typically, these lesions, like those of PVNS, occur in young patients; 50% of cases are diagnosed in patients younger than 40 years. The diffuse form is often locally aggressive, and multiple recurrences after excision are common.

Recurrence of Giant cell tumor of the tendon sheath (GCTTS) is an unresolved issue, though it is basically a non-malignant condition. Reported rate of recurrence of GCTTS is 9–44% and some authors have reported recurrence rate as high as 45%.

Many factors are considered as causing recurrence, including proximity to the distal interphalangeal joints, presence of degenerative joint disease, pressure erosions in the radiographs, increased mitotic activity.⁸ Diagnosis of GCTTS is possible preoperatively with a FNAC and helps in preoperative planning to prevent recurrence.⁹ Patient should be counseled in the preoperative meeting with regard to the probability of recurrence. Incomplete excision and leaving behind satellite

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nodules is considered as the most important factor deciding recurrence pattern. MRI may be helpful in determining the anatomic extent of the lesion. Adequate surgical exposure, meticulous dissection and use of magnification are necessary to reduce recurrence and should remain the mainstay of surgical management.

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Fig. 1: Pre-operative photograph. Diffuse swelling present on the middle finger

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Fig. 2: The base of the finger was infiltrated with local anesthesia (Xylocaine2%)



Fig. 3: A deeper dissection was made to assess the basal attachment of the mass



Fig. 4: The mass was excised from the tendon attachment below and biopsy samples were sent to two different labs

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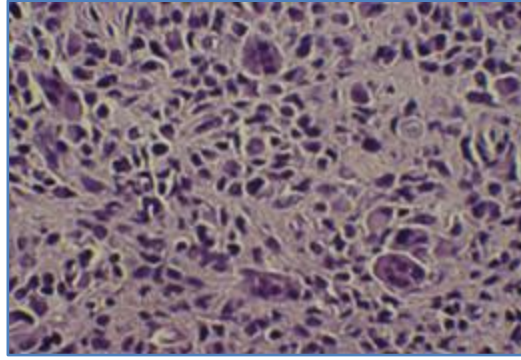


Fig. 5: High-power photomicrograph of giant cell tumor of the tendon sheath shows occasional numerous mononuclear cells, scattered giant cells, and hemosiderin-containing xanthoma cells

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