

# A Multifocal Recurrent Large Giant Cell Tumor of the Tendon Sheath of Flexor Tendon: A Rare Case in the Hand of 22-year-old Female

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## Learning Point of the Article:

Multifocal giant cell tumor of the tendon sheath is a diagnosis to be kept in mind while operating a giant cell tumor of the tendon sheath and necessary exploration should be done for finding out satellite nodules to avoid recurrence.

## Abstract

**Introduction:** Giant cell tumor of the tendon sheath (GCTTS) is one of the common tumors of the hand, second only to a simple ganglionic cyst. It can arise from the synovium of joint, bursa, or tendon sheath. Two-thirds of the tumors occur on the volar aspect of fingers. GCTTS in palm is extremely rare. Recurrence of GCTTS is also rare.

**Case Report:** We report a 22-year-old female patient who presented to us with palmar swelling on the right hand for 6 years and operated with excision 4 years ago and having a recurrent larger swelling 8 months after the surgery. She was operated with tumor excision supported with marginal excision of the tumor. Follow-up at 1 year showed no recurrence with satisfactory outcome.

**Conclusion:** GCTTS of the palm is rare. GCTTS recurrences are rarer. This was a recurrence of the rare palmar GCTTS of an unusually large size with secondary contracture which was successfully managed without recurrence and improvement from pre-operative hand functions.

**Keywords:** Giant cell tumor of the tendon sheath, Multifocal giant cell tumor of the tendon sheath, Recurrent giant cell tumor of the tendon sheath.

## Introduction

Giant cell tumor of tendon sheath is a tumor of uncertain origin, with variable growth potential. It is benign but locally aggressive and has a tendency for local recurrence and potential for metastasis to lungs [1]. Furthermore, named tenosynovial giant cell tumor is hypothesized to be reactive or regenerative hyperplasia associated with an inflammatory process, as explained by Jaffe [2].

The incidence of local recurrence is variable, with studies ranging from 9 to 44%. Recent studies have mentioned rare cases of multifocal giant cell tumor of the tendon sheath (GCTTS) of the hand [3,4]. Most of the cases have two and only one such case had five such masses [4]. Here, we present a case of an unusually large, multifocal giant cell tumor of the flexor tendon of hand which was a recurrence after surgical

excision.

## Case Report

A 22-year-old female present with a lemon-sized painless swelling of the palm, with a history of smaller swelling in the same region 6 years ago, for which 4 years ago surgical intervention in the form of excisional biopsy was carried out at a hospital in Bihar. Histopathological examination confirmed the diagnosis with giant cell tumor of flexor tendon sheath, and the patient remained asymptomatic till 8 months. After 8 month of surgery, small peanut size swelling had recurred. The swelling was slowly increasing in size, and over the past 3 years, the patient developed pain in this swelling associated stiffness in the hand functions. Physical examination revealed local swelling of 5 cm x 5 cm, which is nodular, non-tender, firm, non-adherent

Access this article online

Website:  
www.jocr.co.in

DOI:  
10.13107/jocr.2020.v10.i05.1828

## Author's Photo Gallery



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**Figure 1:** Clinical picture of hand showing swelling in the palm with flexion contracture of fingers.



**Figure 2:** Plain radiograph of the hand. Anteroposterior and oblique view.



**Figure 3:** Intraoperative resection of tumor showing flexor sheath.

to overlying skin, and moved on flexion of fingers (Fig. 1). The range of movement of proximal interphalangeal joint and distal interphalangeal joint was restricted with flexion contracture of fingers which had developed. The patient did not have any other complaint or constitutional symptoms such as night sweats, fever, or weight loss. Blood investigations were normal with the non-reactive status of Rh factor, anti-CCP, HIV, and HbsAg.

The patient was investigated with a plain radiograph (Fig. 2), which showed soft-tissue shadow of the mass and scalloping of underlying metacarpal bone over the volar cortical margin. Magnetic resonance imaging was done, which demonstrates encapsulated mass over flexor tendon sheath. Excision biopsy was performed by surgical removal (Fig. 3), two nodular mass measuring  $6 \times 5 \times 3$  and  $2.5 \times 2.0 \times 1.5$  was removed. Both masses sent for histopathological examination (Fig. 4).

HPE section shows fibroblastic proliferation with the present of scattered inflammatory cell infiltration with a multinucleated giant cell. No evidence of significant atypia. No evidence of mitosis/necrosis. A diagnosis of GCTTS was finally made.

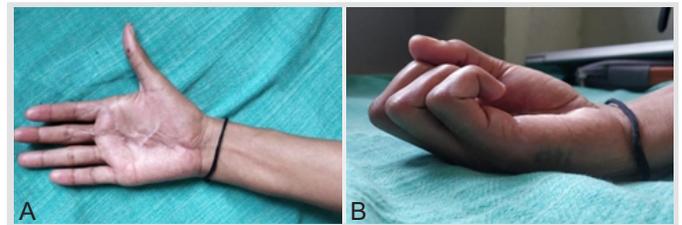
The recovery following surgery was uneventful. There was no local tenderness, and the patient had an increased range of motion of finger with only restricted terminally (Fig. 5). During 12-month follow-up period, there was no evidence of local tumor recurrence on clinical and ultrasonographic examination.

### Discussion

GCTTS is a common benign soft-tissue tumor found in the hand which originates in the synovium of the flexor sheath. They typically go through stages of dormancy and increased activity making these lesion suddenly



**Figure 4:** Mass was obtain after surgical resection and sent for histopathology examination.



**Figure 5:** (a and b) At 6 months follow-up, there is no recurrence and improved grip strength.

symptomatic or noticeable. Although they most often occur in the fingers, these tumors can also occur in hand, feet, ankles, knees, and elbows. The etiology of GCTTS is unknown [5]. Pathogenetic theories have included trauma, disturbed lipid metabolism, neoplasm, and inflammation.

GCTTS most typically occurs between the age of 20–40, with 2:1 female:male ratio. With recurrence rates reported, up to 45%, careful attention must be paid when excising these tumors. A systemic review study performed by Fotiadis et al. examined possible risk factors for recurrence. They stated that poor surgical technique with incomplete excision increased the risk of recurrence. Other risk factors for recurrence included osseous pressure erosion, mitotic activity on histology, and proximity to arthritic joint [6].

In this case, other than the possibility of incomplete excision osseous pressure erosion was seen. Intraoperatively, the tumor was arising from the flexor tendon sheath of the ring finger with entrapment of the tendon within the mass. It was not possible to excise the mass without sacrificing the tendon. Flexor tendon of the adjacent finger was also involved, but sparing of it was possible. Two satellite nodule in the same adjacent tendon was also removed.

### Conclusion

GCTTS of the palm is rare. GCTTS recurrences are rarer. This was a recurrence of the rare palm GCTTS of an unusually large size with secondary contracture which was successfully managed without recurrence and improved grip.

### Clinical Message

Multifocal GCTTS is a diagnosis to be kept in mind while operating giant GCTTS and necessary exploration should be done for finding out satellite nodules to avoid recurrence.

### References

1. Murphey MD, Nomikos GC, Flemming DJ, Gannon FH, Temple HT, Kransdorf MJ. Imaging of giant cell tumor and giant cell reparative granuloma of bone: Radiologic-pathologic correlation. *Radiographics* 2001;21:1283-309.
2. HL, Lichtenstein HL, Elsturo CJ. Pigmented villonodular synovitis, bursitis, and tenosynovitis. *Arch Pathol* 1941;31:731-65.
3. Altaykan A, Yildiz K, Hapa O, Çukur S. Multifocal giant cell tumor of the tendon sheath occurring at different localizations of the same tendon of a finger: A case report and review of the literature. *Eklemler Hastalıkları* 2009;20:119-23.
4. Singh T, Noor S, Simons AW. Multiple localized giant cell tumor of the tendon sheath (GCTTS) affecting a single tendon: A very rare case report and review of recent cases. *Hand Surg* 2011;16:367-9.
5. Al Kadi A, Salati SA, Arkoubi AY. Giant cell tumour of tendon sheath: A review. *Niger J Plast Surg* 2012;8:19-25.
6. Hwang JS, Fitzhugh VA, Gibson PD, Didesch J, Ahmed I. Multiple giant cell tumors of tendon sheath found within a single digit of a 9-year-old. *Case Rep Orthop* 2016;2016:1834740.

**Conflict of Interest:** Nil  
**Source of Support:** Nil

**Consent:** The authors confirm that Informed consent of the patient is taken for publication of this case report

### How to Cite this Article

Parikh KN, Shah SB. A Multifocal Recurrent Large Giant Cell Tumor of the Tendon Sheath of Flexor Tendon: A Rare Case in the Hand of 22-year-old Female. *Journal of Orthopaedic Case Reports* 2020 August;10(5): 34-36.