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# FNAC Diagnosis of a Giant Cell Tumour of Soft Tissue with Histological Correlation Over Right Angle of Mandible

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**Abstract:** ***Giant Cell Tumor (GCT) of the soft tissue is locally aggressive and relatively uncommon neoplasm. It occurs predominantly in upper and lower extremities in 70% of the cases. It is rarely seen in the head and neck region which accounts for around 7% of the cases. Patients may present usually with a painless growing mass, over an average period of six months duration, in their fifth decade of life. Fine needle aspiration cytology (FNAC) may not be diagnostic because of other chronic inflammatory and infective conditions which also show giant cells on FNAC. The differential diagnoses are foreign body giant cell reaction, tuberculosis, sarcoidosis etc. Confirmatory diagnosis depends predominantly on the histomorphology of the lesion.***

**Keywords:** Giant cell tumor, Fine Needle Aspiration Cytology, soft tissue

## 1. Introduction

GCT of the soft tissue is a locally aggressive mesenchymal neoplasm of low malignant potential which is morphologically similar to that of GCT of the bone[1,2]. However it is genetically not related to the GCT of bone. GCTs of soft tissue typically occur in the superficial soft tissues of the upper and lower extremities in 70% of the cases[3]. In this article a case of GCT of the soft tissue over the right angle of mandible is discussed, which was primarily diagnosed on FNAC and confirmed histomorphologically.

## 2. Case Report

A 45 year old male visited dental OPD in May 2025 with a complaint of a small painless swelling over the right angle of mandible just below the ear lobe measuring 1x1cm since last six months. The swelling was diffused, fluctuant, non tender on palpation and was not fixed to underlying bone. There was no offending tooth or clinical etiology observed intraorally. The patient was referred to Dept of ENT for further evaluation and was suggested to undergo FNAC.

On FNAC, purulent material was aspirated out, which was mixed with blood. Smears were prepared. On cytology numerous multinucleated osteoclasts-like giant cells with few mononuclear round to ovoid cells were seen against a background comprising of dense sheets of degenerated neutrophils. [Fig: 1,2] Since the giant cells were not of horse shoe shape i.e. Langhans Giant cell and there was granuloma, no necrosis and no lymphocytic inflammation, hence the tubercular pathology was ruled out. Following which an FNAC diagnosis of Giant cell tumor was given and suggested excisional biopsy for confirmation of diagnosis.

Surgical excision of the mass was done and submitted for histopathological examination. On gross, we received an elliptical skin covered soft tissue mass measuring 1.4 x 1 x 0.8 cm. Cut section showed a small grey white circumscribed nodule measuring 1 x 0.8 cm. On microscopy showed a skin lined tissue with a well circumscribed lesion. The lesion was composed of numerous multinucleated osteoclasts-like giant cells in a stroma comprising of round to oval mononuclear cells and few spindle cells. Moderate to dense neutrophilic inflammation were also seen. [Fig: 3,4]

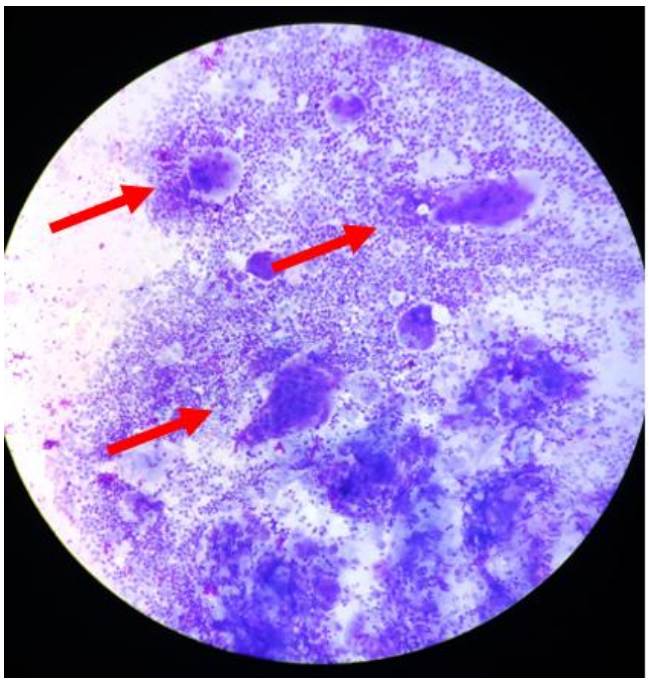

**Figure 1:** 100X FNAC image showing numerous multinucleated osteoclast-like giant cells (arrow) with dense sheets of degenerated neutrophils and few mononuclear stromal cells.

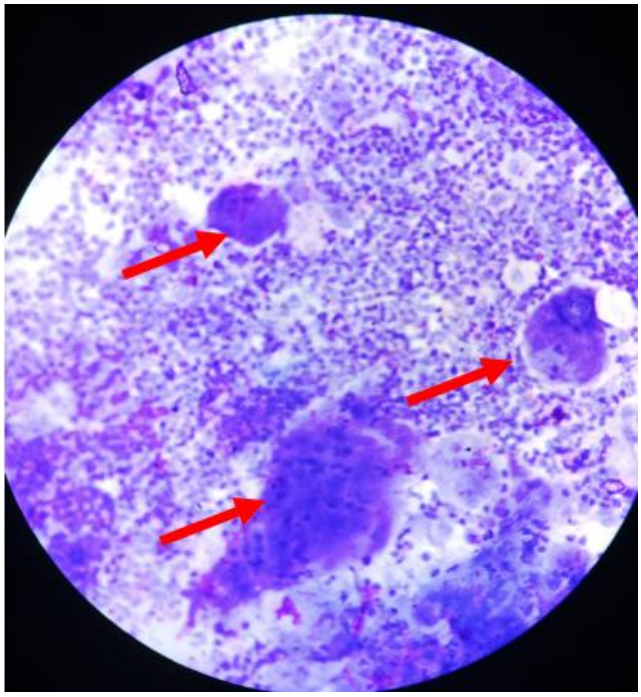

**Figure 2:** 400X FNAC image showing numerous multinucleated osteoclast-like giant cells with dense sheets of degenerated neutrophils and few mononuclear stromal cells.

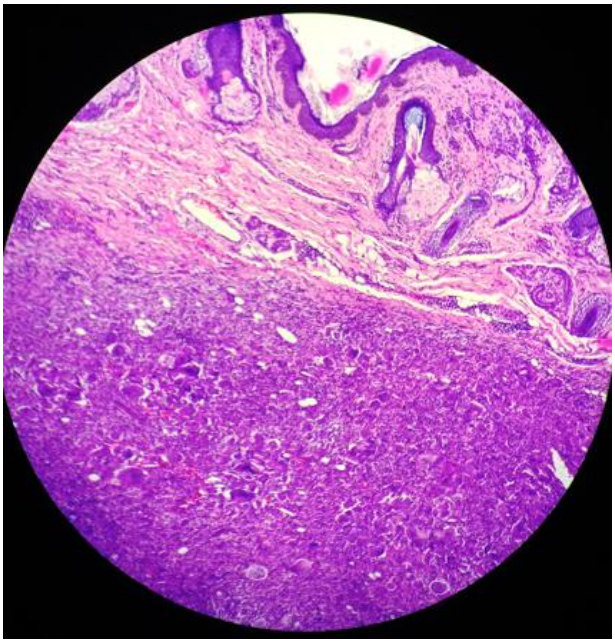

**Figure 3:** 100X view of Skin lined tissue with a well circumscribed giant cell lesion

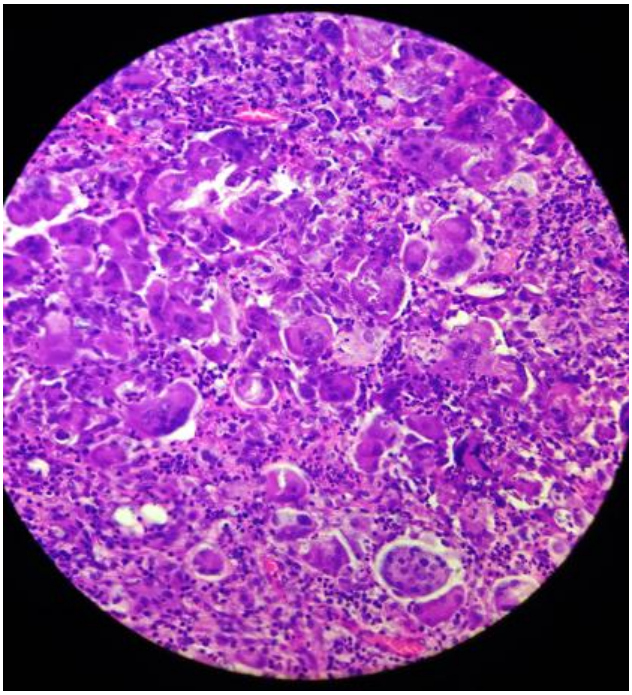

**Figure 4:** 400X view with numerous osteoclasts-like giant cells with mononuclear round to oval stromal cells against a background of dense sheets of neutrophilic inflammation

## 3. Discussion

GCT of soft tissue is a rare neoplasm that mainly affects adults and elderly.[4] It is usually located in the extremities and mostly situated in deeper tissues.[5] But superficial location of the tumor in the subcutaneous tissue and fascia has also been described in literature.[6] The Tumor is composed of admixture of osteoclasted like multinucleated giant cells and neoplastic stromal cells. The bulk of the tumor is composed of non-neoplastic osteoclasts and their precursors. The neoplastic stromal cells are elongated and fibroblasts-like, whereas others are plump and resembling histiocytes. GCT of the soft tissue is phenotypically similar to but genetically unrelated to GCT of the bone. The histiogenesis of GCT of soft tissue is still unclear. However, GCT of soft tissue lacks mutations in the H3F3A gene, which makes it distinct from giant cell tumor of bone[7].The tumor present as painless growing masses with an average duration of six months[8]. GCT of soft tissue has low grade malignant potential. Treatment is complete excision of the mass which guarantees increase in cure rate. The behavior is dependent upon their location, size and microscopic appearance. They are classified into benign (low grade) tumor or malignant (high grade) on the basis of atypia, pleomorphism, and mitotic activity of the stromal neoplastic component[5].

## 4. Conclusion

Giant cell tumor of the soft tissue is one of rare neoplasms. The diagnosis should be based upon thorough histomorphological examination. FNAC is an important tool for prelimnary diagnosis ruling out the differential diagnoses. In our case report, the FNAC and the histolomorphological correlation led us to a diagnosis of an uncommon pathological

entity i.e. Giant Cell tumor of soft tissue over the angle of mandible.

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