# Maxillary Giant Cell Tumor in Jogjakarta, Indonesia: A Case Report

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**ABSTRACT**
Maxillary giant cell tumor (GCT) is a rare benign bone lesion. It usually appears in the long bones. However, in the head and neck region GCT could also occur although the frequency is only 2% of the all GCT cases. We present a case of a 20-year-old female with GCT of left maxillary sinus who underwent complete resection via subtotal maxillectomy with Weber Ferguson approach. This technique provides wider visual field operation to taken out the whole tumor. To cover the defect of the palatal authors put an obturator. After three months followed up, there were no signs of recurrence with excellent aesthetic result.

***Keywords:*** *Giant Cell Tumor, Maxillary Sinus, Maxillectomy.*

## 1. INTRODUCTION

Maxillary giant cell Tumor (GCT) is a rare benign tumor [1,2]. It usually seen in epiphyses of long bones, especially the distal of femur, radius and proximal of tibia. Sacrum is the most common site for lesions involving flat bones [1]. GCT could be locally destructive and has propensity of local relapse. The tumor may metastasis especially to the lung has been reported [1]. GTC accounts for 20% of all benign bone tumors, the skull is exaggerated in only 1% of cases. It is slightly more common in female, with the ratio of 1,4:1, predominantly affects young adults of between 25 to 40 years [3].

According to histology feature, GTC of bone classically found several large multinucleated giant cells with scattered haphazardly arranged mononuclear cells, and the nuclear features of both elements are described as similar. Some tumors also have spaces with a fascicular or storiform outline devoid of giant cells look like a benign fibrous histiocytoma. Vascular penetration outside the margin of the tumor can be found [4].

Maxillary GTC showing with a painful swelling has been previously reported. Recurrence rate as high as 40-60%, and up to 4% will metastasize to the lung [3]. Complete resection of tumor is most proper modality among all modalities existing for management. To differentiate with other giant cell tumor and finding the best treatment are very challenging.

## 2. CASE REPORT

A 20-year-old female was referred to ENT policlinic Sardjito General Hospital with a painless, slow growing left maxilla that had been present for 8 months. The mass of left maxilla was getting bigger and made her difficult to breath from her left nose. She complained discomfort in mastication because of the presence of tumor on her left hard palate. She didn't complaint of fever, visual disturbance, sneezing, ear and throat symptoms. On physical examination, a 4x4 cm painless, hard, and not tender swelling over left maxilla also a prominence hard palate limited to the left side was found (Figure 1). A biopsy was taken, and histopathological investigation of lesion revealed giant cell tumor. All hematological and biochemical examination were normal.

Computed tomography (CT) scan of sinus paranasal showed a well-defined homogenously enhancing

expandible lesion in the left maxillary sinus and causing damage of medial wall of maxilla wall. The tumor was also destroying alveolar process of maxilla and hard palate with intra oral extension (Figure 2).

The subtotal maxillectomy with Weber Ferguson approach was done under general anesthesia. The upper lip is separated through its full thickness up to gingivolabial sulcus. The cheek flap elevated after an incision of upper gingivobuccal sulcus. The resection using blade cut at the line of the transection through the maxilla. The incision is also made in the mucosa of hard palate around the primary tumor. The surgical defect showed upper half of the maxillary sinus which is lined by epithelium. After that, the obturator was applied and held with wires. The obturator was wired to the remaining teeth to replace the excised portion of the hard palate. The gauze packing was placed into the maxillary space. After that, the skin incision is closed in two layers (Figure 3).

Post-operative care of the patient following subtotal maxillectomy around the maintenance of optimum oral hygiene and maintenance for the facial wound until suture was detached. On the 5$^{th}$ day the packing was removed, and the wound were good. The temporary obturator installed properly so the patient can eat and drink normally (Figure 4). The permanent obturator will be placed two months after the surgery.

## 3. DISCUSSION

The GCTs are usual bone tumor founding 4-5% of all bone tumor. Head and neck GCT representing only 2% of all cases. The common site of head and neck region are sphenoid and temporal bone but also found in mandible-maxilla, ethmoid and zygoma [5]. Symptoms that arise in GCT depend on the bone affected. In our patient the predominant symptom was painless facial asymmetry without any annoying nasal symptoms. The protrusion in the left palatal area made the patient had difficulty in chewing and closing her mouth. Based on the previous case studies, the symptoms are varied such as localized swelling and limitation from muscle/joint movement. The common presentation of maxilla GCT includes painful swelling of the cheek, epistaxis, restricted opening of the mouth and toothache. Physical examination often shows a mass in the nostril without any significant neurological deficit and eye movement [3].

The etiology of GCT is remain controversy. Hemorrhage and inflammatory factors are the factors that are accused of traumatic bone metaphysis. The real cause has not been found yet, but many researchers believe that after they formed in the body, they have begun to spread out of the same size and mold for a long time [2].

The patient in this report was female aged 20 years old. This was included the young age category. This case is comparable with previous report [3, 6]. On the other hand, reported that 20-33% cases found in the age of 50 years or more [1].

Maxillary GTC revealed many clinical and radiological characteristics that overlap with other bony lesions on the maxilla. These include giant cell granuloma, aneurysmal bone cyst, odontogenic myxoma, bone vascular lesions, cystic ameloblastoma and malignant neoplasm of jawbones such as sarcoma and Langerhans cell histiocytosis. Early diagnosis is important to identify the clinical features and extension of the lesion to differentiate it from other conditions which also contain multinucleated giant cells [3].

Although GCT is typically described as well circumscribed expansile osteolytic lesion on CT scan and heterogeneously enhancing mass of variable signal intensity on MRI, but in head and neck region it can present with nonspecific radiological features. An increased uptake by tumor is demonstrated on bone scan [5]. Plain radiograph is usually not helpful, but it can be used to rule out odontogenic cysts. Specific biochemical profile such as alkaline phosphatase is useful to rule out systemic disease such as Paget's disease that have been associated with maxillary GCT [3].

Complete resection of tumor is the most proper modality among all modalities offered. Simple curettage results in high recurrence rates reaching 60% as compared to 7% by wide local resection [7]. Most relapses appear in first 2–3 years and continuous evaluation from 5 years to indefinite period have been recommended in view of possible pulmonary metastasis [8,9,10]. Radiotherapy as addition therapy is applied only for inoperable or non-radically operable cases. The risk of malignant transformation has been predicted by radiation equipment [11]. Our patient underwent complete resection via maxillectomy and gain an excellent result.

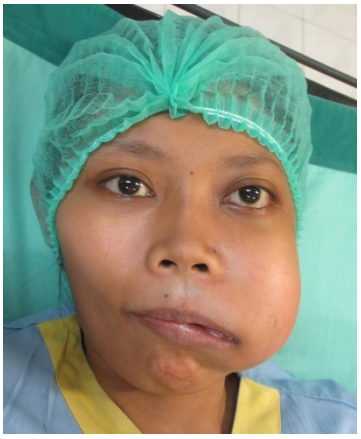

**Figure 1.** Picture of the patient

## 4. CONCLUSION

Maxillary GCT in head and neck is an unusual circumstance and requires high index of clinical support. Even though biopsy and radiology are useful in detection of the lesion, other investigations are often required for distinguish it from other condition representing GCT. The importance of differentiating it from other conditions is due to its propensity to relapse and metastatic prospective. Complete wide excision is beneficial with low recurrence rate, however long-term follow-up is recommended in literature.

## INFORMED CONSENT

This case report was written using the clinical data of the patient in 2017. General consent was obtained in which the patient agrees with the research use of clinical records, data, and photographs with anonymization

## DISCLOSURE STATEMENT

The authors report no conflict of interest

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