

# Giant cell tumour of the maxilla

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## ABSTRACT

Giant cell tumour (GCT) of the bone accounts for 5 to 9% of primary bone tumours. The most common affected sites are the long bones. Involvement of the craniofacial bones such as the maxilla is rare. Painful swelling is the most common presenting complain. Like all tumours, it is important to achieve complete resection. The management of recurrent GCT of the maxilla is challenging as complete resection is often difficult and risk of recurrence is high. Regardless of the pre-operative stage, recurrence rates have been reported to be between 40 and 60% in the first three years after surgery. Five to 7% of recurrent cases are malignant recurrence. Close surveillance is important to detect the possibility of recurrence. We report the case of a GTC that re-occurred after resection and discuss the difficulty in managing such a case.

**Keywords:** Giant Cell tumour, osteoclastoma, maxilla, craniofacial bone

## INTRODUCTION

Giant cell tumour (GCT) of the bone is relatively uncommon and accounts for between five and nine per cent of all primary bone tumours. <sup>1</sup> GCT is generally benign but can be aggressive. It usually affects the epiphyses of the long bones. It is slightly more common in female, with a ratio of 1.4:1, predominantly affects young adults of between 25 and 40 years. The incidence of craniofacial GCTs, involving the sphenoid, ethmoid and temporal bones is much less common, accounting for only two per cent of all GCTs. GCT of the maxilla presenting with a painful swelling has

been previously reported. <sup>2</sup> Recurrence rate is high of between 40 and 60%, and up to four per cent will metastasize to the lung. <sup>1</sup> Close surveillance after surgery is important. We report the case of recurrent GTC and discuss the difficulty of managing such a case.

## CASE REPORT

A 21-year-old Malay man was referred with a rapidly growing painful right infra-orbital swelling of one-week duration. Prior to this, he had been having toothache on the right side for the past three weeks. He also had intermittent epistaxis from the right nostril. Otherwise, he did not complain of fever, visual disturbance, cachosmia, nasal blockage, sneezing, and ear or throat symptoms.

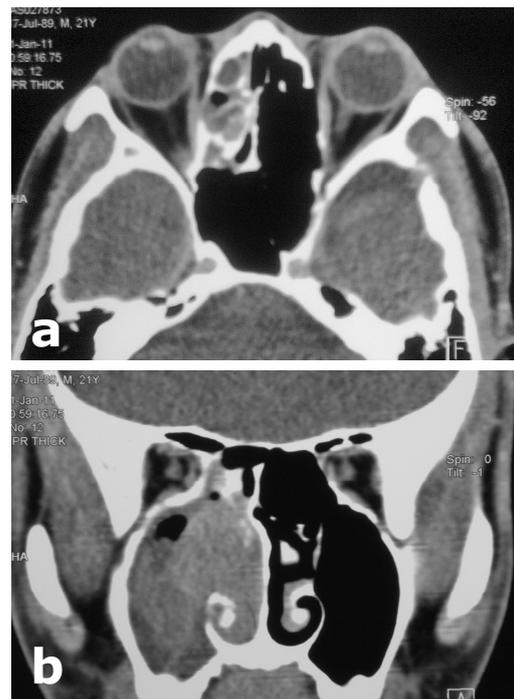
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On examination, there was a rounded mass in the right infra-orbital region measuring 4 x 4cm. The mass was firm but tender, extending to the midline of the right cheek. Externally, the nose was not deformed. Naso-endoscopic examination revealed a fleshy mass originating from the right lateral wall of the nose with blood clot occupying the entire right nasal cavity. The oral cavity and teeth were normal and there were no palpable neck lymph nodes. Eye and neurological examinations were normal.

A computed tomography (CT) scan of the paranasal space, orbits and neck showed an expansile right maxillary mass extending into the nasal cavity. The lateral wall of nasal cavity appeared to be eroded. The osteomeatal complexes were also obliterated (Figures 1). Blood investigations that included full blood count, biochemical profile and random blood sugar were all within normal limits.

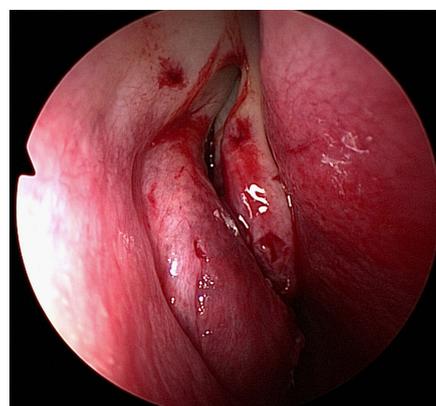
Biopsy was taken twice in the clinic but these only showed inflamed nasal mucosa with abundant necrotic tissue. Therefore, a repeat biopsy was carried out under general anaesthesia. Intra-operatively, the well demarcated fleshy mass was seen occupying the right maxillary sinus. It was adherent to the posterior and superior walls of the right maxillary sinus. There was also erosion of the posterior wall. Histopathological examination of the repeat biopsies revealed the presence of a large number of multinucleated giant cells of osteoclastic type that were evenly distributed, consistent with a diagnosis of GCT (osteoclastoma) of the maxilla.

When the patient was seen three months later, there was evidence of local re-

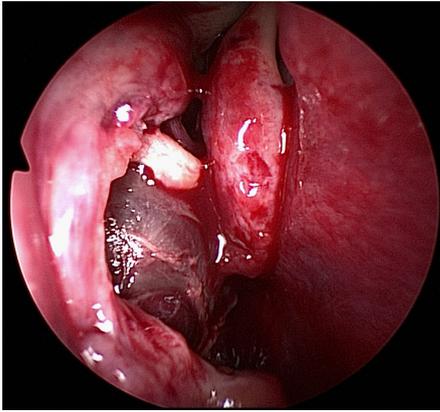


**Figs 1: a) Axial computed tomography (CT) image showing a right maxillary mass obliterating the osteomeatal complex, and b) a coronal view of the lesion.**

currence on endoscopic examination. However, CT scan revealed features suggestive of recurrence. He underwent a successful endoscopic right medial maxillectomy and tumour clearance (Figure 3). Since, there had been no evidence of recurrence on follow up. He continued to be surveyed in the outpatient clinic.



**Fig. 2: Endoscopic image showing a well demarcated fleshy mass occupying right maxillary sinus.**



**Fig. 3: Intra-operative view of the lesion.**

## DISCUSSION

GCT commonly affects the epiphyseal or metaphyseal of long bones, but can occur anyway. Overall, GCT of the craniofacial bones is rare, but there has been a report of a benign maxilla GCT in a patient with Paget's disease of bone.<sup>3</sup> Common presentation of maxilla GCT includes painful swelling of cheek as in our patient, epistaxis, restricted opening of the mouth and toothache. Physical examination often reveals a mass in the nostril with preservation of eye movement without any significant neurological deficit.

Plain radiograph is usually not helpful, but it can be used to rule out odontogenic cyst, a differential diagnosis of GCT of maxilla. CT scan is very useful to assess the extent of the disease. Specific biochemical profile such as alkaline phosphatase is useful to rule out systemic disease such as Paget's disease that have been associated with GCT of the maxilla.

GCT shows many clinical and radiological features that overlap with other bony lesions of the maxilla. These include giant cell

granuloma,<sup>4</sup> aneurysmal bone cyst, odontogenic myxoma, bone vascular lesions, cystic ameloblastoma and malignant neoplasms of the jawbone such as sarcoma and Langerhans cell histiocytosis. Early diagnosis is crucial and it is essential to accurately identify the clinical features and extension of the lesion to differentiate it from other conditions that also contain multinucleated giant cells.

Treatment generally involves either curettage alone, curettage combined with adjuvant therapy (cryosurgery and bone cement or bone graft) or bone resection and amputation. However curettage alone is associated with local recurrence rates of as high between 15% and 42%.<sup>5</sup> Therefore complete resection is usually advocated. Our patient underwent an endoscopic resection but unfortunately tumour recurrence was detected three months later. Our patient proceeded to a second surgery which successfully cleared the tumour. Other treatment options reported for GCT of the long bones include chemical cautery using phenol, multiple freeze-thaw cycles of liquid nitrogen or using high speed rotator burr. There was also a report of a case treated with polymethyl methacrylate cement or bone graft to lower the risk of local recurrence. However, this has not been reported for GCT of the maxilla. Following surgery, patients should be informed of the risk of local recurrence and the need for regular surveillance, especially the first two years when recurrence is most common.

In conclusion, our case reports a rare case of GTC affecting the maxilla and highlights the importance of regular surveillance as recurrence is high. Patient should continued to be followed-up closely even after successful

treatment of recurrence.

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