

## UNUSUAL CASE OF MAXILLARY GIANT CELL GRANULOMA: ITS MANAGEMENT, FUNCTIONAL AND AESTHETIC REHABILITATION

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### ABSTRACT:

Giant cell granuloma (GCG) is a non-neoplastic proliferative growth of unknown etiology. It mostly occurs in young adults and common site is mandible. This paper presents an unusual case of 8 years old young boy with GCG in upper jaw. Clinically, radiologically and histopathologically the lesion behaves aggressively. The lesion presented with history of one year and two months of swelling in maxilla with right nasal obstruction. Required investigations including CT scan and incisional biopsy were performed and Weber Ferguson approach was used to remove the tumour in total. The suturing was performed and primary closure was done. After three months of surgery, primary splint was replaced by definitive acrylic obturator and patient's functions and aesthetics were restored.

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### KEYWORDS:

Giant cell granuloma, maxilla, swelling, radical surgical treatment.

### INTRODUCTION:

Giant cell granuloma is a non-odontogenic locally destructive bony pathology of the jaws. It was first described by Jaffe in 1953.<sup>1,2</sup> The giant cell lesions are pathologies of early adult life and mostly occur in mandibular molar and premolar region.<sup>3,4</sup> The patient reported here was presented with a large unusual giant cell granuloma that involved nearly the entire upper jaw. The lesion was surgically resected and prosthetic reconstruction of ablative defect was done with an acrylic obturator. The presence of lesion in childhood, its aggressive progression, large size, location in maxilla, total surgical removal, no recurrence on long term follow up, prosthetic reconstruction of ablative defect with an obturator and excellent dental rehabilitation make this case unique and peculiar.

### CASE REPORT:

An 8 years old boy was referred from a Tehsil Headquarter Hospital to Punjab Dental Hospital Lahore with complaint of progressively enlarging swelling in left side of his face since last one year and two months. On clinical evaluation, there was a large mass on left side of his upper jaw. Extra-orally, the swelling was elevating his upper lip, left nostril and cheek area (Fig.2a). There was obliteration of naso-labial fold. There was no neurosensory deficit or lymphadenopathy.

Intra-orally, there was a large reddish-purple swelling involving his upper jaw up to first primary molar on right side and second primary molar on left side. The swelling has caused obliteration of labial and buccal vestibules, expansion of palate and grade 1 mobility of associated teeth. There was poor oral hygiene and halitosis as well. Panoramic radiograph and CT scan were done which showed a large bony pathology completely involving the left maxillary sinus with perforation and breakdown of its walls, nasal cavity, palate and alveolar bone (Fig.2b). Superiorly it was extending up to just below the infra-orbital margin and floor of orbit. Incisional biopsy and histopathological examination of specimen from the lesion confirmed the diagnosis of giant cell granuloma (Fig.1). Moreover, relevant investigations i.e. serum PTH,  $Ca^{+2}$ ,  $PO_4^{-3}$ , alkaline phosphatase and vitamin D level were advised which were

within normal range. This excluded the possibility of Brown's tumour of hyperthyroidism.

All treatment options (conservative and surgical) including subtotal maxillectomy were discussed with patient's guardians. A written informed consent was taken after explaining risk benefit ratio. Due to lack of specialized child care unit at Punjab Dental Hospital, the patient was admitted in Children Hospital Lahore and was operated there under general anaesthesia with oro-tracheal intubation. Subtotal maxillectomy was carried out through classic Weber-Ferguson approach to remove the lesion with clear margins (Fig.2c,d). A white head varnish soaked pack was secured in ablative defect and primary closure of incision was

Fig.1: Histopathological specimen of patient showing proliferating fibroblasts multinucleated giant cells in a fibrous stroma, numerous sinusoidal spaces lined by endothelial cells haemosiderin and osteoid deposits and foci of haemorrhage.. The fibrous stroma is loose and is infiltrated by chronic inflammatory cells.

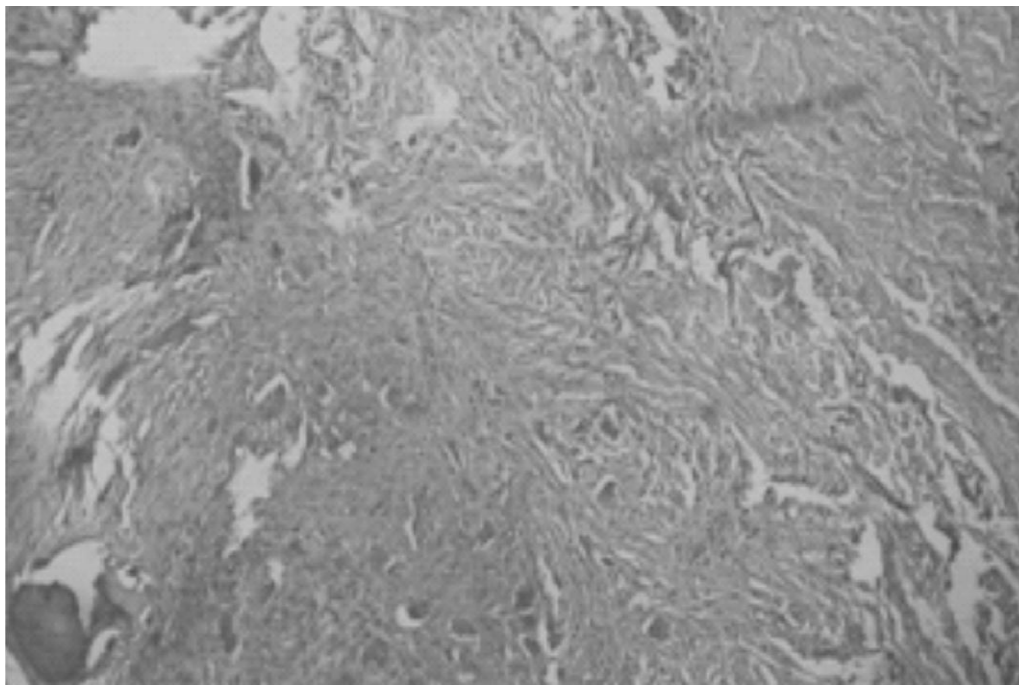
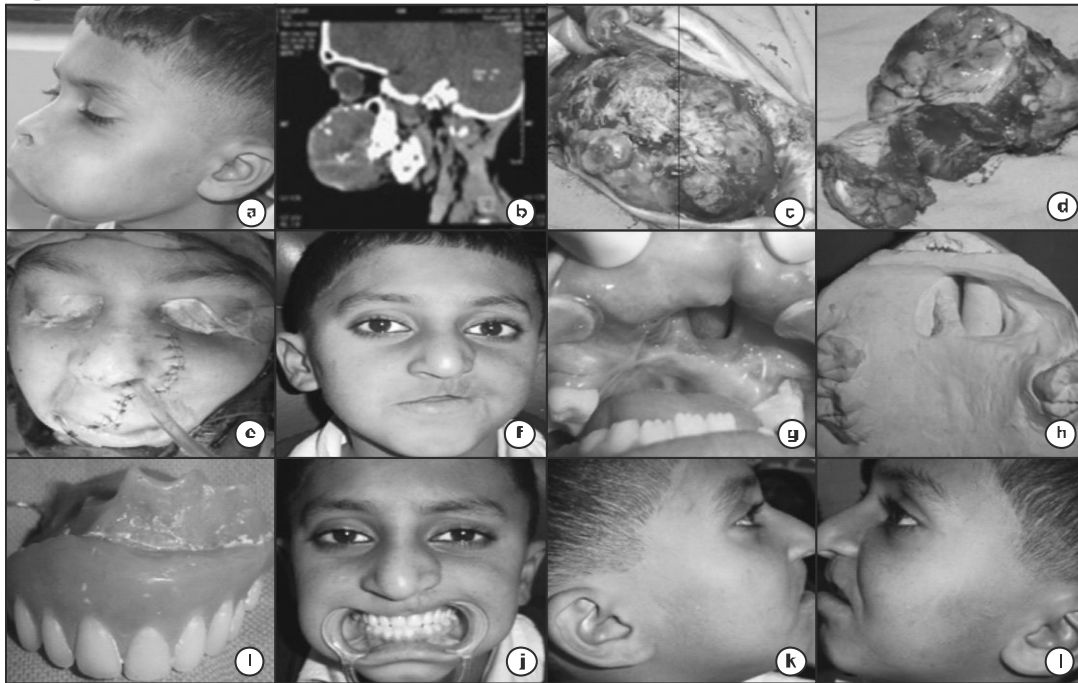


Figure 2: a. Pre-operative profile. b. Sagittal view of CT scan. c. Per-operative view. d. Resected specimen. e. Immediate post-operative. f. Six month's post-op. g. Intra-oral defect. h. Defect on dental cast. i. Obturator with dentition. j. Prosthesis in situ. k & l. R & L profile views.



performed with 3/0 vicryl and 5/0 prolene sutures (Fig.2e). Post-operative recovery was smooth and uneventful. A good post-operative care was provided to the patient. There were no significant complications except functional, aesthetic and psychological impact of surgical defect (Fig.2f). After three months of surgical procedure, impressions were taken to construct dental casts of upper and lower jaws (Fig.2g,h). A well fitted clasp retained heat cured acrylic prosthesis (obturator) was made for reconstruction of ablative defect and dental rehabilitation which suffices the patient's functional and aesthetic requirements (Fig.2i-l).

#### DISCUSSION:

Giant cell granuloma mostly occurs in 2nd and 3rd decades of life. It involves the mandible more often than maxilla.<sup>1,2</sup> According to WHO definition, it is an intra-osseous pathological lesion containing cellular fibrous connective tissue with foci of haemorrhage, multi-nucleated giant cells and trabeculae of woven bone.<sup>4,7</sup>

Different giant cell lesions include giant cell granulomas (central and peripheral), giant cell tumour, Brown's tumour of hyperthyroidism, cherubism and aneurysmal bone cyst. Central giant cell granuloma has two variants: non-aggressive and aggressive. Non-aggressive variant grows as a slowly enlarging swelling. The aggressive variant may exhibit a rapid growth and leads to a lot of bone destruction and erosion. However, it does not involve perinuclear sheets and parasthesia is not observed in these patients. Radiologically, giant cell granuloma appears as a multilocular radiolucent lesion, with poorly demarcated or well demarcated soap bubble appearance.<sup>3</sup> Histologically giant cell granuloma consists of proliferating fibroblasts with multi-nucleated giant cells in a fibrous stroma, numerous sinusoidal spaces lined by endothelial cells, haemosiderin and osteoid deposits, foci of haemorrhage and an infiltrate of chronic inflammatory cells.<sup>7,8</sup>

Various treatment modalities for giant cell granuloma include medical and surgical

options. The selection of treatment option depends on size, site and nature of lesion, its aggressiveness and rate of recurrence. Non-surgical options include daily systemic doses of calcitonin, intra-lesional injections of corticosteroids, laser therapy or cryotherapy. Non-surgical treatment is applicable for slow growing non-aggressive lesions. Surgery is the most commonly used treatment modality for large aggressive lesions. Various surgical options include surgical excision and curettage with cryosurgery or peripheral osteotomy, marginal, segmental or radical resection and partial or subtotal or total maxillectomy.<sup>5,6</sup>

Conventional management of GCG consists of enucleation and curettage with recurrence rate of 15-30%. Recurrence rate after radical surgery is 4-20%. Pogrel AM<sup>1</sup>, Uzbek UH<sup>7</sup> and Pankajakshi BK, et al<sup>9</sup> suggest that for more aggressive giant cell granuloma bloc resection and suitable reconstruction of affected area is the most appropriate management approach. In the presently reported case a radical surgical resection was performed depending on large size and aggressiveness of the lesion and to prevent recurrence. Radiation therapy in such cases is contraindicated that may lead to malignant transformation. In the present case a good dental rehabilitation and reconstruction of the ablative defect was achieved by an obturator based heat cured acrylic denture. It has fulfilled the patient's functional, aesthetic and phonetic requirements. With advancing age, future reconstruction plan can be either prosthetic or surgical option. The obturator can be made sequentially with increasing age until the growth spurt is over. Moreover, osteointegrated implant supported obturator, a two part obturator, or a hollow bulb obturator can also be considered. After that, definitive reconstruction can be done with free bone graft or micro-vascular free tissue transfer and implant supported dental prosthesis by explaining risk benefit ratio of various options to the patient.<sup>10,11</sup>

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