

## Central giant cell granuloma: A destructive lesion

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### ABSTRACT

Central giant cell granuloma (CGCG) is a benign proliferation of fibroblasts and multinucleated giant cells that almost exclusively occurs within the jaw. It commonly occurs in the young adults showing a female predilection. It was thought that CGCG is a reparative lesion as it developed in response to intrabony hemorrhage and inflammation secondary to trauma. However, it can be considered as a destructive lesion because of its aggressive behavior and predilection for recurrence as seen in the present case

**Keywords:** Central, giant cell, granuloma, aggressive, jaws

### Introduction

Central giant cell granuloma (CGCG) of the jaw is one of the relatively rare pathologic processes and encountered, in less than 7% of all of the jaw lesions. [1] It was first described by Jaffe in 1953. The WHO has defined it as “an intraosseous lesion consisting of cellular fibrous tissue that contains multiple foci of hemorrhage, aggregations of multinucleated giant cells and occasionally trabeculae of woven bone” [2] It commonly occurs in the young adults showing a female predilection. Though it is a benign lesion its aggressive behavior and history of recurrence has been well documented. [3] We present an interesting case of a recurrent CGCG in a 13 year old boy.

### Case report

A 13 year old male patient presented, with chief complaint of gradually increasing dull painful swelling in the left side of the lower half of the face since 5 months. On extraoral examination the single mass was present in the angle region of the mandible, measured 4 x4 cm, hard, fixed to the underlying bone and elicited a dull pain. [Fig. 1] Intraoral examination did not reveal any significant finding.

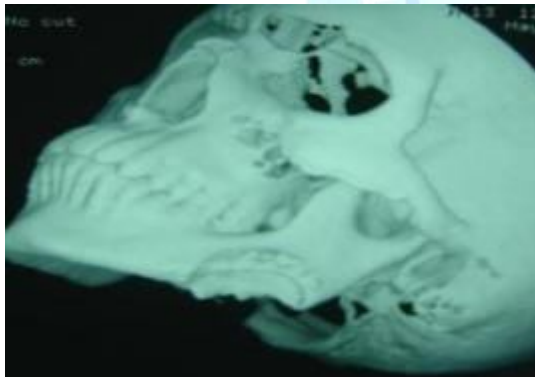
The OPG showed a multilocular lesion; expansile tumor. [Fig. 2] The CT scan showed the extent of the lesion, confined to the left side of mandible. There was expansion and thinning of the lower border of mandible, along with perforated bone cortices. [Fig. 3]



**Fig. 1 Swelling on the left side of face**



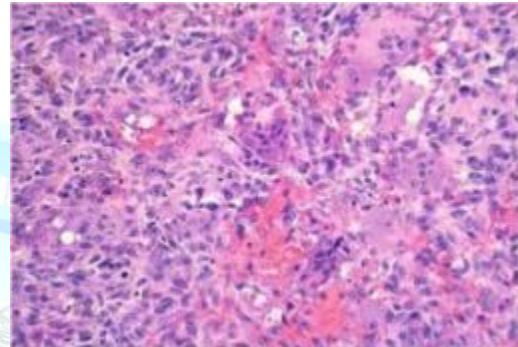
**Fig. 2 Appearance of expansive and multilocular lesion**



**Fig. 3 CT Scan shows the extent of lesion**

The patient gave a history of a similar occurrence in the same area about 2 years back for which he was operated in a local hospital and was fine until 6 months when he developed pain in the operated area which was accompanied by gradually increasing swelling which reached the present size. Based on previous history, clinical and radiological findings an

incisional biopsy was done which showed mono and multinucleated giant cells consisting up to six nuclei. The cells were oval to spindle in shape with varying sizes arranged in the form of sheets the histopathology confirmed the diagnosis of a central giant cell granuloma. [Fig. 4] Later, the patient was subjected to surgery under GA and the entire mass was excised [Fig. 5] and after 18 month follow up the patient reported without any problems. [Fig. 6]



**Fig. 4 Multinucleated giant cells in highly vascular connective tissue**



**Fig. 5 Excised specimen**



**Fig. 6 After 18 months follow up**

## **Discussion**

CGCG of the jaws is a lesion of the bone that is generally thought to be reactive rather than neoplastic in nature.<sup>[4]</sup> It is of two types based on its clinical and radiological features as the aggressive and the non-aggressive variant. The aggressive lesion is found in young patients characterized by rapid growth, pain, expansion and/or perforation of the cortical bone, induce root resorption and high recurrence rate<sup>[5]</sup> whereas the non-aggressive lesion is characterized by slow growth that does not perforate the cortical bone or induce root resorption and has a low recurrence rate.<sup>[6]</sup>

More than 60% of cases of CGCG occur in children and patients under 30 years of age.<sup>[7]</sup> The mandibular / maxillary ratio has been reported as being from 2:1<sup>[8]</sup> to 3:1.<sup>[2]</sup> Lesions are more common in the anterior region of the jaws, and mandibular lesions frequently extend across the midline. Radiographically, the majority of CGCGs (87.5%) present as an expansile radiolucency, either unilocular or multilocular, which is generally traversed by bony spicules.<sup>[7]</sup>

In our case, the occurrence was slightly different than the earlier cases where there was a female predilection and the anterior mandible was the most affected site, the patient was a young boy of 13 years, with probable history of recurrence in the same region i.e the posterior mandible, the lesion showed a multilocular radiological appearance.

Histopathology of the CGCG classically shows a cell rich fibrous stroma, with multiple areas of haemorrhage interspersed with many giant cells. In our case too, both the incisional and excisional biopsy showed a similar picture of multinucleated giant cells in a fibrovascular

stroma which confirmed the diagnosis of a CGCG.<sup>[9]</sup>

While the therapy of choice is conservative surgical curettage, enucleation plus resection may be necessary in aggressive lesions of extensively destructive type. It was observed that curettage with peripheral osteotomy was a convenient method for the treatment of giant cell granuloma of the mandible (recurrence in three cases only).<sup>[3, 5]</sup> In this case curettage and enucleation has been applied and the extensive bone defect was completely ossified. There was no sign of recurrence at the end of the one and half year follow-up.

## **Conclusion**

CGCG is a rare tumor of the jaws and sometimes can show a destructive course and hence correct diagnosis is needed, by correlating clinical and histological features. Since the tumor is more prone in teenagers it is imperative that treatment be initiated at the earliest and suitable follow up be done to calm the apprehension of the patient and relatives.

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