

CASE REPORT

## Central Giant Cell Granuloma

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### Abstract:

The central giant cell granuloma or CGCG is a relatively uncommon pathological condition accounting for less than 7% of all benign lesions of the jaws. The clinical behavior of CGCG of the jaws is variable and difficult to predict. It is predominantly found in children and young adults. A case of 21 yr old male with CGCG in mandible is presented.

**Key words:** *Central giant cell granuloma, Unilocular, Mandible.*

### INTRODUCTION

Central giant cell granuloma is a benign lesion of jaws of unknown etiology. The World Health Organization 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.

Clinically, CGCG occurs most commonly in young adults and has a female predilection.<sup>1,2,3</sup> Lesions are more commonly located in the mandible and frequently cross the midline.<sup>1-4</sup> It is widely appreciated, however, that this lesion exhibits a variable clinical behavior and demonstrates varying, histopathological features. Furthermore, the radiographic appearance of CGCG is not pathognomonic and may be confused with several other lesions of the jaws, such as brown tumor of hyperparathyroidism, fibrous dysplasia, aneurysmal bone cyst, and other fibro-osseous lesions. The clinical

behavior of CGCG can vary from benign to rather aggressive lesion.<sup>5,6</sup> Here we report a case of Central giant cell granuloma in mandible.

### CASE REPORT

A 21 year old male visited Oral Medicine and Radiology department, with a complaint of swelling in right back teeth region of lower jaw since 1 month which is related to food lodgment one month before, after which he developed swelling. No previous history of pain or trauma was reported.

There is extraoral swelling (Fig 1) but on intraoral examination there is a well circumscribed non tender oval shaped soft cystic fluctuant swelling of 2x1.5 cm<sup>2</sup> size extending from distal of 43 to mesial of 46 (Fig 2) with buccal cortical plate expansion, no displacement of teeth and involved teeth were vital.

Panoramic radiograph revealed a well defined tear drop shaped unilocular radiolucency between 44 and 45 surrounded with a sclerotic border. There

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is slight displacement of roots with loss of laminadura on the side involved of both teeth. Aspiration yielded no fluid.

Based on these findings a provisional diagnosis of Lateral periodontal cyst was made and under differential diagnosis Central giant cell granuloma, central ossifying fibroma, and radicular cyst were considered.

The lesion was surgically removed under Local anesthesia and the specimen was sent to histopathology for evaluation which revealed multinucleated giant cells in a highly vascular connective tissue with chronic inflammatory infiltration but with no evidence of epithelium. So a final diagnosis of CGCG was arrived at.

## DISCUSSION

Giant Cell Reparative Granuloma was introduced by Jaffe in 1953 to describe an apparently reactive intraosseous lesion of the mandible and maxilla following trauma induced intraosseous hemorrhage and containing prominent giant cells. It is a disease of the young presenting as a painless swelling in the anterior jaw and radiographically appearing as a lytic expansile lesion with a characteristic tendency of resorbing the root tips of adjacent unerupted teeth. It is also known as Central Giant Cell Granuloma.<sup>9</sup>

## CLASSIFICATION OF GIANT CELL LESIONS (8)

### I. INFECTIONS

#### A) BACTERIAL

- Tuberculosis
- Syphilis
- Leprosy
- Actinomycosis
- Yaws
- Bejel
- Rhinossarcoma
- Osteomyelitis

#### B) VIRAL

- Herpes simplex

- Herpes zoster

- Mumps

- CMV infection

- Measles

#### C) FUNGAL

- Histoplasmosis

- Blastomycosis

- Sporotrichosis

- Coccidioidomycosis

- Other deep fungal infections

#### D) PROTOZOAL

- Leishmaniasis

#### E) CHLAMYDIAL

- Lymphogranuloma venerum

## II) NON-INFECTIVE GRANULOMAS

- Wegener's granulomatosis

- Midline lethal granuloma

- Sarcoidosis

- Plasma cell granuloma

## III) NON-NEOPLASTIC LESIONS

#### A) SOFT TISSUE

- Peripheral giant cell granuloma

- Giant cell fibroma

- Pseudosarcomatous fasciitis

- Xanthogranuloma

- Traumatic granuloma

#### B) BONE

- Central giant cell granuloma

- Brown tumour of hyperparathyroidism

- Cherubism

- Fibrous dysplasia

- Paget's disease

Histiocytosis X

Osteomalacia

#### IV) CYSTS

Aneurysmal Bone cyst

Calcifying epithelial odontogenic cyst

Solitary bone cyst

#### V) NEOPLASMS

##### A) BENIGN

Giant cell tumour

Osteoid osteoma

Osteoblastoma

Central Haemangioma

##### B) MALIGNANT

Osteosarcoma

Hodgkin's Lymphoma

Reticular cell sarcoma

Lymphosarcoma

Other malignant tumours with tumour giant cells

#### VI) MISCELLANEOUS

Internal resorption

External resorption

Massive osteolysis

Spindle and/or epitheloid cell naevus

CGCG is generally thought to be reactive rather than neoplastic in nature.<sup>1-4</sup> Electronmicroscopic and Immunohistologic analysis showed that CGCG is a process that arises from monohistocyte like cells.<sup>7</sup> In the literature reviewed, slight female predominance was found for CGCG<sup>1,3</sup> which may be explained by recent suggestions of the association between hormonal secretion and the appearance of CGCG in females. In young children, the craniofacial skeleton

is actively developing to include osteogenesis, exfoliation and eruption of teeth. These processes cease in adulthood and may therefore predispose to CGCG formation in younger individuals.<sup>6</sup>

The clinical behavior of the lesion varies from an asymptomatic osteolytic lesion that grows slowly without expansion, to an aggressive, painful process accompanied by root resorption, cortical bone destruction, and extension into the soft tissues. In the past, lesions were classified as aggressive or non-aggressive, based on their clinical and radiological behavior. Aggressive lesions are characterized by their ability to destroy bone, resorb teeth, and displace anatomical structures, such as teeth, the mandibular canal, and the floor of maxillary antrum.<sup>6</sup>

The radiological feature of CGCG described in the literature is variable ranging from multilocular to unilocular radiolucent lesions. The variability in the description of radiographic features in the literature is consistent with the nature of CGCG. CGCG is reported to have a low growth index; therefore, their borders appear to be distinct and non-diffuse.<sup>2,6</sup>

CT is excellent for demonstration of bony thinning or destruction. The lesion attenuation is similar to muscle. MRI is the best modality of evaluating extent of the lesion as well as evaluating adjacent soft tissue. It has low to intermediate intensity signals on both T1W & T2W images similar to Giant cell tumor. Mild post contrast enhancement is evident both on CT & MRI.<sup>9</sup>

Management includes simple Enucleation or curettage to En bloc resection. Non surgical treatment of CGCG is by intralesional instillation of corticosteroids, subcutaneous calcitonin injections and alpha interferons.<sup>7</sup>

#### CONCLUSION

A case of CGCG in a 21 year old male patient is reported and its clinical, histopathological and radiological features are discussed. Further research is needed to clarify the pathogenesis and nature of these giant cell lesions and other markers have to be investigated.

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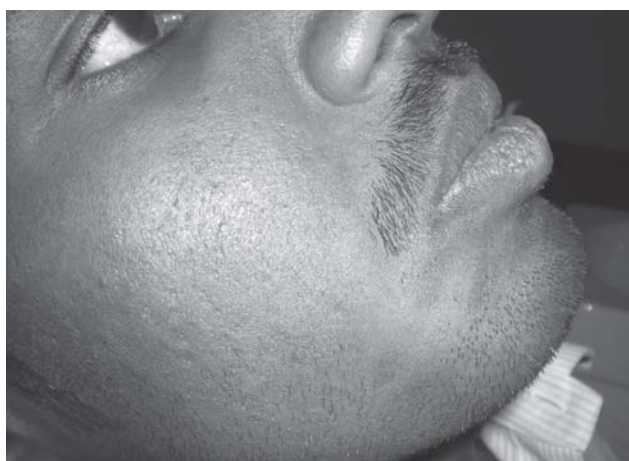
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**Fig. 1:** Oval shaped soft cystic swelling



**Fig. 2:** Swelling with buccal cortical plate expansion



**Fig. 1:** Extra oral swelling