

## Central Giant Cell Granuloma of Anterior Mandible in A 58-Year Old Man: A Case Report

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**Abstract:** Central giant cell granuloma (CGCG) is a benign intraosseous osteolytic tumor of the jaws with an unknown etiology. Clinically and radiologically, there are two variants, aggressive and non-aggressive. The lesion usually occur in patients younger than 30 years. Histologically identical lesions occur in patients with known genetic lesions such as cherubism, Noonan syndrome, or neurofibromatosis type 1. Surgical curettage or in aggressive lesions, resection, is the most common therapy. Histologically this lesion consists of cellular fibrotic tissue with multinucleated giant cells, multiple foci of hemorrhage and trabecules of woven bone.

**Keywords:** Central giant cell granuloma; Intraosseous lesion; Osteolytic; Biopsy

### I. Introduction

Central giant cell granuloma (CGCG) is an infrequent benign intraosseous lesion that occurs usually in the jaws. This lesion has variable clinical behavior and is difficult to anticipate. The CGCG of the jaws is frequently a non-neoplastic bone lesion accounting for not more than 7% of all benign tumors of the jaws. (Hongal, Joshi, Kulkarni, & Baldawa, 2015).

The more aggressive lesions present a high-tendency of recurrence after enucleation; so, en bloc resection and microvascular bone free flap transfer are usually done. However, in young patients aggressive surgery is a not always suitable solution (Tarsitano, Del Corso, Pizzigallo, & Marchetti, 2015).

Microscopically, the features of CGCG are identical to the brown tumour of hyperparathyroidism and to giant cell lesions of genetic disorders such as cherubism, Noonan syndrome and neurofibromatosis Type 1 (De Lange, van den Akker, & van den Berg, 2007).

### II. Case Report

A 58-year-old male patient was referred from a private office to the outpatient clinic of the Department of Oral Surgery at faculty of dentistry – Cairo university with a complaint of swelling with painful and hemorrhagic gum in the lower anterior alveolar ridge area. It was started about two months ago in a smaller dimension gradually increasing in size.

Intraorally, firm lobulated mass with irregular border presented distal to the lower left central incisor extending to the mesial surface of the lower left canine, approximately 2 cm in size. the lower left lateral incisor was absent (Fig. 1). The routine laboratory investigations were normal.



**Figure 1:** Swelling over the lower anterior alveolar ridge area .

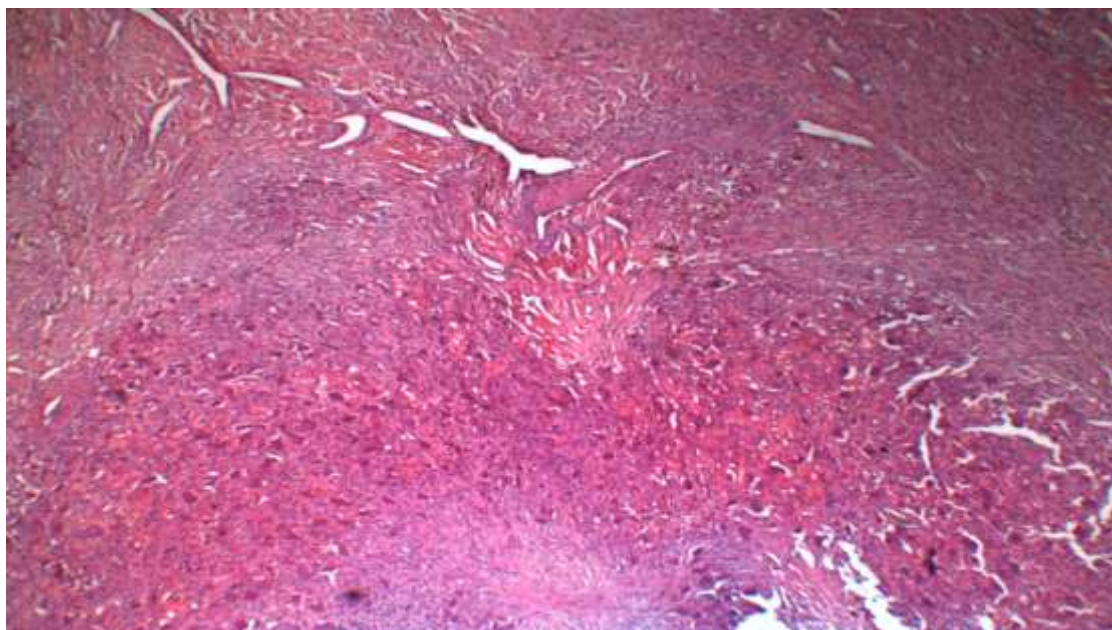
Panoramic radiograph was made. The images demonstrated a Radiolucent defect with displaced lower incisors (Fig. 2).



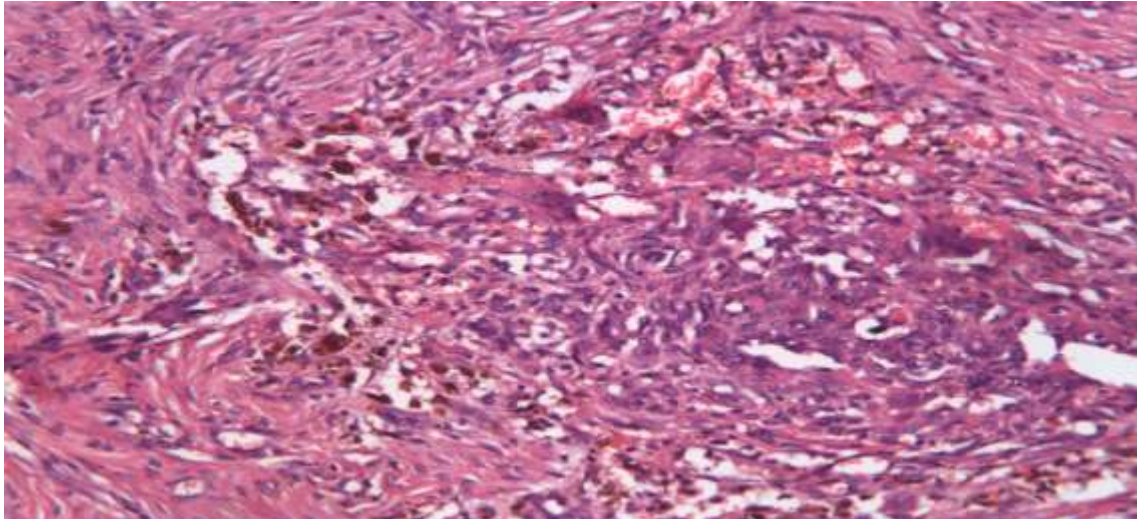
**Figure 2:** Panoramic radiograph represents a Radiolucent defect with displaced lower incisors

Based on clinical and radiographic findings, differential diagnosis of peripheral giant cell granuloma, irritation fibroma was made . To confirm initial diagnosis, excisional biopsy of the lesion was performed .

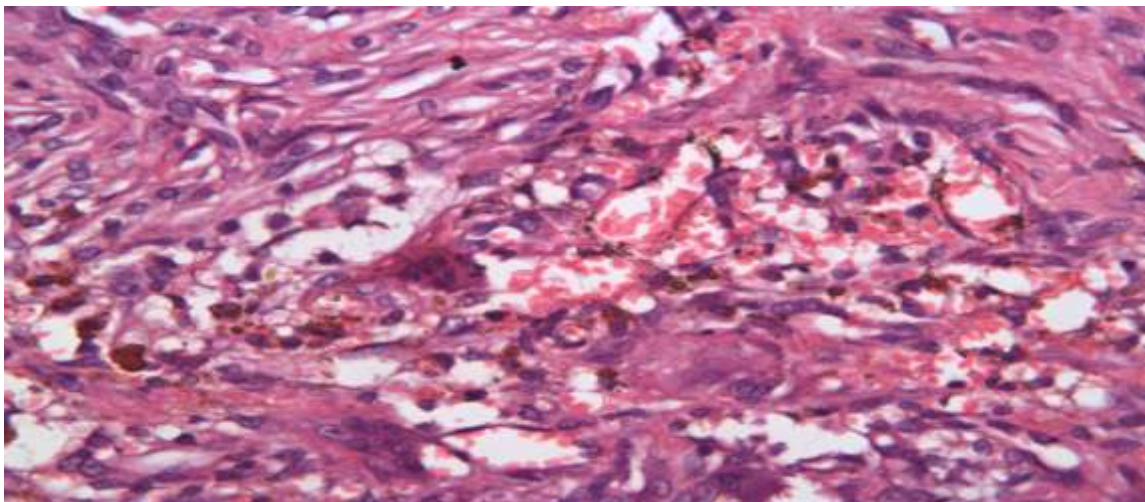
Histopathological examination of H&E stained sections revealed a connective tissue stroma formed of numerous multinucleated giant cells and chronic inflammatory cell infiltrate. Numerous dilated blood vessels and hemosiderin granules are also observed (Fig. 3,4 and 5). There was no any epithelium seen microscopally suggesting that the lesion is aggressive central giant cell granuloma that eroded through the cortical plate into the gingival soft tissues.



**Figure 3:** Photomicrographs at 40 × of haematoxylin- and eosin-stained slides showing lobules of giant cell granuloma separated with broad interstitial fibrous connective tissue bands.



**Figure 4:** Photomicrographs at 200 × of haematoxylin- and eosin-stained slides showing connective tissue stroma, proliferating fibroblast, multinucleated giant cells and interspersed hemosiderin pigment.



**Figure 5:** Photomicrographs at 400 × of haematoxylin- and eosin-stained slides showing numerous multinucleated giant cells and chronic inflammatory cell infiltrate. Numerous dilated blood vessels and hemosiderin granules are also observed.

### III. Discussion

Central giant cell granuloma (CGCG) of the jaws is an uncommon benign intraosseous lesions which is usually seen as non symptomatic lesion in the mandible anterior to the first molar area. It is a localized lesion with the different biologic behavior of aggression which affects the jaw bones. There are much controversies about it as a result of trauma and its relation to the giant cell lesion seen in the long bones. Since the lesion is infrequent, does not possess any clinical or radiologic features, the diagnosis is initially some odontogenic or non-odontogenic neoplasm till a definitive histologic diagnosis of CGCG is made. CGCG is classified into a rare aggressive and a common non aggressive variant based on the clinical and radiographic features (Baskaran, Gopal, Rastogi, & Misra, 2015).

CGCGs are usually diagnosed incidentally on routine dental radiography. Some patients experience symptoms, such as swelling, pain or perforation of the cortical bone leading to ulceration and oral communication. Although most occur in patients younger than thirty, The age range for those affected is broad (Barnes et al., 2005). CGCGs may appear sporadically or in association with other lesions like Cherubism, Noonan Syndrome, Jaffe-Campanacci Syndrome, Neurofibromatosis type 1 or Ramon Syndrome (Edwards, Fox, Fantasia, Goldberg, & Kelsch, 2005).

The Diagnosis of CGCG is usually made histologically from an incisional biopsy. It appears typical with multinucleated giant cells throughout the lesion but often focal around areas of hemorrhage unlike the giant cell tumor of long bones, where the giant cells are more evenly distributed. There is a spindle cell matrix with possible areas of hemorrhage. The giant cells can possess up to 30 nuclei evenly distributed, unlike the

giant cells of tuberculosis, which are arranged in a horseshoe shape. (O'Malley, Pogrel, Stewart, Silva, & Regezi, 1997) .

#### **IV. Conclusion**

The central giant cell granuloma (CGCG) is a benign, nonneoplastic lesion of jaws usually present in a younger patients less than 30 years of age. Usually discovered through a radiograph as a radiolucent lesion of the mandible or maxilla. the exact etiology is unknown and still controversial. The CGCG may be reactive, but it is classified as a benign, nonneoplastic lesion. The lesion consists of non-neoplastic vascular tissue, with giant cells and haemosiderin.

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