

CENTRAL GIANT CELL GRANULOMA A HISTOLOGICAL FINDING- A CASE REPORT

*Dr. Rajib Khadka, *MDS, FAGE*

**Dr. Bikas Desai, *BDS*

***Dr. Vivek Singh, *BDS*

*Assistant Professor

** & *** Dental Surgeon, Dept. of Oral and Maxillofacial Surgery, Universal
College of Medical Sciences, College of Dental Surgery, Bhairahawa, Nepal

ABSTRACT

The purpose of this case presentation is to make aware of the fact that the appearance of the Central Giant Cell Granuloma (CGCG) is not pathognomic and may be confused with other lesions of the jaw, both neoplastic and non-neoplastic.

If the internal structure of the CGCG contains septa, it may be confused with ameloblastoma, odontogenic myxoma, and aneurysmal bone cyst. If the internal structure is granular, cemento ossifying fibroma may be considered¹.

A CGCG lesion with a totally radiolucent internal structure may be similar in appearance with a cyst. Evidence of displacement or resorption of the adjacent teeth or expansion of the cortical bone is more characteristic of CGCG.²

Key words: Central Giant Cell Granuloma, multinucleated giant cells, collagenous stroma, aggressive curettage.

INTRODUCTION

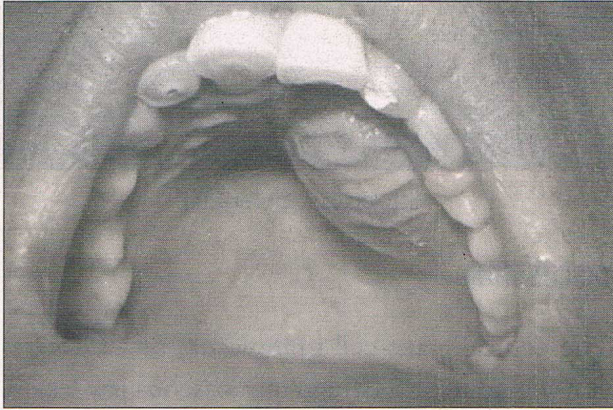
The central giant cell granuloma (CGCG) is a benign intraosseous lesion of the jaw found in the anterior region of the maxilla and the mandible in younger people (less than 30 years) and has a slight predilection for females.² It is characterized by large lesions that expand the cortical plate and can resorb roots and move teeth. It is composed of multinucleated giant cells.

It is an asymptomatic lesion, which often becomes evident on routine radiographic examination but sometimes can cause clinically visible swelling if it perforates the cortical plate. Giant cell lesions have been described as both nonaggressive and aggressive in nature, with recurrence noted in cases of aggressive lesions.^{2,3} Central giant cell lesions present as unilocular or multilocular radiolucent defects on radiographs.¹ Multinucleated giant cells within a collagenous stroma are the characteristic histopathologic feature of CGCG.²

CASE REPORT

A 24 year old female patient came to the Dept. of Oral and Maxillofacial Surgery with the chief complaint of swelling in the palate since one year. The swelling was painless but had enlarged rapidly in last 15 days. Patient also complained of occasional headache and vomiting.

On clinical examination 22 was non vital; 18, 17, 27, 28 were decayed and 37 was missing.



Pre-operative picture of the swelling

Clinical provisional diagnosis included radicular cyst, periapical granuloma OKC, ameloblastoma, odontogenic myxoma, hemangioma, central odontogenic fibroma, hyperparathyroid tumor, and cherubism.



Occlusal radiograph of the patient

On radiological examination large cyst of about 3cm x 2cm was seen extending from central incisor on upper right side to 2nd premolar on the upper left side mesiodistally

INVESTIGATION (FNAC)

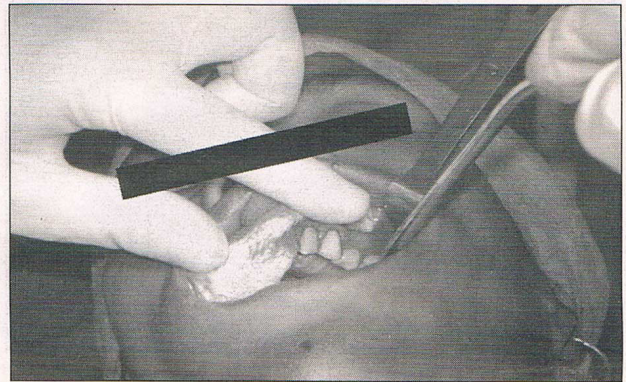
The cystic fluid was aspirated which was straw colored fluid; and was sent for histological examination.



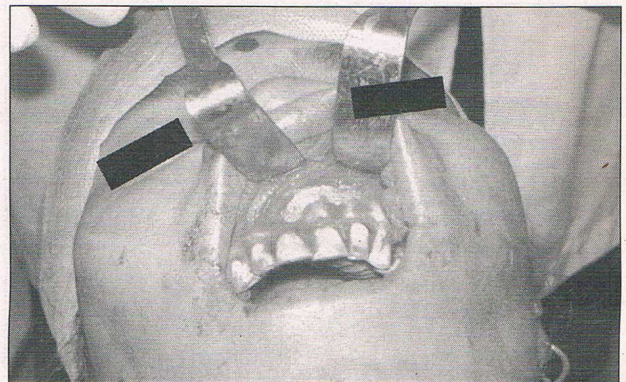
Histological picture(40X)

TREATMENT PLAN

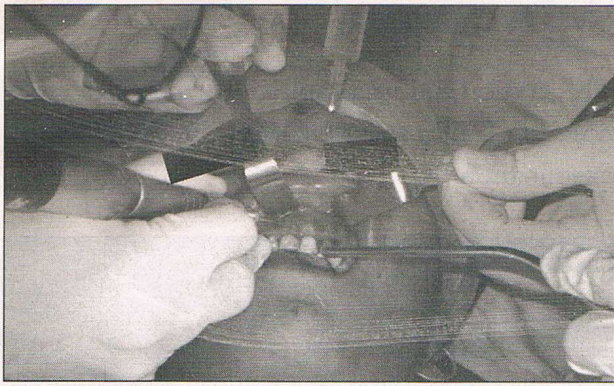
Root canal treatment of 12, 21, 22, 23, 24, 25 to be done prior to enucleation. Over obturation advised in all the teeth followed by enucleation and apicoectomy.



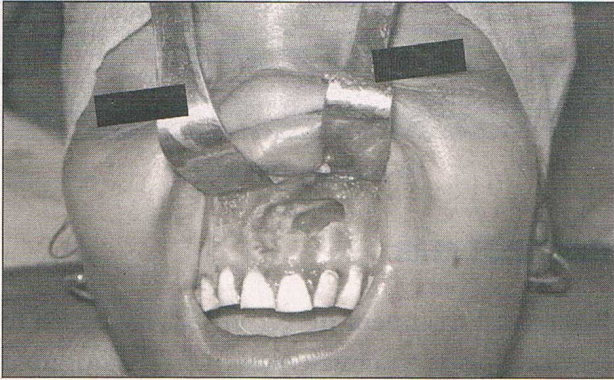
Incision being placed



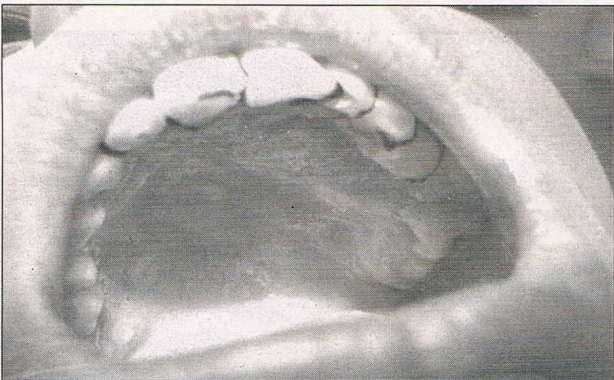
Mucoperiosteal flap raised



Removal of labial bone



After excision and curettage



After placement of suture



One month post operatively

BIOPSY REPORT

Fibroblastic proliferation present along with some multinucleated giant cells. Large collection of lymphocytes and few plasma cells were also present.



Histological picture(40X)

DISCUSSION

The central giant-cell granuloma, or CGCG, is considered to be a benign intraosseous jaw lesion. 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.⁴

Early reports about CGCG have portrayed it as a sarcoma, with some lesions demonstrating aggressive behavior similar to that of a neoplasm. Up until the early 1950s, most investigators thought that CGCG represented a true giant-cell tumor of bone. That position changed in 1953 when Jaffe⁵ introduced the term "giant-cell reparative granuloma" to separate CGCG of the jaws from other giant-cell lesions of bone. Jaffe⁵ speculated that these lesions were a reparative response to intrabony hemorrhage and inflammation. This terminology conveyed the idea that the lesion was not a neoplasm. Within the last several years, the word "reparative" has been dropped by most oral and maxillofacial pathologists because the lesion is typically destructive and aggressive, rather than reparative. Currently, these lesions are

designated as giant-cell granuloma or the more noncommittal term "giant-cell lesion."³ The true nature of CGCG remains unknown, despite considerable controversy and discussion in the literature. Many theories have been proposed to explain the etiology and pathogenesis of CGCG. Authorities have viewed it as a reparative process,⁶ a neoplasm of bone⁷ and an anomaly closely related to the aneurysmal bone cyst⁸ but the first two descriptions are now generally regarded to be inaccurate.

CGCG is an uncommon lesion, accounting for less than 7 percent of all benign jaw lesions. The lesion is found predominantly in children and young adults, with more than 60 percent of all cases occurring before the age of 30 years. There is a distinct sex predilection, with a female-to-male ratio of 2:1.² Lesions occur more frequently in the mandible than in the maxilla. Lesions are more common in the anterior region of the jaws, and mandibular lesions frequently extend across the midline.

CGCG usually is an asymptomatic lesion, which may become evident during routine radiographic examination or as a result of painless but visible expansion of the affected jaw. Cortical bone plates are thinned, but perforation into surrounding soft tissue is rare. Radiographically, central giant-cell lesions present as radiolucent defects, which may be unilocular or multilocular.¹ The defect usually is well-circumscribed and, in some cases, displacement of teeth can be found. The radiographic findings are not specifically diagnostic. Small unilocular lesions can be confused with periapical cysts, and multilocular giant-cell lesions cannot be distinguished radiographically from ameloblastomas or other multilocular lesions.^{2,3} Central giant-cell lesions of the jaws are categorized on the basis of radiographic and clinical features. Aggressive and nonaggressive lesions have been described, with the likelihood of recurrence a feature of aggressive lesions.^{2,3} In addition, the

aggressive lesions are found in younger patients, grow quickly, cause pain and induce root resorption and bone perforation.⁹ Studies have failed to identify any biochemical or histologic differences between the aggressive and nonaggressive variants.^{10,11} Most studies have looked for differences in giant cells to make such determinations, but no such differences have been found.^{12,13}

Giant-cell lesions of the jaw exhibit a variety of histopathologic features. Common to all lesions is the presence of multinucleated giant cells in a background of collagenous stroma containing spindle cells. The giant cells are frequently aggregated around numerous vascular channels within the lesion.² Some lesions exhibit considerable fibrosis of the stroma and foci of osteoid and newly formed bone. A patchy distribution of cellular elements is one feature that helps differentiate CGCG from true giant-cell tumors, which are more homogenous. The histopathologic findings closely resemble, and may be identical with, those seen in cherubism, the aneurysmal bone cyst and the brown tumor of hyperparathyroidism.

Surgical management of the CGCG with aggressive curettage is regarded as the treatment of choice.⁹ Resection is performed for recurrent or more aggressive variants, which leads to major defects and loss of teeth. This is particularly mutilating in a growing child or young adult. In such cases, extensive reconstructive procedures are required for anatomic restoration and rehabilitation to achieve satisfactory form and function.

An alternative, nonsurgical approach, first described by Jacoway and colleagues,¹⁴ is the intralesional administration of corticosteroids. Some investigators subsequently reported successful treatment of CGCG with intralesional steroid injections.¹⁵⁻¹⁸

CONCLUSION

A lesion which looked like a cyst clinically and radiographically turned out to be a CGCG on histological examination. This clearly emphasizes on the need for histological examination to establish a correct diagnosis. Due to lack of enough facilities at our center we couldn't go for alternative nonsurgical approach such as intralesional corticosteroid. So we opted for aggressive curettage. The postoperative healing has been good and patient is to go for crown for the RCT treated teeth.

REFERENCES

1. Chuong R, Kaban LB, Kozakewich H, Perez-Atayde A. Central giant cell lesions of the jaws: a clinicopathologic study. *J Oral Maxillofac Surg* 1986; 44: 708-13.
2. Regezi JA, Sciubba JJ. Oral pathology: Clinical-pathologic correlations. 2nd ed. Philadelphia: Saunders; 1989:379-81.
3. Neville BW, Damm DD, Allen CM, Bouquot JE. Oral maxillofacial pathology. Philadelphia: Saunders; 1995:453.
4. Kramer IR, Pinborg JJ, Shear M. Histologic typing of odontogenic tumors. 2nd ed. Berlin: Springer-Verlag; 1991:31.
5. Jaffe HL. Giant-cell reparative granuloma, traumatic bone cyst, and fibrous (fibro-osseous) dysplasia of the jawbones. *Oral Surg Oral Med Oral Pathol* 1953; 6:159-75.
6. Bernier JL, Cahn LR. The peripheral giant cell reparative granuloma. *JADA* 1954; 49: 141-8.
7. Waldron CA, Shafer WG. The central giant cell reparative granuloma of the jaws. *Am J Clin Pathol* 1966; 45: 437-47.
8. Eisenbud L, Attie J, Garlick J, Platt N. Aneurysmal bone cyst of the mandible. *Oral Surg Oral Med Oral Pathol* 1987; 64: 202-6.
9. Eisenbud L, Stern M, Rothberg M, Sachs SA. Central giant cell granuloma of the jaws: experiences in the management of thirty-seven cases. *J Oral Maxillofac Surg* 1988; 46:376-84.
10. Eckardt A, Pogrel MA, Kaban LB, Chew K, Mayall BH. Central giant cell granulomas of the jaws: nuclear DNA analysis using image cytometry. *Int J Oral Maxillofac Surg* 1989; 18: 3-6.
11. Regezi JA, Zarbo RJ, Lloyd RV. HLA-DR antigen detection in giant cell lesions. *J Oral Pathol* 1986; 15: 434-8.
12. Ficara G, Kaban LB, Hansen LS. Central giant cell lesions of the mandible and maxilla: a clinico-pathologic and cytometric study. *Oral Surg Oral Med Oral Pathol* 1987; 64: 44-9.
13. Tiffée JC, Aufdemorte TB. Markers for macrophage and osteoclast lineages in giant cell lesions of the oral cavity. *J Oral Maxillofac Surg* 1997; 55: 1108-12.
14. Jacoway JR, Howell FV, Terry BC. Central giant cell granuloma: an alternative to surgical therapy (abstract). *Oral Surg Oral Med Oral Pathol* 1988; 66: 572.
15. Terry BC, Jacoway JR. Management of central giant cell lesions: an alternative to surgical therapy. *Oral Maxillofac Surg Clin North Am* 1994; 6(3):579-600.
16. Kermer C, Millesi W, Watzke IM. Local injection of corticosteroids for central giant cell granuloma: a case report. *Int J Oral Maxillofac Surg* 1994; 23: 366-8.
17. Carlos R, Sedano H. Intralesional corticosteroids as an alternative treatment for central giant cell granuloma (abstract). *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 1997; 84(2):186.
18. Rajeevan NS, Soumithran CS. Intralesional corticosteroid injection for central giant cell granuloma: a case report. *Int J Oral Maxillofac Surg* 1998; 27: 303-4.