International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, Sep-Oct 2021 pp 72-77 www.ijdmsrjournal.com ISSN: 2582-6018

Central giant cell granuloma in a pediatric patient – A case report with CBCT evaluation

Dr.Amol Patil, Dr. Janardan Garde, Dr. Rahat Amin Shaikh, Dr. Yusuf K Chunawala

Senior lecturer Department of Pedodontics and Preventive Dentistry, M.A. Rangoonwala College of Dental Sciences and Research Centre, 2390-B, K.B, Hidayatillah Road, Camp, Pune 411001 Maharashtra, India
Head Of Department Department of Oral and Maxillofacial Surgery, M.A. Rangoonwala College of Dental Sciences and Research Centre, 2390-B, K.B, Hidayatillah Road, Camp,Pune 411001 Maharashtra, India.
Post Graduate Department of Pedodontics and Preventive Dentistry, M.A. Rangoonwala College of Dental Sciences and Research Centre, 2390-B, K.B, Hidayatillah Road, Camp Pune 411001 Maharashtra, India.
Head Of Department Department of Pedodontics and Preventive Dentistry, M.A. Rangoonwala College of Dental Sciences and Research Centre, , 2390-B, K.B, Hidayatillah Road, Camp Pune 411001 Maharashtra, India.

Submitted: 01-09-2021 Revised: 04-09-2021 Accepted: 08-09-2021

ABSTRACT
Central giant cell granulomas exhibit a wide diversity in their appearances, rendering it impossible to diagnose them without a conclusive histopathological study. Central giant cell granuloma is a common lesion and hence should be considered as a diagnosis in a young patient with a history of trauma. The present case is an aggressive variant with history of trauma in a 13 year old male patient in the maxillary anterior region.
KEYWORDS: AGGRESSIVE CGCG , PEDIATRIC PT, CBCT

HIGHLIGHTS OF STUDY
The central giant cell granuloma is a common benign tumor of the jaws. Although they represent benign pathology they can be subdivided into locally aggressive and non-aggressive types based on clinical, radiological and histopathological features The lesion is a painless slow growing lesion of the jaw. In the present case The current article will highlight the importance of considering CGCG while diagnosing a lesion especially having a history of trauma. In the present case computed cone tomography (CBCT) has been used to evaluate lesion pre and post operatively.

I. INTRODUCTION

Central giant cell granuloma (CGCG) as reported by the World Health Organization is an intraosseous lesion that consists of cellular fibrous tissue which contains multiple foci of hemorrhage, aggregations of multinucleated giant cells and some trabeculae of woven bone.(1) The central giant cell granuloma (CGCG) of the jaws are common benign lesions which account for around 7% of all benign lesions of the jaws. These usually occur in patients younger than 30 years, with slight female predilection, and is seen more commonly in mandible than maxilla.

(2)Frequently these lesions have been reported to be confined to the tooth-bearing areas of the jaws (3) and are most common in the anterior portion of the mandible, often crossing the midline

(4). Giant cell lesions have been separated from lesions of the jaw in 1953 by Jaffe, which were previously known as "giant cell reparative granulomas." Etiology of CGCG is unknown however it could be associated to trauma, inflammatory foci or genetic predisposition. Jaffe contemplated this tumor as a locally reparative reaction of bone to inflammation, local trauma, or hemorrhage. Inspite the fact that it was originally termed as giant cell reparative granuloma, the clinical behavior of these lesions has been inconsistent with a reparative process, as its neither self-limiting nor self-healing, but essentially has to be excised and needs to be treated, hence term "reparative" had to be omitted.(5) It's been indicated that it could be an inflammatory lesion, a reactive lesion, a true tumor, or an endocrine lesion.(6) It's clinical behavior ranges from a slowly growing asymptomatic swelling to an aggressive lesion that presents with pain, local destruction of bone, root resorption, or displacement of teeth. CGCG is divided into two subtypes, Non aggressive and Aggressive. The non aggressive variant is most common and the

aggressive subtypes are more prone to recur even after excision.(7,8) The current case is an aggressive variant of central giant cell granuloma of the maxillary anterior region in a male patient.

II. CASE REPORT

A 13 year old male patient reported with history of a swelling since 3 years in the maxillary anterior jaw region which gradually increased in size. The patient also gave history of trauma 4 years ago in the same region. The patient was not complaisant, didn't want to undergo any treatment and hence did not get the lesion treated earlier. On inspection the lesion measured 3*2 cms extending from the right maxillary central incisor to the left lateral incisor causing facial asymmetry, lateral displacement and discoloration with the central incisors. On palpation the swelling was soft and tender with diffused margins . Overlying skin was non erythematous and base of the swelling was fixed. Dimensions of the lesion that appeared in the CBCT report were antero-posteriorly 21.4mm, bucco-palatally 21.8 mm and supero-inferiorly 20.9 mm further CBCT examination revealed radiolucency distal to the right central incisor, involving naso-palatine canal and the incisive foramen; expansion and thinning of labial cortical plate was noted in left central incisor region, along with breach in continuity of palatal cortical plate and floor of the nasal cavity. Distally displaced right and left central incisors was also noted. Based on these findings the the diagnosis made was Infected periapical cyst. FNAC was performed results of which were unclear. Incisional biopsy was suggestive of Central giant cell granuloma. A conservative treatment approach was taken for the management of the lesion considering the young age of the patient. Root Canal therapy was performed with both central incisors and the left lateral incisor prior to the surgery. Under general anaesthesia, the lesion was excised, aggressive curettage and peripheral osteotomy was performed. Extraction of the left central incisor was done due to poor prognosis. Histopathology of the excised specimen confirmed the diagnosis. On subsequent follow up patient was given a removable prosthesis with left central incisor. Patient was followed up for a year, showing no signs of re-occurrence.

III. DISCUSSION

As said earlier the etiology of Central giant cell granuloma is obscure. There are various theories that suggest CGCG may be a reactive lesion, developmental anomaly, or benign neoplasm. (9) Inspite of the hypothesis defining it as an aggressive inflammatory process or neoplastic proliferation, there are various possible suggested etiologies of CGCG's such as local trauma, bleeding, and genetic abnormalities.[10] The current case has a history of trauma in the maxillary anterior region when the patient was 8 years old suggestive of trauma as the possible etiology. Aggressive lesions are generally fast growing and cause asymmetry of the face, pain and numbness, tooth displacement, root resorption, cortical bone thinning or perforation, and a high recurrence rate after conservative surgical removal. De Lange and van den Akker noted that the aggressive type most commonly arises in younger age groups.[6]. This particular case is an aggressive variant but of a slow growing type which has turned into an aggressive form due to the delay in the management. There is a very nebulous description of the radiological features of CGCGs and there is a varied illustration that the literature suggests. Some analysts suggest it to be unilocular radiolucent lesion, (11) many others suggest that they are frequently a multilocular radiolucent lesion.(3,7) Wood and Goaz (11) suggested that these lesions may at first may seem as solitary "cystlike" radiolucent, later the lesions may grow larger and advance to a soap bubble-type multilocular radiolucent lesion. Central giant cell granuloma tends to extend into the inter-radicular area frequently involving the alveolar bone crest surrounded by the lesion hence it is important to complete the root canal treatment prior i.e pre-operatively so that the operator can excise the entire suspicious tissue by performing curettage and peripheral osteotomy aggressively without worrying about the roots of the teeth. (12) On account of the varied etiology of these lesions different medical treatments have been advocated over the last 15 years.(13) Both surgical and nonsurgical treatment protocols are undertaken in the management of CGCGs. Surgical treatment consists of enucleation, curettage, peripheral osteotomy, and en bloc resection.(14) Nonsurgical treatments consists of intralesional injections of steroids, calcitonin, and bisphosphonates, which inhibit osteoclastic activity and alpha interferons due to its anti-angiogenic effects and bisphosphonates.(15,16) Aggressive tumors that present with pain, rapid growth, facial swelling, or cortical perforation should be treated with en bloc resection,(7) which justifies the surgical excision of the lesion in this particular case. Central Giant Cell Granuloma is a non-reparative lesion that grows further if untreated. Our case report consists of central giant cell granuloma which is an aggressive variant

with a long standing history of 3 years which clearly suggests the aggressive nature because the lesion was not treated on time. Early treatment could have improved the outcome of the present case.

IV. CONCLUSION

Central giant cell granuloma is a common lesion and hence should be considered as a diagnosis in a young patient with a history trauma. Early diagnosis and management of the lesion could have greatly elicited better treatment outcome for the current case.

REFERENCES

[1]. Barnes L, Everson J, Reichart P. WHO Classification of Tumours. Pathology and Genetics of Head and Neck Tumours. Lyon: IARC; 2005. p. 234–5.
[2]. Austin LT, Dahlin CD, Royer QR: Giant cell reparative granuloma and related conditions affecting the jawbones. Oral Surg Oral Med Oral Pathol 1959; 12:1285.
[3]. Waldron CA, Shafer WG: The central giant cell reparative granuloma of the jaws: An analysis of 38 cases. Am J Clin Pathol 1966; 45:437.
[4]. Whitaker SB, Waldron CA. Central giant cell lesions of the jaws. Oral Surg Oral Med Oral Pathol 1993;75:199- 208.
[5]. Jaffe HL. Giant-cell reparative granuloma, traumatic bone cyst, and fibrous (fibro-oseous) dysplasia of the jawbones. Oral Surg Oral Med Oral Pathol 1953;6:159-75.
[6]. Tosco P, Tanteri G, Iaquinta C, Fasolis M, Roccia F, Berrone S, et al. Surgical treatment and reconstruction for central giant cell granuloma of the jaws: A review of 18 cases. J Craniomaxillofac Surg 2009;37:380-7.
[7]. Chuong R, Kaban LB, Kozakewich H, et al: Central giant cell lesions of the jaws: A clinicopathologic study. J Oral Maxillofac Surg, 1986; 44:708,
[8]. Ficarra G, Kaban LB, Hansen LS: Central giant cell lesions of the mandible and maxilla: A clinicopathologic and cytometric study. Oral Surg Oral Med Oral Pathol 1987;64:44.
[9]. Rachmiel A, Emodi O, Sabo E, Aizenbud D, Peled M. Combined treatment of aggressive central giant cell granuloma in the lower jaw. J Craniomaxillofac Surg 2012;40:292-7
[10]. Vered M, Buchner A, Dayan D. Giant cell granuloma of the jawbones--a proliferative vascular lesion? Immunohistochemical study with vascular endothelial growth factor and basic fibroblast growth factor. J Oral Pathol Med 2006;35:613-9.
[11]. Goaz PW, White SC. Oral radiology: principles and interpre- tation. 3rd ed. St. Louis:CV Mosby, 1994:514-8. 5
[12]. Leon Eisenbud, Dds,* Martin Stern, Dmd,T Michael Rothberg, Dds,$ And Stephen A. Sachs, Ddst. Central Giant Cell Granuloma of the Jaws: Experiences in the Management of Thirty-Seven Cases; 0 American Association of Oral and Maxillofacial Sur- geons 1988; 0278-2391/88.
[13]. Pogrel AM. The diagnosis and management of giant cell lesions of the jaws. Ann Maxillofac Surg 2012;2:102-6.
[14]. Ebrahimi H, Yazdani J, Pourshahidi S, Esmaeli F, Zenouz AT, Mehdipour M. Central giant cell granuloma of the posterior maxilla: A case report. J Dent Res Dent Clin Dent Prospects 2008;2:71-5.
[15]. Kaban LB, Troulis MJ, Ebb D, August M, Hornicek FJ, Dodson TB. Antiangiogenic therapy with interferon alpha for giant cell lesions of the jaws. J Oral Maxillofac Surg 2002;60:1103-11.
[16]. Harris M. Central giant cell granulomas of the jaws regress with calcitonin therapy. Br J Oral Maxillofac Surg 1993;31:89-94.

ILLUSTRATIONS

FIGURE 1

A - PRE-OPERATIVE PHOTOGRAPH.
B - PRE-OPERATIVE INTRA –ORAL PHOTOGRAPH.
C - PRE-OPERATIVE CONE BEAM COMPUTED TOMOGRAPHY .

D - PRE-OPERATIVE CONE BEAM COMPUTED TOMOGRAPHY.

FIGURE 2

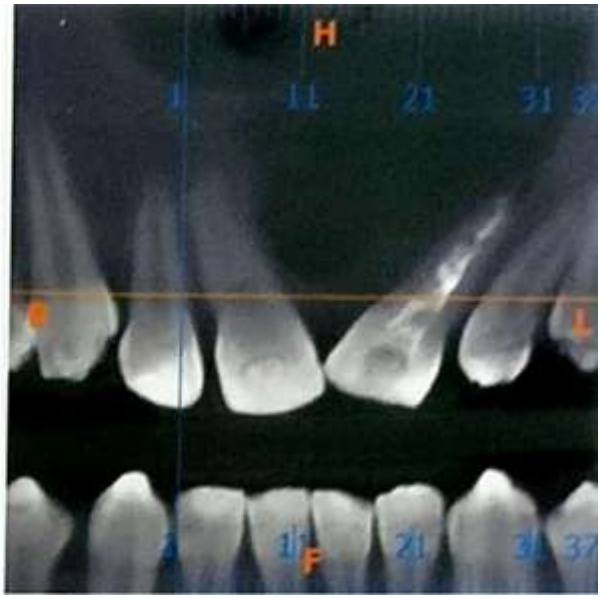
E - EXCISED TISSUE.

International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, Sep-Oct 2021 pp 72-77 www.ijdmsrjournal.com ISSN: 2582-6018

F – HISTOPATHOLOGICAL PHOTOGRAPH SHOWING MULTINUCLEATED GIANT CELLS.
G – POST- OPERATIVE PHOTOGRAPH.
H – POST - OPERATIVE INTRA –ORAL PHOTOGRAPH.

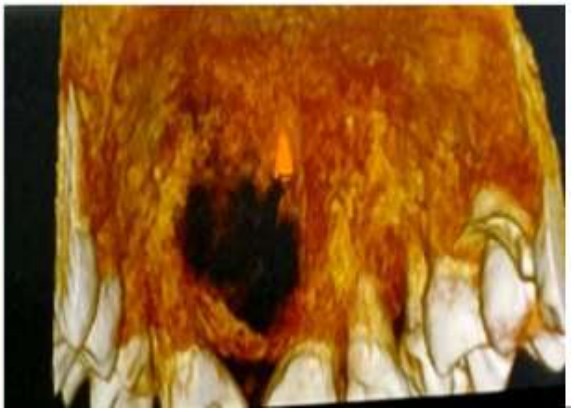
FIGURE 2
I - POST-OPERATIVE CONE BEAM COMPUTED TOMOGRAPHY. J - POST-OPERATIVE CONE BEAM COMPUTED TOMOGRAPHY. K – POST-OPERATIVE INTRA-ORAL HEALING.
L - REMOVABLE PROSTHESIS WITH THE LEFT CENTRAL INCISOR.

A



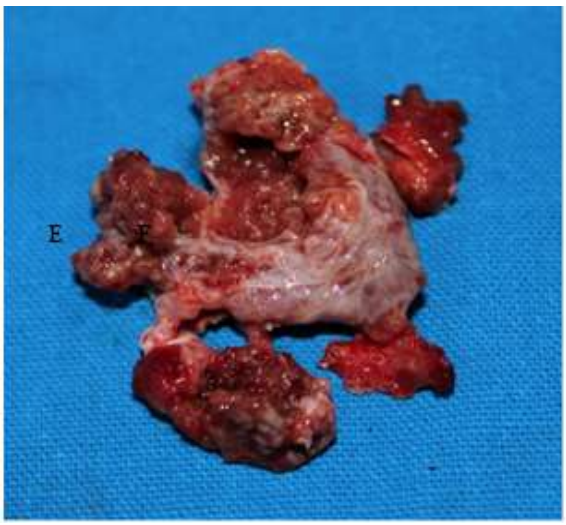
C

B

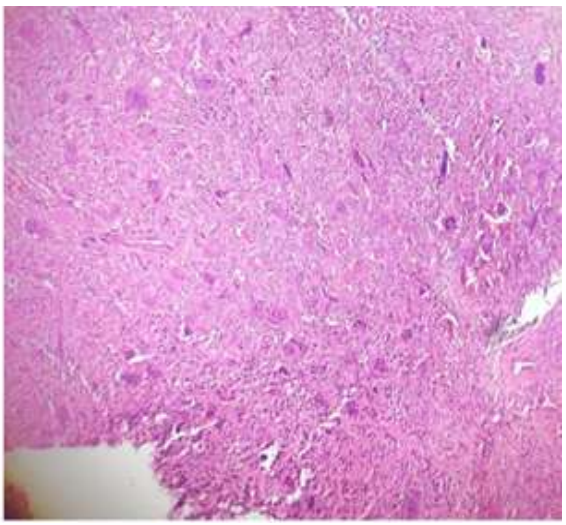


D

International Journal Dental and Medical Sciences Research
Volume 3, Issue 5, Sep-Oct 2021 pp 72-77 www.ijdmsrjournal.com ISSN: 2582-6018

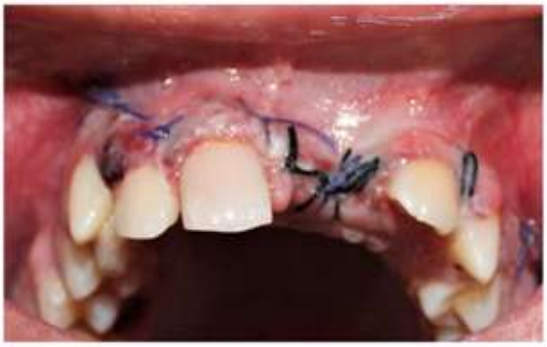


E

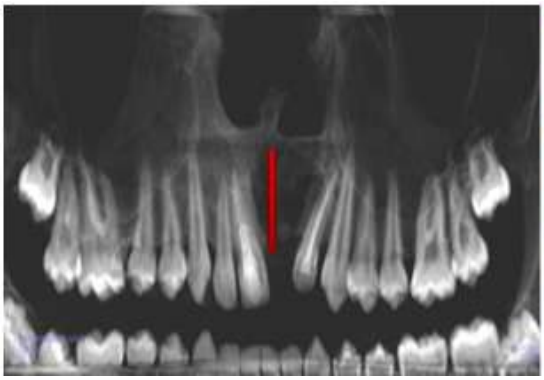


F

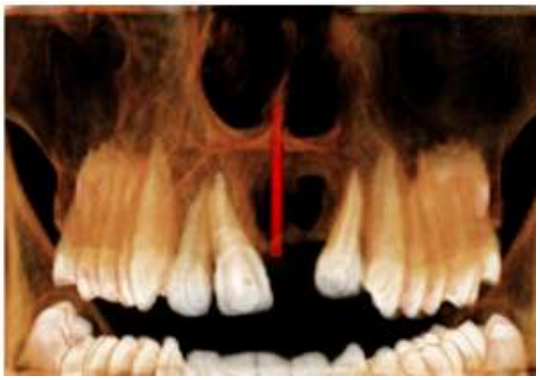
G



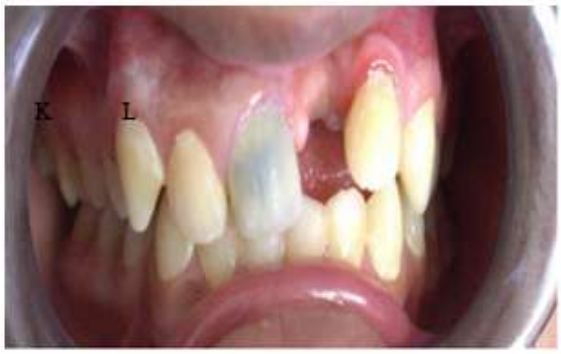
H



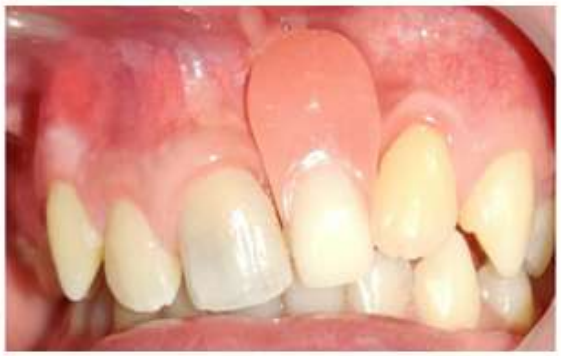
I



J



K



L