Central Giant Cell Granuloma

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Abstract: World Health Organization (WHO) defines central giant cell granuloma (CGCG) as an intraosseous lesion consisting of cellular fibrous tissue and contains many foci of hemorrhage, aggregations of multinucleated giant cells, and occasionally trabeculae of woven bone. Clinically and histopathologically CGCG resembles many other jaw lesions hence it has to be differentiated from them for judicious management of the lesion. Here we present a case of CGCG of palate in a 21-year-old female patient.[Jigna SNJIRM 2016; 7(5):101-104]

Key Words: central giant cell granuloma, differential diagnosis, palate

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Introduction: Central giant cell granuloma (CGCG),first described by Jaffe in 1953 as "giant cell reparative granuloma"[1]is an idiopathic non-neoplastic proliferative intraosseous lesion.[2]It was primarily considered to be a local reparative reaction of bone, possibly to intramedullary hemorrhage or trauma. However, use of the term reparative has subsequently been discontinued since the lesion represents essentially a destructive process.[3]World Health Organization (WHO) defines CGCG as an intraosseous lesion consisting of cellular fibrous tissue and contains many foci of hemorrhage, aggregations of multinucleated giant cells, and occasionally trabeculae of woven bone.[4,5]

CGCG occurs most commonly in the mandible than in maxilla, more on the right than on the left side[1,2]and can be confined to the tooth-bearing areas of the jaws.[5]Females have more predilection for incurring CGCG than males in the ratio 2:1.[2]CGCG can also affect extragnathic bones, mainly in the craniofacial region, and small long bones such as those of the hands and feet.[5] Clinically CGCG of jaw manifests as a mass or nodule of reddish color (although it can sometimes be bluish) and occasionally ulcerated fleshy surface.[1]Although CGCGs are benign osseous lesions, some authors separate it into two types on the basis of their clinical behavior; one being nonaggressive variety which is usually slow growing, asymptomatic and does not show cortical perforation or root resorption in teeth affected. This variant is significantly less likely to recur. The second being the aggressive variety which is usually found in younger patients with complain of pain, grows rapidly to attain a larger size and often causes cortical perforation and root resorption and has a tendency to show recurrence to as high as in 49% of cases.[6] CGCGs are also classified, according to location, as central (bone) and peripheral (gingival tissues).[4] The peripheral variety presents as pedunculated or sessile lesions on the gingiva while central lesions are endosteal.[2]

The radiologic features of CGCG comprise a unilocular or a multilocular radiolucency and varying degrees of expansion of the cortical plates.[5]Slow growing lesions may cause thinning and scalloping of cortex whereas aggressive lesions may also cause breach in the cortex.[7]

Generally, curettage is done of well-defined localized lesion whereas I n extensive lesions with radiographic evidence of perforation of cortex radical excision is mandatory. In such cases even partial maxillectomy or mandibulectomy has to be done. Medical management of CGCG can be utilized as an adjunct to surgery which includes treatment with steroids or calcitonin which inhibits osteoclastic activity, interferon-alpha especially in the management of aggressive CGCG, presumably due to its antiangiogenic effects or bisphosphonates administered intravenously.[6]

Case Report:A 21-year-old female patient reported with a complaint of pain and swelling over right side of palate since 1month associated with dull aching pain and bleeding on provocation. The swelling was reported to be insidious in onset and had progressed slowly from a small lesion to the present size. The patientgave history of food lodgement and mobility in the maxillary right posterior teeth.There was no associated paresthesia or nasal discharge. Medical and familial histories were noncontributory and the patient had no deleterious oral habits.

Intraoral examination revealed a swelling extending antero-posteriorly from palatal aspect of maxillary anterior teeth to 3cm posteriorly and medio-laterally from mid-palatine raphe to palatal aspect of maxillary

right canine and premolars. The surface appeared tense with ulceration over palatal free gingival margin of right maxillary first premolar (Figure 1). Swelling was tender, soft, compressible, fluctuant with bony hard periphery. Maxillary right central incisor was displaced palatally and extruded; also the first premolar was rotated distally. There was no discoloration of the teeth. The right maxillary teeth were tender on percussion and grade 2 mobile. Maxillary right incisors, canine, premolars were non-vital. On the basis of clinical findings, lateral periodontal cyst was considered as the diagnosis.

Radiographic investigations included intraoral periapical radiograph (IOPA), maxillary occlusal cross-section, orthopantomogram (OPG) and computerized tomography (CT) and were suggestive of well-defined expansile lytic lesion showing thin internal septations. The lesion caused erosion of cortex of the hard palate bulging into the right nasal cavity and erosion of the medial wall of right maxillary sinus. Lamina dura of maxillary right central and lateral incisors, canine and first premolar was discontinuous. Maxillary right first premolar was rotated and its root tipped mesio-distally. Root of maxillary right lateral incisor was tipped disto-mesially (Figure 2).

On the basis of above findings differential diagnosis of calcifying epithelial odontogenic cyst, adenomatoid odontogenic tumor and central giant cell granuloma was considered.

Fine needle aspiration cytology (FNAC) and biopsy were done for confirmative diagnosis. FNAC revealed scattered osteoclastic giant cells and stromal cells in hemorrhagic background suggestive of central giant cell granuloma. Histopathology revealed numerous multinucleated giant cells in a background showing spindle cells (Figure 3). These findings were consistent with diagnosis of CGCG. However similar histopathology is also found in brown tumor of hyperparathyroidism hence,serum levels of calcium & alkaline phosphatase were measured and found to be in normal limits.

Curettage of the lesion was done with extraction of right maxillary premolars (Figure 4). The patient was monitored by clinical and radiological assessment at regular intervals and healing was satisfactory at 6month follow-up. However the patient experienced recurrence (Figure 5) following 17 months of treatment and further surgical management was advised.

Fig : 1

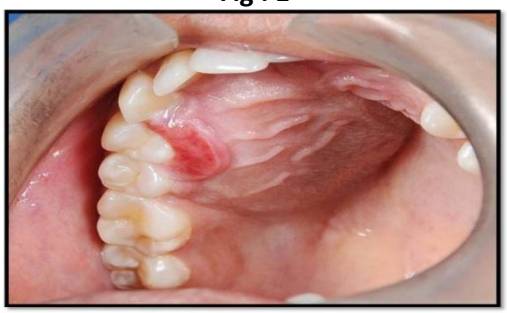


Fig : 2

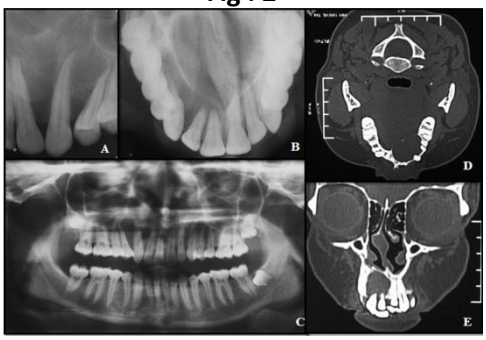


Fig : 3

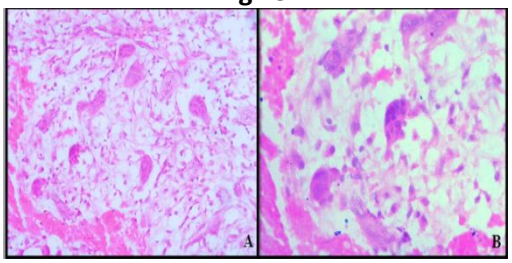


Fig : 4

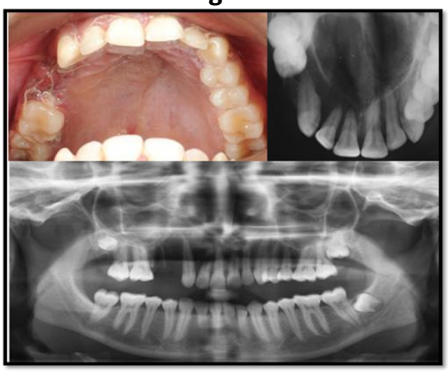
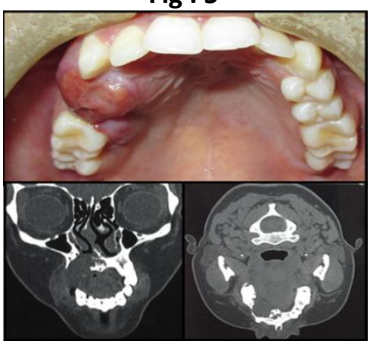


Fig : 5



Discussion: Central giant cell granuloma (CGCG) is an uncommon, benign, proliferative, pathological condition accounting for less than 7% of all benign lesions of the jaw.[6]Etiological factors have been related to several factors, especially local irritants (such as extractions or poorly fitting dentures) and hormonal.[1]Food lodgement in teeth associated with lesionand hormonal factors could be considered as the cause of present lesion.

Although imaging testing are essential, to show the true extent of CGCGs and their behavior in the tissue in which it sits[1]diagnosis is made based on histopathology.[3]

This statement is substantiated by the case reported here which presented with features resembling wide range of conditions such as lateral periodontal cyst, adenomatoid odontogenic tumor (AOT), calcifying epithelial odontogenic tumor (CEOC). The reported case presented with clinical and radiographic features similar to lateral periodontal cyst. However, 50-75% of lateral periodontal cysts occur in mandible affecting patients in second to ninth decade of life (the mean age is about 50 years).[8]

Since 70% of adenomatoid odontogenic tumors (AOT) occur in the second decade, most commonly in the cuspid region, having female predilection and presenting as radiolucent lesion[8] similar to that found in our case, it was considered as one of the differential diagnosis. Since in the present case lesion was not associated with impacted tooth, extrafollicular variety of AOT was considered.[3]

Calcifying epithelial odontogenic tumors (CEOT) have a wide age distribution that peaks at 10 to 19 years of age, with a mean age of 36 years and 75% occur anterior to the first molar (cuspids and incisors), hence it was considered as the differential diagnosis. However the radiographic features of CEOTs show evidence of small foci of calcified material that appear as white flecks or small smooth pebbles and 20% to 50% of CEOT is associated with a tooth (most commonly a cuspid) impeding its eruption,[8] which was not appreciated in the present case.

FNAC and histopathology confirmed the presence of multinucleated giant cells in the present case. Diagnosis of central giant cell granuloma is normally made histologically from an incisional biopsy. The appearance is generally distinctive with multinucleated giant cells spread throughout the lesion but often focal in distribution around areas of possible hemorrhage. Similar histological appearances are also seen in brown tumor of hyperparathyroidism, aneurysmal bone cyst and cherubism. Hyperparathyroidism can be excluded by determining serum calcium, phosphate and parathormone assay[5,9] as seen in the presented case.Aneurysmal bone cyst has radiographic and histopathologicalsimilarities to CGCG most commonly occurring in females less than 30 years of age. However, it has higher prevalence in mandibular molar ramus region.[8,10]

Surgery is the most accepted and traditional form of treatment. However, tissue removal ranges from simple curettage to bloc resection. Incidence of recurrence after surgery is 4–20%,[3,4,7,9] whereas locally aggressive giant cell lesions have a higher recurrence rate and it usually occurs due to incomplete removal of the tumor.[4,6]It has been reported that recurrence is usually found when the lesion perforates the cortical plates to involve the surrounding soft tissue,[5]which was true for our case where recurrence was noted following 17months of curettage.

CGCG is a rare pathology of head and neck region and may be confused with several other lesions of the jaws thus its identification becomes very important.Though it is a benign tumor, in some aggressive cases it becomes locally destructive with high chances of recurrence. Treatment should be judiciously chosen and follow up done to monitor the patient for recurrence. Surgery is the traditional treatment of choice in the aggressive variant with long term follow-up to detect any recurrence at its earliest.

Reference:

1. Rubio-correa I, Manzano-Solo de Zaldívar D, González-García R, Ruíz-Laza L, Villanueva-Alcojol L, González-BallesterD et al. Giant cell granuloma of the maxilla. Global management, review of literature and case report. J Clin Exp Dent. 2012;4(2):e129-31.
2. Gupta M, Gupta M, Singh S, Kaur R. Central giant cell granuloma of the maxilla. BMJ Case Rep. 2013;2013:1-3.
3. 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(2):71-5.
4. Kumar KAJ,Humayun S, Kumar BP, Rao JB. Reparativegiant cell granuloma of themaxilla. Ann Maxillofac Surg. 2011;1(2):181-6.
5. Joshi PS, Chougule MS, Agrawal GP. Central giant cell granuloma of maxilla: a case report. Indian Journal of Dental Sciences. 2012;4(3):57-9
6. Singh P, Sigh A. Central giant cell granuloma of the maxilla: a case report and review of literature. Guident. 2012;2012:75-7.
7. Padmavathi Devi C, Swaroopkanth T, Sudhakar G, Kiranmai D, Sasank R, Sridharreddy D. Central giant cell granuloma of maxilla: a case report. Indian J Otolaryngol Head Neck Surg. 2013;65(Suppl 1):192-4.
8. Diseases of bone manifested in jaws. In: Stuart C. White, Michael J. Pharoah, editors. Oral radiology-Principles and interpretation. 6th ed. Missouri: Mosby Elsevier;2009. p. 428-453
9. Pogrel AM. The diagnosis and management of giant cell lesions of the jaws.Ann Maxillofac Surg. 2012;2(2):102-6.
10. Diseases of bone manifested in jaws. In: Freny R Karjodkar, editor. Textbook of dental and maxillofacial radiology. 2nd ed. New Delhi: Jaypee;2009. p. 635-664.

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