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A Rareity of Central Giant Cell Granuloma

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Abstract:- Central giant cell granuloma (CGCG) is a proliferative lesion of the jaw which is uncommon and benign. Its etiology is unclear. Primarily it was considered the same as giant cell tumor (GCT) of the long bones but, later it was considered as to be a non-neoplastic, reactive lesion. The definitive etiology of CGCG is ambiguous, although trauma is considered as primary cause. Prevalent in age group younger than 30 years and shows more predilection for mandible. The clinical lesion presentation of central giant cell granuloma of the jaw ranges from localized lesion to wide aggressive lesion with destruction of adjacent bone. This case report is a rare occurrence in maxillary posterior region in a 56 years male patient.

Keywords:- *Central Giant Cell Granuloma (CGCG), Giant Cell Reparative Lesion, Giant Cell Tumor (GCT).*

I. INTRODUCTION

Central giant cell granuloma is a benign condition of jaw, defined by the World Health Organization (WHO) “as an intraosseous lesion consisting of cellular fibrous tissue that contains multiple foci of hemorrhage, aggregations of multinucleated giant cells, and occasionally trabeculae”. In the past decades CGCG is described as lesion which is similar to the giant cell tumor of long bones and named it as same. But in the year 1953, the name "giant cell reparative granuloma" was put forward for jaw lesions and differences between the both lesions were given. Later it was found that the term reparative was inconsistent with the clinical behavior of lesions and later named as “central giant cell granuloma”[5].

II. CASE REPORT

A male patient aged 56 years came to the department of oral medicine and radiology with a chief complaint of swelling in relation to upper right back teeth region from 2 months, which is insidious in onset, gradually increasing in size and attained the present size. History of similar complaint before one year, but patient did not take any treatment and reports were not clearly mentioned. He gives history of surgery related to knees and clavicle bone after one year. No extra oral facial asymmetry present. On intraoral examination, a solitary well defined growth measuring 1×2.5 cm present on the right maxillary posterior region distal to 17, extending from buccal vestibule to alveolar ridge superoinferiorly, 1 cm from marginal gingival on palatal side and from distal surface of 17 to 2.5 cm posterior, which appears erythematous red in color intermingled with pale pink color, indentations presentation on mid-occlusal surface on growth due to 48(figure 1 & 2). On palpation, consistency was firm, associated with mild tenderness and no signs of any secondary discharges seen. Based on history and clinical features patient was provisionally diagnosed as peripheral giant cell granuloma of right posterior maxilla in relation to 17 region. Patient was subjected to investigations like complete blood picture, panoramic radiograph, CT maxilla, biopsy (figure 4). All the blood investigations were normal, slightly hemoglobin was less. Panoramic radiograph revealed ill-defined radiolucency in relation to periapical region of 17, with resorption of roots of 17 upto cervical third and resorption of distal root of 16 upto apical third of root portion (figure 3). Histopathological report of biopsy was given as an ulcerated mucosa with a sub-epithelial giant cell rich lesion. CT scan revealed 3×2 cm. ill defined soft tissue attenuating mass lesion arising from posterior region of the right maxilla. The lesion was inferiorly extending towards lateral pterygoid and superiorly extending into maxillary sinus. Based on clinical features and investigations, it was diagnosed as central giant cell granuloma of right posterior maxilla in relation to 17, 18 region (figure 5).

III. DISCUSSION

Giant cell granuloma of the jaws is a slow growing neoplasm, which is expansile and destructive that envelopes and erodes the root ends. In extensive cases the lesion perforates the cortex, and may cause pathologic fracture of bone. The radiographic features are often delusive, as the lesion may extend far off the radiological limits seen on the radiograph. The site of origin may be central or peripheral. The peripheral lesions may present as pedunculated or sessile growth upon the gingival or alveolar ridge and central lesions are intraosseous in origin. Trauma is reported as the main etiological factor. The lesions form by accumulation of tissues and a slow, minute and continuous hemorrhage that is multicentric in nature[10].

It occurs more commonly under the age of 30 years and shows predilection for female gender and more common in mandible tooth bearing regions[2]. In the maxilla it is more common in posterior region than anterior region[3, 7]. The lesions are usually unilateral and in rare cases may be bilateral. The lesions are usually unilateral and in rare cases may be bilateral, that too in mandible[3]. Reported to occur more commonly on the right of the jaw than left side. In a study conducted by kaffe et al. 50% lesions occurred non

tooth bearing areas of mandible like ramus and condylar regions. Though CGCG is an expansive lesion, it neither surrounds the nerve trunks nor invades them and also doesn't invade perineural sheaths. Perineural space spread is also not reported[7, 12]. Various clinical nature of CGCG reported from an asymptomatic stage which is osteolytic lesion that grows slowly without any signs of bony expansion, to an aggressive lesion which is painful and reveals root resorption, cortical bone destruction, and extends into the surrounding soft tissues. Nonaggressive lesions are characterized by slow, asymptomatic growth and do not show cortical plate perforation or induce any root resorption and these show low propensity to recur[8]. In aggressive lesions there will be bone destruction, resorption of teeth, and also displaces anatomical structures like teeth, mandibular canal in mandible, and the floor of maxillary antrum in maxilla and also these lesions are characterized by high rate of recurrence[6, 8].

Histological features include increased number of fibroblasts and multinucleated giant cells which are irregularly distributed in the fibroblastic stroma. Areas of inflammation are seen. These features are similar to the histological features of hypoparathyroidism.

Comparative histological appearances are given in table 1.

TABLE 1: Histological differences between the Giant cell tumor(GCT) and the Central giant cell granuloma(CGCG) were described by Auclair PL et al. in 1988 as follows [1]
IMPORTANT FEATURES IN GCT:-
Giant cells which are larger and more rounded with a greater number of nuclei are seen in GCT
Nuclei in the giant cells shows central aggregation in the cytoplasm
There will be uniform dispersal of giant cells in the GCT than in CGCG
GCT shows foci of necrosis
IMPORTANT FEATURES IN CGCG:-
There are more spindle-shaped fibroblasts and shows areas of fibrosis in the CGCG
Inflammatory component is seen in CGCG than in GCT
CGCG presents with frequent production of osteoid
Occurrence of fresh hemorrhage and hemosiderin deposits are seen in CGCG and these also occur in GCT but with less frequency

Table 1

Radiological features show wide variability from a unilocular slow growing radiolucent lesion to an aggressive destructive lesion. Multilocular appearance is more commonly seen than the unilocular and locules shows septa formed by calcification. Lesions are more common in the mandible than maxilla and site is anterior to the canine. Borders may be either well- defined or ill-defined. In case of multifocal lesions there is a possibility of hyperparathyroidism or if bilateral cherubism is suspected[7]. Lesions tend to diverge the adjacent teeth, then causing root resorption[2]. But as it is slow growing lesion it has well defined margins that are corticated.

The differential diagnosis comprise giant cell tumor, brown tumor of hyper parathyroidism and aneurysmal bone cyst [11]. The clinical and radiological images are not pathognomonic for CGCG and final diagnosis is mainly based on histopathological features[15].

Surgical excision is the best way to manage and showed better results but the extent of tissue removal varies from a simple curettage to extensive resection based on the nature of lesion[13]. Cryosurgery and peripheral ostectomy has also shown better results. In the large lesions, surgery may cause damage to the vital structures, in such cases intralesional steroid injections are being used as an alternative[8, 9]. Curettage has shown effective results for localized lesions and in more extensive lesions with radiograph features like cortical plate perforation, a more definitive surgery like radical excision is needed[14].

Nonsurgical methods like radiotherapy, systemic calcitonin and intralesional injection with corticosteroids have shown effective results in some studies[8]. These act by inhibiting the osteoclastic activity. Aggressive CGCG can be managed by interferon-alpha, due to its anti-angiogenic effects. Intravenous bisphosphonate injections has promising results.[10] Intralesional injection of corticosteroids (triamcinolone hexacetonide 20 mg/ml diluted in an anesthetic solution of 2% of lidocaine twice weekly for 6 weeks) has been used successfully[14].

IV. CONCLUSION

Central giant cell granuloma is a lesion, considered as benign and reparative has a nature which ranges from a slow growing radiolucent to aggressive destructive lesion. In the above case report the lesion was slow growing since one year and also patient had no significant symptoms of pain. But as there is chance of large extension and recurrence rates reported in some cases it is better to go for surgery

with sufficient margins which is a definitive treatment for CGCG.

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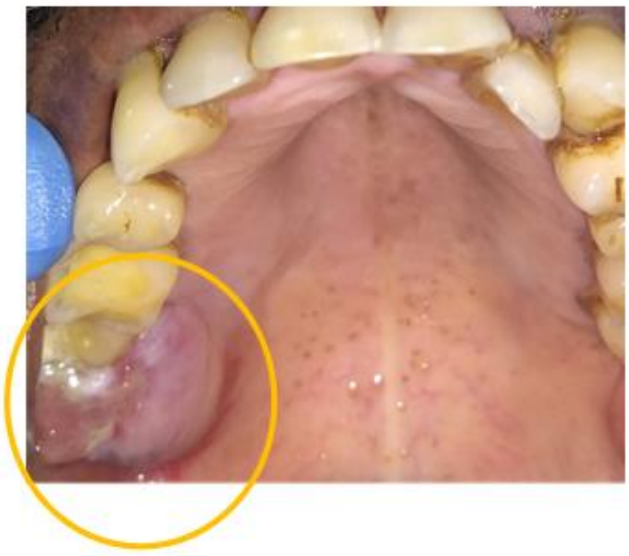
Fig 1:- Profile of The Patient



(A)

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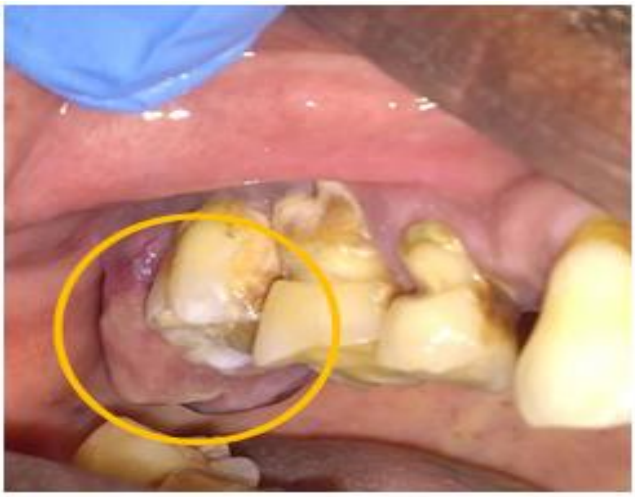

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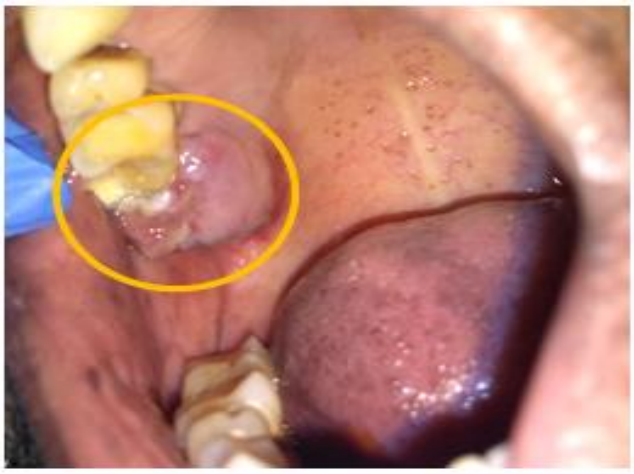

(C)

Fig 2:- A, B, C Occlusal, Buccal and Palatal Aspects of the Lesion

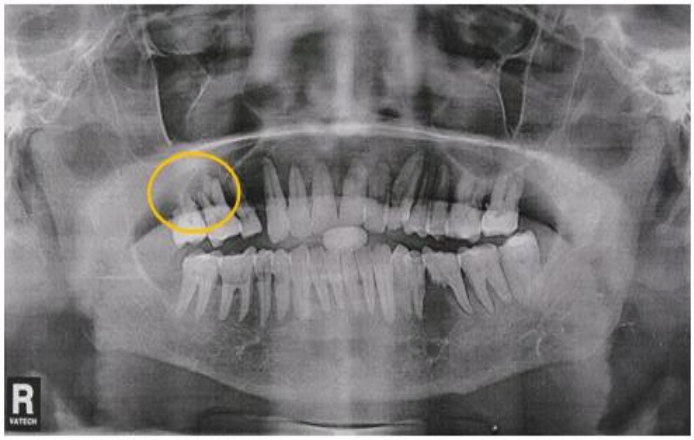

Fig 3:-Panoramic Radiograph

Fig 4:- Biopsy Specimen of the Lesion

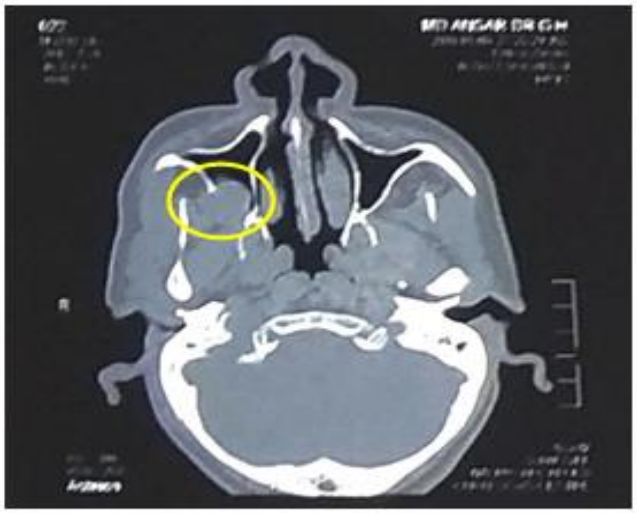

Fig 5:- CT Maxilla of the Patient