



CENTRAL GIANT CELL GRANULOMA PRESENTING AS UNILOCLAR RADIOLUCENCY IN POSTERIOR MANDIBLE – A CASE REPORT

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ABSTRACT

Aim: To report a case of Central Giant Cell Granuloma in posterior mandible.

Case Report: In this article, we present a case of Central Giant Cell Granuloma presenting as unilocular radiolucency in posterior mandible.

Discussion: Central Giant Cell Granuloma is a rare benign non-neoplastic lesion of the jaws usually occurring in mandible in young adults. It may be non aggressive or aggressive variety. Aggressive variety has a tendency to recur.

Conclusion: This case helps to demonstrate the wide variation in the clinical and radiological features of Central Giant Cell Granuloma.

Key Words: Mandible, Central giant cell granuloma

INTRODUCTION

Central Giant Cell Granuloma (CGCG) is defined by the World Health Organization as an intra-osseous lesion consisting of cellular fibrous tissue that contains multiple foci of hemorrhage, aggregations of multinucleated giant cells and occasionally trabeculae of woven bone¹. CGCG was first described by Jaffe in 1953.² Its etiology is unknown and its biological behavior poorly understood^{3,4}. CGCG is a non-neoplastic lesion that is found exclusively in the maxilla and the mandible¹.

Central Giant Cell Granuloma generally occurs in children and young adults with a slight predilection for females. The anterior portion of the mandible has been identified as a more common location for Central Giant Cell Granuloma development, with the lesion frequently crossing the midline^{4,5}. The clinical behavior of central giant cell granuloma varies from a slowly asymptomatic swelling to an aggressive lesion that manifests with pain, expansion of cortex and perforation, mobility, displacement and root resorption of adjacent teeth. The majority of Central giant cell granulomas present as a

radiolucency either unilocular or multilocular with well defined or ill defined margins. Here we report a case of Central Giant Cell Granuloma in the mandible.

CASE REPORT

A 43 year-old female reported to the Department of Oral Medicine and Radiology with a chief complaint of swelling in the inner aspect of the mouth in the lower jaw for the past six months and pain in the same region for the past two months. It started as a painless swelling in the right mandibular molar region and gradually progressed to attain the present size. There was no previous history of trauma. Past medical history revealed that the patient is a known hypertensive under medication. Past surgical history revealed that the patient underwent a surgery in anterior region of lower jaw on right side at her 20th year of age with a histopathological diagnosis of Central Giant Cell Granuloma.

Extra oral examination revealed no obvious facial asymmetry (Figure 1). On intra oral examination a localised

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swelling of size 3x3cm present in region of 46,47 extending anteriorly up to edentulous ridge of 46, posteriorly till mesial surface of 48, superiorly upto edentulous ridge of 46 and inferiorly till buccal vestibule, margins were ill defined, overlying gingiva and alveolar mucosa were smooth with color similar to the adjacent normal mucosa. No secondary changes were present in the swelling. (Figure 2)

On palpation bicortical expansion was present. The swelling was firm in consistency, tender on palpation with perforation of cortex felt on buccal aspect. No displacement of teeth was associated.

Mandibular occlusal radiograph revealed a radiolucency in the region of 45,46,47 with expansion of the buccal and lingual cortex (Figure 3) Panoramic radiograph revealed a well defined periapical radiolucency in 47 with scalloped and corticated borders extending mesially with peripheral extension showing cyst in a cyst appearance (Figure 4).

Routine blood and urine investigations were done which revealed no abnormalities. A provisional diagnosis of Central Giant Cell Granuloma was made, since recurrence was suspected. Incisional biopsy from selected area was carried out, histopathological examination of which revealed numerous multinucleated giant cells and areas of hemorrhage in the background of fibrocellular stroma. The diagnosis was compatible with Central Giant Cell Granuloma. Laboratory investigations for serum calcium, phosphorous, and alkaline phosphatase and parathormone were done and the values within normal limits, excluding the brown tumor of the hyperparathyroidism. The patient underwent curettage of the lesion followed by extraction of 47,48.(Figure 5) Histopathological examination of the excised lesion confirmed preoperative diagnosis of central giant cell granuloma.

DISCUSSION

In 1953 Jaffe first described giant cell reparative granuloma as a benign lesion affecting the mandible and maxilla. The etiopathogenesis of the CGCG of jawbones has not been clearly established but it has been suggested that it is the result of an exacerbated reparative process related to previous trauma and intraosseous haemorrhage that triggers the reactive granulomatous process.^{6,7}

Although CGCGs are benign osseous lesions, some authors separate CGCG into two types, referring to its clinical and radiographic features: (a) Nonaggressive lesion is usually a slow growing and asymptomatic and does not show cortical resorption or root perforation in teeth affected. It is significantly less likely to recur than the aggressive type⁸ and (b) Aggressive lesions are usually found in younger patients and are painful, grow rapidly. They are larger in size often causes

cortical perforation and root resorption and have a tendency to recur⁹. To predict the behavior of CGCGs that will exhibit a higher risk of recurrence after treatment has been problematic. The rate of recurrence varies between 13-49%. The most reliable factors related to an increased risk of recurrence include clinical activity of lesions (72% of recurrence in the aggressive forms, 3% of recurrence in the nonaggressive forms), younger patients, demonstrated perforation of cortical bone and tumour size^{10, 11, 12}.

Variable reports have been published regarding gender predilection, but the CGCG occur more commonly in females with a female-male ratio of approximately 2:1. The 60 % of cases occur before the age of 30 years. In the presently described case also, the patient is a 43 year old female, agrees with the above observations regarding sex.

As per the previous literature, the lesions develop twice as often in the mandible with site predilection anterior to the first molar in young patients and there is a tendency to occur in the posterior aspect of the jaw after the first two decades of life. In the case presented here, the lesion occurred in the region of 46, 47 extending till mesial surface of 48. This location is somewhat posterior to its usual occurrence, in young patients and matches with its tendency to occur in the posterior aspect of jaw in older patients.

Radiographic appearance of CGCG can be unilocular or multilocular, with either well defined or ill defined margins. Root resorption and tooth displacement may also be evident. In the present case there is well defined unilocular periapical radiolucency in 47 with scalloped and corticated borders. This radiographic appearance is indistinguishable from that of odontogenic cyst, Aneurysmal Bone Cyst (ABC), ameloblastoma, odontogenic myxoma and odontogenic fibroma.

Histologically Central Giant Cell granuloma shows cellular fibrous tissue containing multiple foci of hemorrhage, aggregations of multinucleated giant cells and occasional trabeculae of bone. In presently reported case, all the classic histopathological features were noted and diagnosis was made.

Numerous lesions such as cherubism, fibrous dysplasia, primary and secondary hyperparathyroidism (brown tumor), aneurysmal bone cyst and giant cell tumor (GCT) should be considered in differential diagnosis. GCT is distinctly unusual in the jaw; moreover, giant cells are regularly and uniformly distributed in GCT, while they are clumped in areas separated by virtually devoid areas of central giant cell granuloma. Fibrous dysplasia can be excluded by presence of numerous trabeculae of coarse immature bone showing no relation to functional pattern. Aneurysmal bone cysts show large sinusoidal spaces filled by blood. Both histological and radiological similarities has been reported in brown tumors and CGCG, but normal serum levels of calcium, phospho-

rous, alkaline phosphatase and good renal function help in diagnosis of CGCG and excluding the condition of hyperparathyroidism. Cherubism is also histologically similar to CGCG, but it usually occurs in children affecting the jaws, bilaterally, with a hereditary autosomal dominant mode.

Management includes simple enucleation, curettage or en-bloc resection. Non surgical treatment of CGCG is by intralesional instillation of corticosteroids, subcutaneous calcitonin injections and alpha interferons¹³. Radiotherapy has not proven to be a satisfactory alternative, because irradiation of giant cells lesions may provoke malignant degradation. The traditional treatment of CGCG is represented by surgical removal via an intraoral approach and the extent of tissue removal ranges from a simple curettage to an en-bloc resection. The most aggressive or recurrent lesions can require en bloc bone resection and reconstruction, since it can determine a bone defect and teeth loss. In this case after ruling out the possibility of hyperparathyroidism, the lesion was curetted, along with extraction of 47,48. The patient is under follow-up (Figure 6).

CONCLUSION

A case of CGCG in a 43 year old female presenting as unilocular radiolucency with scalloped borders in the radiograph posterior to mandibular first molar is reported and its clinical and radiological features are discussed. The pathogenesis and nature of these giant cell lesions still remain enigmatic and therefore further research is needed.

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Figure 1: Extra oral photograph of the patient

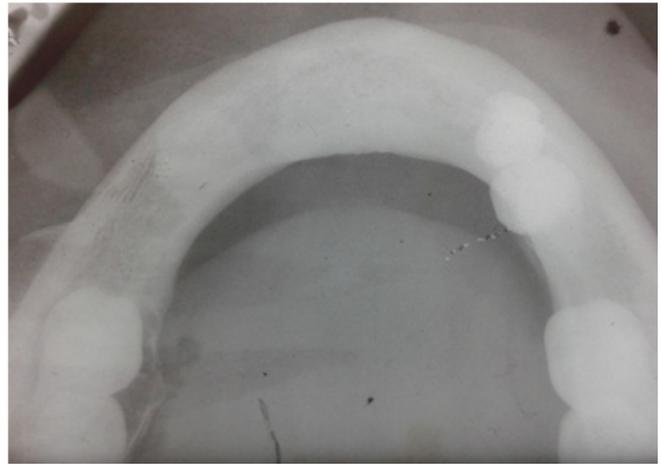


Figure 3: Mandibular occlusal radiograph revealed radiolucency in region of 45, 46, and 47 with expansion of buccal and lingual cortex



Figure 2: Intra oral photograph of the patient showing expansion of the buccal cortex on right side

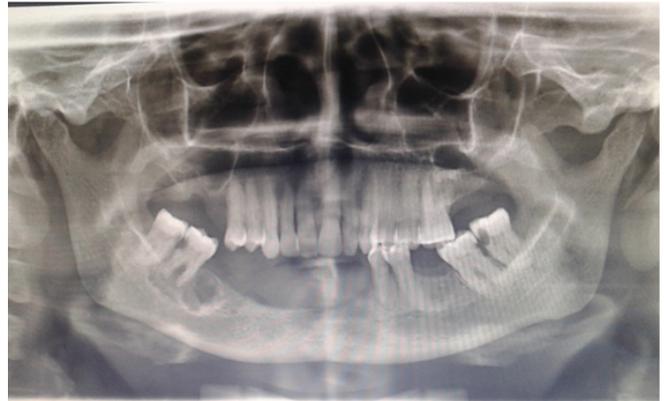


Figure 4: Panoramic radiograph revealed well defined periapical radiolucency in 47 with scalloped and corticated borders extending mesially with peripheral extension showing 'cyst in a cyst' appearance



Figure 5: Macroscopic appearance of the surgically curetted lesion



Figure 6: Post operative follow up after one month