Case report:

Central Giant Cell Granuloma of Mandible – A Case Report

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Abstract:
The central giant cell granuloma (CGCG) is a benign lesion accounting for approximately 7% of all benign tumors of the jaws. And has a recurrence rate of 13% to 49%. The etiology may be inflammatory response, hemorrhage or may be due to trauma. CGCG categorised into Aggressive and Non Aggressive lesions based on biologic behaviour. The CGCG usually occurs in younger age group. Females are more affected than males. And more common in Mandibular tooth bearing region. The presence of CGCG in the mandibular body ramus and condylar region creates a diagnostic and therapeutic challenge for Oral & Maxillofacial Surgeon. The purpose of this case report is to present an unusual case of aggressive CGCG involving body, angle and part of ramus of mandible on right side treated by Resection with continuity defect and reconstruction with reconstruction plate.

Key Words: Central Giant Cell Granuloma, Mandible, Resection, Reconstruction

Introduction:
The CGCG of the jaws was originally separated from the other giant cell lesions of bone by Jaffe in 1953 and described as the “Central Giant Cell Reparative Granuloma”. However, it is generally thought that most CGCGs are not reparative and are in fact destructive and will progress if not treated. The central giant cell granuloma (CGCG) of the jaws is a benign lesion accounting for approximately 7% of all benign tumors of the jaws. It is defined by the World Health Organization 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. The recurrence rate of CGCG ranges from 13% and 49%. Choung et al have classified CGCG into Aggressive and Non Aggressive lesions based on biologic behaviour including the presence of pain, rapid growth, perforation of the cortex and a tendency to recur. The CGCG usually occurs in patients younger than 30 years, is more common in females than in males, and is more common in the mandible than in the maxilla. The lesion has frequently been reported to be confined to the tooth-bearing areas of the jaws and is more common in the anterior portion of the mandible, often crossing the midline. Microscopically, the lesion shows a collagenous stroma containing spindle-cells and numerous multi-nucleated giant cells in hemorrhagic field containing numerous poorly defined vascular channels.
Radiographical appearance of the lesion may be a unilocular or multilocular radiolucency, with well-defined or ill-defined margins and varying degrees of expansion of the cortical plates. And radiologic appearance of the lesion is not pathognomonic. The traditional treatment of CGCG is surgical removal. However, the extent of tissue removal ranges from simple curettage to en bloc resection. Curettage has also been supplemented with cryosurgery and peripheral ostectomy. CGCG has also been treated by nonsurgical methods such as radiotherapy, daily systemic doses of calcitonin, and intralesional injection with corticosteroids.

**Case report:**
A 25 Yrs old female patient reported to the Dept of Oral & Maxillofacial Surgery of Government Dental College & Hospital, Hyderabad, Andhra Pradesh, India, with a complaint of swelling on the lower right side of the face since 6 months. History revealed, patient developed peanut swelling during 5th month of her pregnancy and increased to present size during period of one year. It’s associated with intermittent pain and paresthesia in right side of mandible. No history of trauma, no such swellings in any other part of body, and no cervical lymphadenopathy. Patient systemic health condition is good. On local examination extra orally a single large diffuse swelling on right side of mandible measuring about 4x4 cm. Extending from vermilion border of lip to angle of mandible, Superiorly to Zygomatic region inferiorly to lower border of mandible. And it is slightly tender on palpation, Firm in consistency. It didn’t show any secondary changes of infection. On intra-oral examination swelling present in the right alveolar region of mandible. Mucosa over the swelling is slight, stretched, Obliteration of labial vestibule were present. Mobility of teeth in relation to 45,46,47,48. On Radiological examination OPG revealed multilocular radiolucency starting from 42 extending apex of 48. Displacement of molars seen Root resorption of premolars can be seen. Computed tomography (CT) revealed an expansile lesion with buccal and lingual cortical plate perforation involving body, angle and ramus region of mandible on right side. Aspiration was negative. The serum chemistry of calcium, phosphorous, parathyroid hormone was normal, there by excluding the possibility of hyper Parathyroidism. Biopsy was performed and histopathological diagnosis of aggressive CGCG was made.

Surgical resection of mandibular body and part of ramus with continuity defect and reconstruction with reconstruction plate was planned and performed through extra oral approach by submandibular incision.

**Discussion:**
The Central Giant Cell Granuloma was classified as a true neoplasm and a reactive proliferative process at the same time because of its histologic features, dynamic biologic behaviour and variable clinical patterns. The CGCG usually occurs in the first 3 decades of life. In the present case report patient was younger than 30 years. Significant female preponderance was observed and is the same in present case report. CGCG are reported to be occur 3 times more in the mandible than in the maxilla and most commonly uniofocal. And in the present case report location of the tumor is in mandible on right side involving the body angle and part of ramus. Radiographically, it appears with unilocular radiolucency as often as with multilocular lesions. In the present case report a multilocular radiolucency was seen. Root resorption as a sign of local aggressive behaviour was evident in 60% of the aggressive lesions. The clinical behaviour of CGCGs varies widely and is
hard to predict. Recurrence rate was reported as 13% and 49%. The clinical criteria used by Choung et al. have been more reliable in distinguishing aggressive lesions from non aggressive lesions. Aggressive lesions were characterized by pain, rapid growth, root resorption, cortical perforation and with recurrences. In an attempt to differentiate aggressive and non aggressive sub types of CGCG and to predict the prognosis of newly diagnosed CGCGs, numerous studies have been conducted using cytometric and immunocytochemical methods. It has been shown that aggressive sub types have higher number and Relative Size Index of giant cells and greater Fractional Surface Area occupied by giant cells. Further more aggressive lesions have been shown to express a greater count of nucleolar organization regions. The clinical course of the disease in CGCG is hard to predict. Non surgical management of CGCGs include intralesional corticosteroids and subcutaneous calcitonin injections, and has been reported successful in limited clinical trials. Although initial reports may be encouraging, only limited long term data available. Surgical management of non aggressive lesions includes Curettage and conservative peripheral ostectomy. But aggressive lesions have a tendency to recur if inadequately removed, and high recurrences rates have been reported. And it has been shown that recurrences usually happen when lesion perforates the cortical plates to involve the surrounding soft tissues. So for aggressive lesions resection with continuity defects and followed by reconstruction is accepted form of treatment.

Conclusion:
CGCG is benign intraosseous lesion of head and neck sometimes shows aggressive behaviour. And hence correct diagnosis is established by correlating clinical and histological features. Surgery is the traditional and accepted treatment but may be combined with local injection of Corticosteroids and Calcitonin to avoid recurrence.

Fig 1: Pre-operative Photograph showing swelling on right side
Fig 2: Intra Oral photograph showing swelling in the buccal vestibule with displaced molar tooth.

Fig 3: pre-operative OPG showing radiolucent multilocular lesion on right body of mandible tooth.

Fig 4: CT scan showing Cortical plate perforation on both buccal and lingual sides tooth.

Fig 5: After Surgical exposure showing tumor mass.
References:


