Case Report

Reconstruction of Central Giant Cell Granuloma with Reconstruction Plate and Iliac Crest Graft in Mandible: A Case Report

Chauhan A, Garg S, Kankariya H, Mehendiratta K

Abstract: Central giant cell granuloma is a fairly common lesion in the jaws, aetiology of which is still completely unknown but thought to be of a reactive process to some unknown stimuli. It usually arises either peripherally in periodontal ligament, mucoperiosteum, or centrally in the bone. The histological hallmark for central giant cell granuloma (CGCG) is, the presence of distinctive multinucleated giant cells (MGCs) in a prominent fibrous stroma. Central giant cell granuloma is an uncommon benign proliferative lesion that almost exclusively occurs within the jaw. Eventually, it may become aggressive leading to the expansion and perforation of cortex resulting into mobility and displacement of teeth with root resorption. Here we present a case report on central giant cell granuloma in a 18 year old child who was treated with segmental resection and reconstruction done with reconstruction plate & iliac crest graft.

Keywords: Aggressive; Granuloma; Giant cell; Mandible; Multilocular; Radiolucency.

INTRODUCTION

Central giant cell granuloma is a benign lesion of jaws of unknown etiology. The World Health Organization has defined it as an intraosseous lesion consisting of cellular fibrous tissue that contains multiple foci of haemorrhage, aggregations of multinucleated giant cells and occasionally trabeculae of woven bone. Clinically, Central giant cell granuloma occurs most commonly in young adults and has a female predilection.[1,2,3] Lesions are more commonly located in the mandible and frequently cross the midline.[1-4] It is widely appreciated, however, that this lesion exhibits a variable clinical behavior and demonstrates varying histopathological features. Furthermore, the radiographic appearance of Central giant cell granuloma is not pathognomonic and may be confused with several other lesions of the jaws, such as brown tumor of hyperparathyroidism, fibrous dysplasia, aneurysmal bone cyst, and other fibro-osseous lesions. The clinical behavior of Central giant cell granuloma can vary from benign to rather aggressive lesion.[5,6] Here we report a case of Central giant cell granuloma in mandible treated with reconstruction plate and iliac crest graft.

CASE REPORT

A 18 years old male patient reported to Department of Oral & Maxillofacial Surgery with a complaint of swelling in anterior region of lower jaw since 1year which is related to pain in lower anterior region six months before, after which he developed swelling. No previous history of pain or trauma was reported. There is an extraoral swelling present in the anterior region of lower jaw (Fig 1) but on intraoral examination there is a well circumscribed, bony hard swelling extending from distal of 46 to mesial of 35 (Fig2) with buccal and lingual cortical plate expansion and displacement of teeth 43,42,41,31 were seen radiographically.

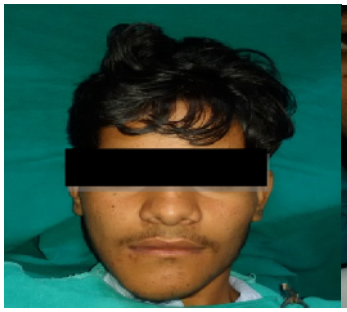

Fig 1: Preoperative picture

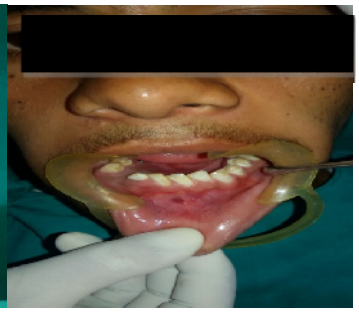

Fig 2:Preoperative occlusion

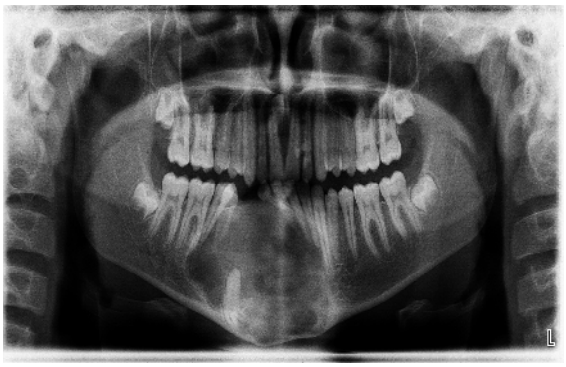

Fig 3: Preoperative OPG

Panoramic radiograph revealed multilocular radiolucency between 34-46 regions surrounded with a sclerotic border (Fig 3). Aspiration yielded no fluid. Based on these findings a provisional diagnosis of central giant cell granuloma was made and under differential diagnosis ossifying fibroma and fibrous dysplasia were considered. Incisional biopsy of the lesion done under local anesthesia and the specimen was sent to histopathology for evaluation which revealed multinucleated giant cells in a highly vascular connective tissue with chronic inflammatory infiltration but with no evidence of epithelium. A diagnosis of Central giant cell granuloma was given. Segmental resection of Central giant cell lesion was planned. Submandibular incision was given extraorally crossing midline (Fig 4), layer by layer dissection done for exposure of lesion (Fig 5), segmental resection was done from 35 to 46 region. (Fig 6), resected specimen was sent for histopathologic examination (Fig 7&8).Then reconstruction plate along with iliac crest graft was placed (Fig 9-12). Layer by layer suturing was done with 3-0 vicryl and 4-0 ethicon suture (Fig 13).

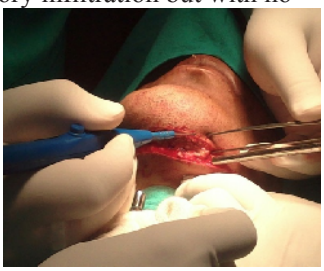

Fig 4: Intraoperatively incision

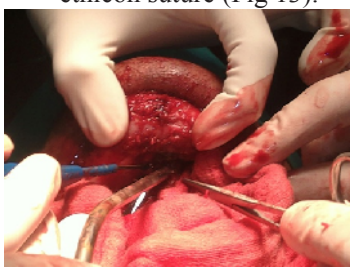

Fig 5: Exposure of lesion

Fig 6: Resected specimen

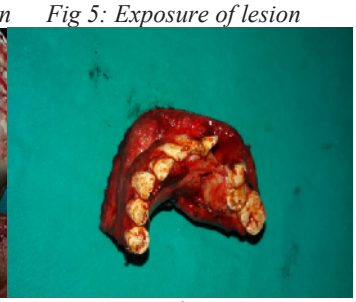

Fig 7: Resected specimen

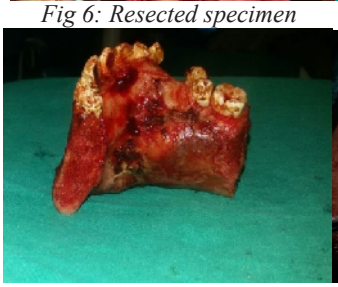

Fig 8: Resected specimen

Fig 9: reconstruction plate placed

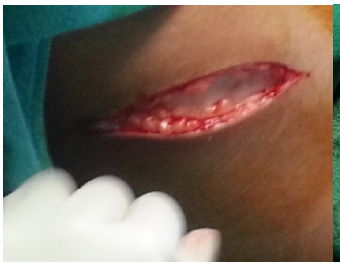
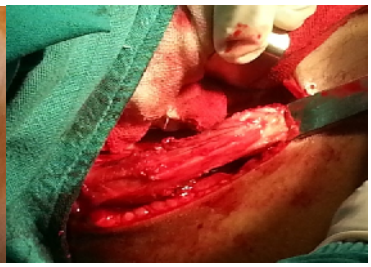

Fig 10: Incision for iliac crest *Fig 11: Removal of iliac crest graft*


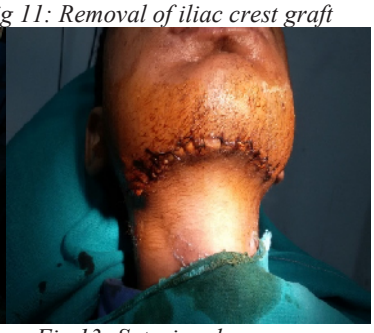

Fig 12: Iliac crest graft placed *Fig 13: Suturing done*

Postoperatively no complications occurred (Fig 14-16). Histopathological report of resected specimen confirmed the diagnosis of Central giant cell granuloma.

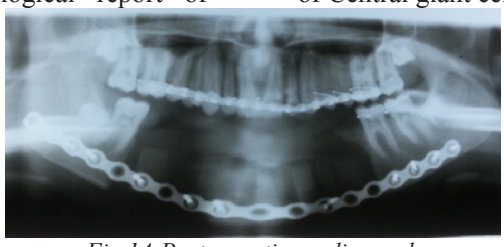

Fig 14:Postoperative radiograph

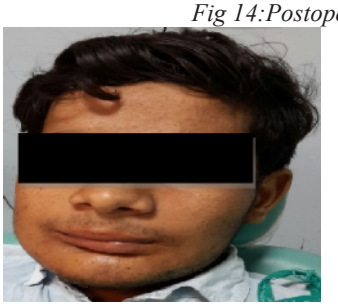
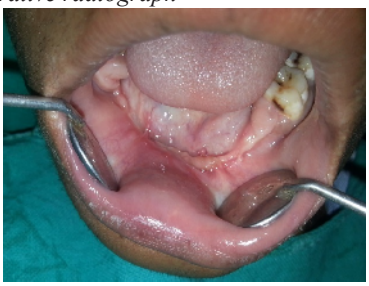

Fig 15: Extraoral Postoperative image. *Fig 16: Postoperative intraoral image*

DISCUSSION

Giant Cell Reparative Granuloma was introduced by Jaffe in 1953 to describe an apparently reactive intraosseous lesion of the mandible and maxilla following trauma induced intraosseous hemorrhage and containing prominent giant cells. It is a disease of the young presenting as a painless swelling in the anterior jaw and radiographically appearing as a lytic expansile lesion with a characteristic tendency of resorbing the root tips of adjacent unerupted teeth. It is also known as Central Giant Cell Granuloma.[7]Central giant cell granuloma is generally thought to be reactive rather than neoplastic in nature.[1-4] Electron microscopic and Immuno-histologic analysis showed that Central giant cell granuloma is a process that arises from monohistocyte like cells.[8]

In the literature reviewed, slight female predominance was found for Central giant cell granuloma[3] which may be explained by recent suggestions of the association between hormonal secretion and the appearance of Central giant cell granuloma in females. In young children, the craniofacial skeleton is actively developing to include osteogenesis, exfoliation and

eruption of teeth. These processes cease in adulthood and may therefore predispose to Central giant cell granuloma formation in younger individuals.[6] The clinical behavior of the lesion varies from an asymptomatic osteolytic lesion that grows slowly without expansion, to an aggressive, painful process accompanied by root resorption, cortical bone destruction, and extension into the soft tissues. In the past, lesions were classified as aggressive or nonaggressive, based on their clinical and radiological behavior. Aggressive lesions are characterized by their ability to destroy bone, resorb teeth, and displace anatomical structures, such as teeth, the mandibular canal, and the floor of maxillary antrum.[6]

The radiological feature of Central giant cell granuloma described in the literature is variable ranging from multilocular to unilocular radiolucent lesions. The variability in the description of radiographic features in the literature is consistent with the nature of Central giant cell granuloma. Central giant cell granuloma is reported to have a low growth index; therefore, their borders appear to be distinct and non-diffuse.[2,6] CT(Computed tomography) is excellent for demonstration of bony thinning or destruction. The lesion attenuation is similar to muscle. MRI(Magnetic resonance imaging) is the best modality of evaluating extent of the lesion as well as evaluating adjacent soft tissue. Mild post contrast enhancement is evident both on CT & MRI.[7] Management includes simple Enucleation or curettage to Enbloc resection. Nonsurgical treatment of Central giant cell granuloma is by intralesional instillation of corticosteroids, subcutaneous calcitonin injectionsand alpha interferons.[8,9]

CONCLUSION: A case of Central giant cell granuloma in a 18 year old male patient isreported and its clinical, histopathological and radiological features are discussed. The treatment for Central giant cell lesions remains controversial because recurrence is possible. Although the surgical procedures are effective, they have poor aesthetic and functional results when large resections are performed. Further research is needed to clarify the pathogenesis and nature of these giant cell lesions and other markers have to be investigated.

Author affiliations: 1. Dr Arti Chauhan, MDS, Senior lecturer, 2. Dr Shishirmohan Garg, MDS,Professor & HOD, 3. Dr Hasti Kankariya, MDS, Reader, 4. Dr Kapil Mehendiratta, PG Student, Department of Oral & Maxillofacial Surgery, K.D.Dental College &Hospital, Mathura, Uttar Pradesh, India.

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Corresponding author:
Dr. Arti Chauhan
Senior lecturer
K.D.Dental College & Hospital, Mathura
Contact no:9956750734
Email id: drartiomfs@gmail.com

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