

Intra-lesional Steroid Treatment of Mandibular Central Giant Cell Granuloma

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Abstract

Central giant cell granuloma (CGCG) is a non-neoplastic benign lesion. CGCG can be treated by various modalities of which surgery is the most common treatment but have possible variable recurrence rates. Other treatment modalities like calcitonin and intralesional steroid have showed good long-term results in many clinical cases. As CGCG occurs commonly in young adults and children of less than 30 years, non-surgical treatment is a better and least invasive option. The case of an 18-year-old Saudi female is represented with an aggressive mandible CGCG which has been treated with steroid intralesional injections on a weekly basis for six weeks that has been observed as a good treatment option for CGCG clinically.

Keywords: Steroids; Surgical excision; Granuloma.

Introduction

Giant cell granuloma (GCG) was first described by Jaffè in 1953 [1]. According to WHO (World Health Organization), Central Giant Cell Granuloma (CGCG) is defined as an intraosseous lesion that contains cellular fibrous tissue consisting of occasionally trabecule of woven bone [2], multiple foci of hemorrhage and aggregations of multinucleated giant cells [1]. Central Giant Cell Granuloma is also described as a rare benign lesion whose etiology is unknown [3].

CGCG occurs mainly in young adults and children. About 60% of the CGCG cases

occurs in individuals below the age group of 30. The mandibular/maxillary ratio ranges from 2:1 [4] to 3:1 [5] and female to male ratio is usually 2:1 [1]. The major radiographic characteristics of CGCG includes the unilocular to multilocular radiolucency with either ill-defined or well-defined borders [6].

Case report

An 18-year-old Saudi female with a complaint of facial deformity due to gradually enlarging swelling of the right lower jaw was presented in 2009 in the Oral and Maxillofacial Surgery Department at King Fahad Hospital- Hofuf/KSA. Extra-oral

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examination of the patient was carried out that showed non-tender swelling of right side of mandibular body causing facial asymmetry. No neurological deficit and regional lymphadenopathy were observed (Figure 1). Intra-oral examination showed

firm non-tender swelling of lower right premolar and molar teeth region with intact overlying mucosa. Swelling caused buccal expansion with mobility of mandibular right premolar and molar teeth and mild buccal sulcus obliteration (Figure 2).



Figure 1: Swelling of right mandibular body in an Extra-oral view causing facial asymmetry.



Figure 2: Intra-oral view shows swelling of right mandibular premolars and molars region, with mild obliteration of the buccal sulcus.

Radiographical investigations including orthopantomography and Computerized Tomography (CT) (Figure 3 and 4) were done which showed an expansile multilocular lytic lesion of right mandibular body, caused through and through perforation and destruction of the alveolar and basilar bones around lower right

premolar and molar teeth as evidenced on 3-dimensional CT scan (Figure 5). Under local anesthesia, incisional biopsy of the lesion was done followed by the histologic examination. Histology report showed multinucleated giant cells containing spindle cells in collagenous stroma background.

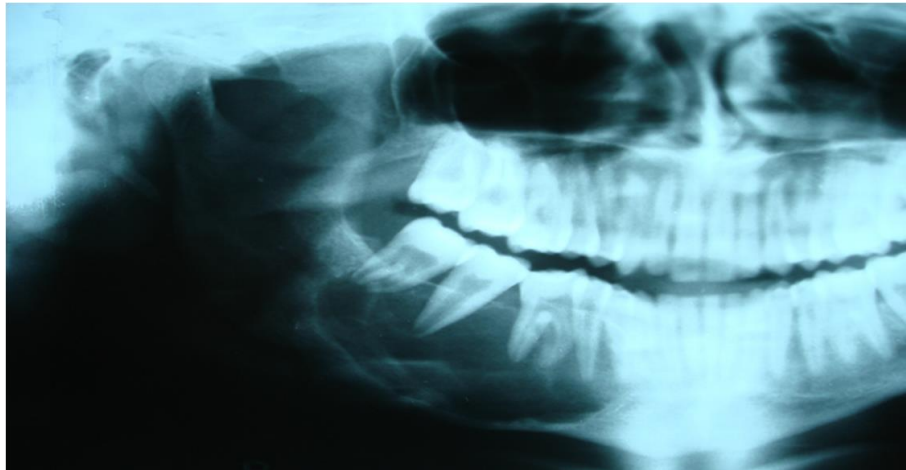


Figure 3: OPG view shows multilocular expansile lesion causing bone resorption of alveolar and basilar bones around lower right premolar and molar teeth.

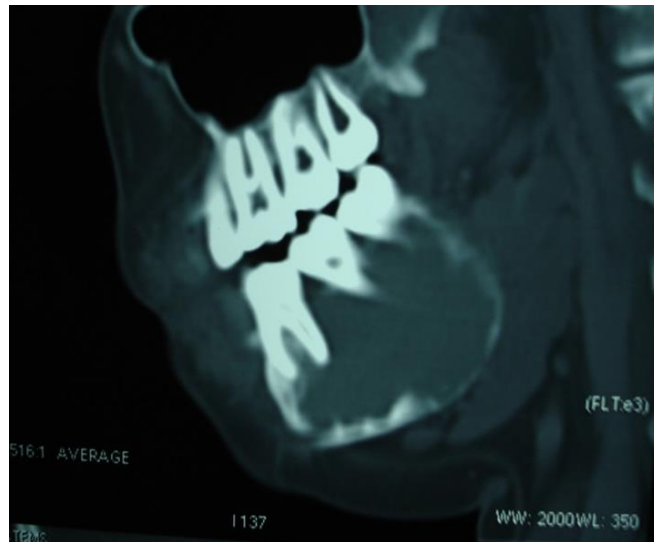


Figure 4: Sagittal CT scan shows an expansile lesion of right side of the mandible with thinning of the cortical mandibular plates.



Figure 5: 3-D CT scan shows alveolar and basilar bones destruction of right mandibular body.

The giant cells are aggregated frequently around multiple vascular channels within the lesion. Normal levels of alkaline phosphatase, parathyroid hormone and calcium phosphorus in laboratory investigations ruled out hyperthyroidism. Intralesional injections of 6cm³ were administered for six weeks. The injection

included a mixture of lidocaine hydrochloride and 10mg/ml triamcinolone acetonide with 1:80,000 in 1:1 ratio of adrenaline. No changes were noted after one month of intralesional treatment (Figure 6,7,8). There was slight reduction of teeth mobility after three months post-intralesional treatment.



Figure 6: Clinically no mobility of teeth No. 44,45,46 & 47 with a radiographical evidence of complete lesion opacification 3 years post ILST.

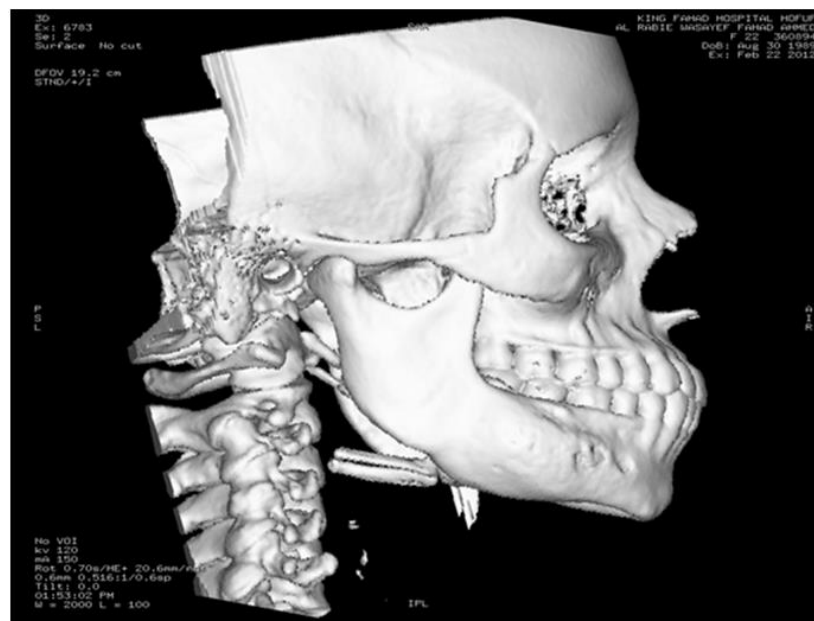


Figure 7: 3-D CT scan showing bone refill and calcification of the defective region after three years of ILST.

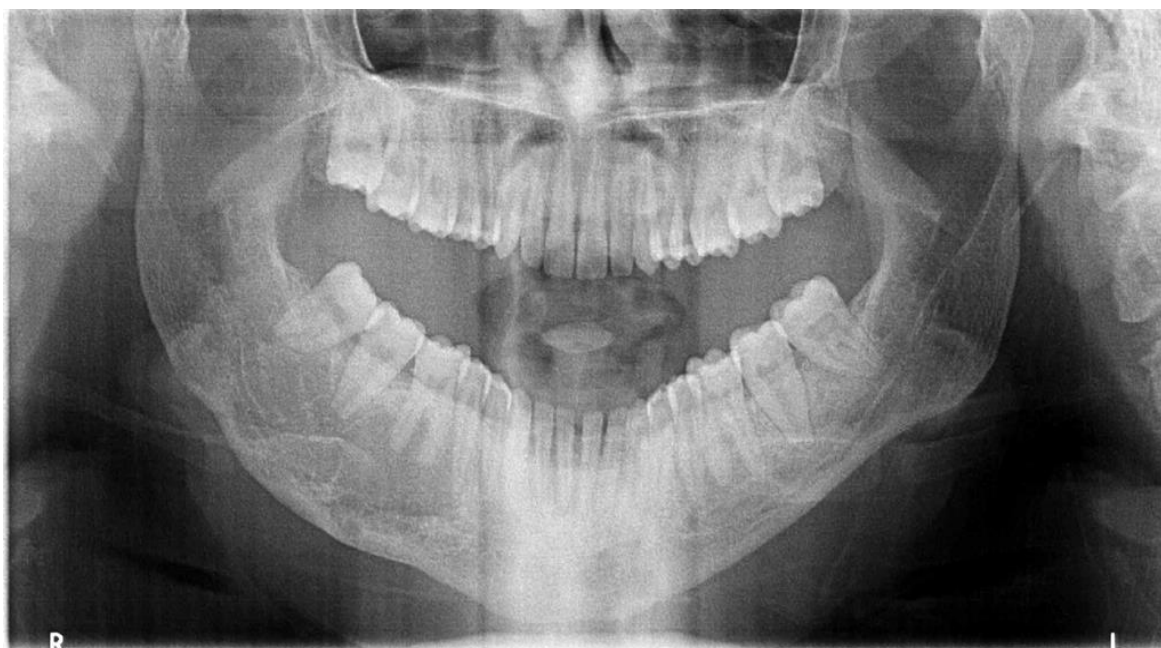


Figure 8: OPG 7 years post-ILST shows complete opacification and bone re-fill of the previously destroyed region.

Discussion

CGCG is classified into the following types based on the radiographical features and clinical behavior:

1. Nonaggressive: characterized by slow growth that doesn't cause cortical bone perforation or root resorption. It has low tendency to recur.
2. Aggressive: characterized by pain, rapid growth, expansion and/or perforation of cortical bone, root resorption and high recurrence tendency [4,5].

There are no histologic differences between the aggressive and the nonaggressive types [7]. Multiple treatment modalities have been suggested for CGCG. The most commonly applied are surgical procedures ranging between simple curettage and en bloc resection [8]. However, recurrence rates are high, ranging from 11% to 72% in different studies [9]. Other alternative nonsurgical treatments include

subcutaneous administration of interferon or calcitonin over several months and intralesional corticosteroid injection [10,11]. However, this treatment is relatively of long duration with possible side effects which is usually not tolerated by pediatric patients [12]. In 1988, the treatment of CGCG with corticosteroids was first reported by Jacoway et al. [13] and Terry and Jacoway [14] in 1994, reported the steroid treatment in four CGCG patients. For a period of six weeks, weekly injection of steroids was administered into the lesion that resulted in a complete resolution in three patients, while an additional surgery was done in one of the four patients for the complete resolution. However, corticosteroid treatment has shown contradictory results in CGCG patients with other medical conditions such as generalized immune-compromised conditions, peptic ulcer, and diabetes mellitus. In majority of the cases reported nonsurgical approach i.e., corticosteroids have been used for the CGCG treatment especially in young patients with developing dentition [15].

Conclusion

The Central giant cell granuloma case has been successfully treated with a six-weekly course of intralesional steroid injections. The treatment had shown good results in a seven-years follow-up period, which avoided a significant functional and cosmetic defect on a such growing female

patient if surgically treated. Concluding from the above case that intra-lesional steroid should be greatly consider as an alternative treatment of CGCGs apart from the surgery. Intralesional steroidal injections treatment is an easy, cheap technique with less side-affects for CGCGs treatment. Also, it avoids jaw defects post operatively.

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