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Intra-lesional Steroid Treatment of Recurrent Central Giant Cell Granuloma of the Mandible

Mohammed Al-Bodbaij[1]

Central giant cell granuloma (CGCG) is a benign lesion that affects children and young adults. Surgery is the traditional treatment of CGCG. However, calcitonin and intra-lesional steroid were used in this case with good results. In this case report, an 18-year-old Saudi girl presented with a recurrent CGCG and was treated with 6, weekly intralesional injections of steroid that gave very good results.
Key words: *giant cell granuloma, steroids, surgical excision*

The central giant cell granuloma (CGCG) is defined by the World Health Organization (WHO) 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[1]. CGCG occurs mainly in children and young adults with more than 60% of all cases occurring before the age of 30 and a ratio of female to male of 2:1[2]. The mandibular/maxillary ratio is from 2:1[3] to 3:1[4]. CGCG is classified into the following types[4,5]:

- non-aggressive: characterised by slow growth that does not cause cortical bone perforation or root resorption and has a low tendency to recur
- aggressive: characterised by pain, rapid growth, expansion and/or perforation of cortical bone, root resorption, and high recurrence tendency.

Radiographically, CGCGs present as an expansile radiolucency, either unilocular or multilocular with defined, poorly defined or diffused borders[3]. The treatment of CGCG includes curettage or resection of the lesion[6]. Systemic injection of calcitonin[7] and intra-lesional injection of corticosteroid have also been used[8,9].

1 Oral and Maxillofacial Surgery Department, King Fahad Hofuf Hospital, Kingdom of Saudi Arabia.
Corresponding author: Dr Mohammed Al-Bodbaij, Oral and Maxillofacial Surgery Department, King Fahad Hofuf Hospital, P.O. Box 5545, Zip No. Hofuf 31982, Kingdom of Saudi Arabia. Tel: 96-635750000 ext 1667; Email: bodbaij@yahoo.com

Case Report

In February 2007, an 18-year-old Saudi girl presented to the Department of Oral and Maxillofacial Surgery at King Fahad Hofuf Hospital with a recurrent, gradually enlarging swelling of the right side of the mandible and numbness of the right side of the lower lip. In January 2005, she had a surgical excision of swelling with dental extraction at the same site with a histopathological result of giant cell granuloma. One year later (January 2006), she had curettage of recurrent giant cell granuloma again. Extra-oral examination showed non-tender asymmetrical expansion of the right mandibular body. There was no regional lymphadenopathy. Intra-oral examination showed firm, non-tender swelling of the premolar-molar region of the right mandibular side with intact overlying mucosa. Swelling caused buccal and lingual expansions with buccal sulcus obliteration, mobility in teeth 44 and 45, and even loss of teeth 46 and 47 (Fig 1).

Radiographs including an orthopantogram (Fig 2), and computed tomography (CT) showed an expansile radiolucent lesion with destruction of the alveolar bone around teeth 44 and 45, in addition to the destruction of the alveolar bone of missing teeth 46 and 47. An incisional biopsy was done and histopatholocial examination showed proliferating spindled to plump cells present loosely and interspersed diffusely with numerous multinucleated giant cells; focally, collagen matrix and a few bony trabeculae were present (Fig 3). Assays of parathyroid hormone (PTH), calcium and phosphorus were within normal ranges, which ruled out hyperthyroidism.

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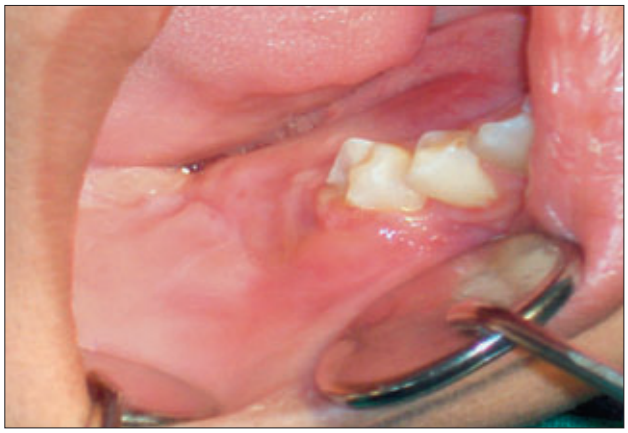

Fig 1 Intra-oral view shows swelling of the right premolar-molar region of the mandible with buccal and lingual expansion and obliteration of the buccal sulcus.

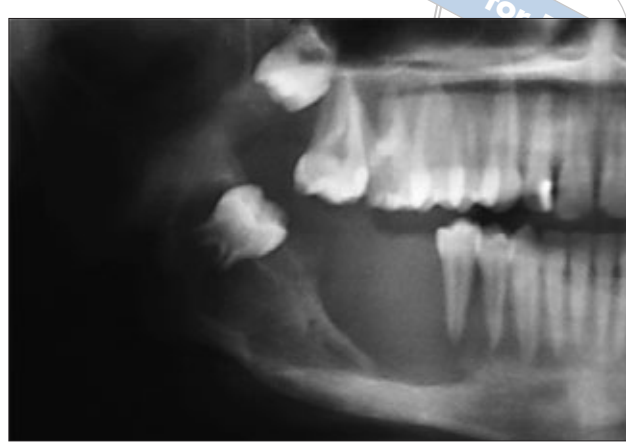

Fig 2 Panoramic radiograph shows the osteolytic lesion and the bony destruction of the right mandibular body prior to intralesional steroid treatment and after two surgical excisions of CGCG.

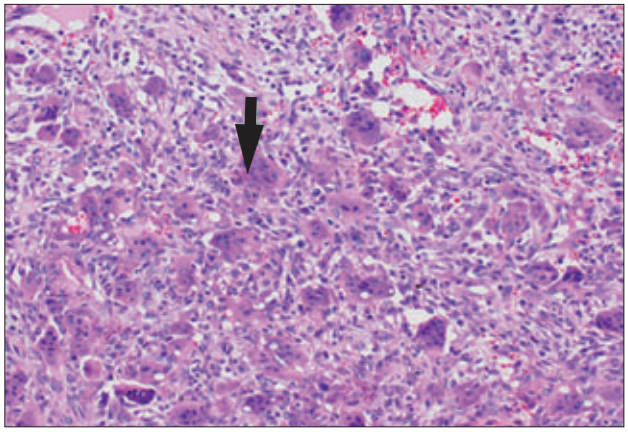

Fig 3 Histological view shows giant cell granuloma. Many multinucleated giant cells (arrow) are seen in this high power field (H&E, ×200).

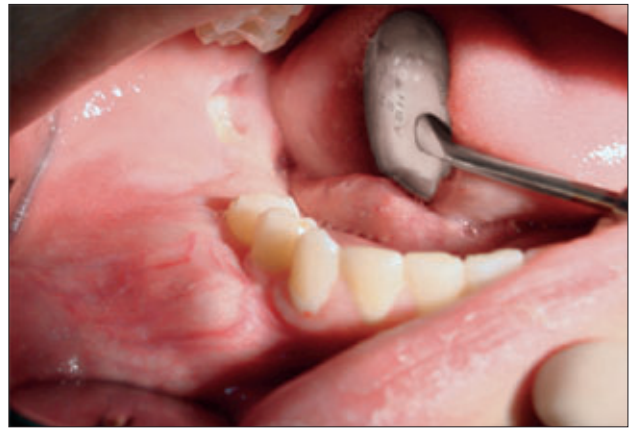

Fig 4 Intra-oral view, 1 year after intralesional steroid treatment shows complete calcification of the lesion with no mobility of teeth 44 and 45.

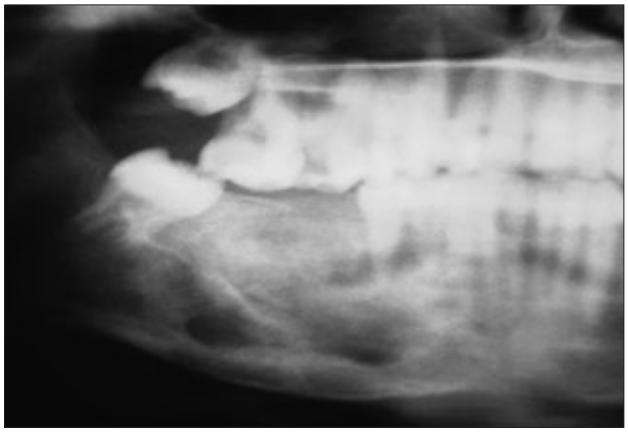

Fig 5 Panoramic radiograph 1 year after intralesional steroid treatment shows opacification and bone re-fill of the defective region.

Intralesional injections of 8 cm^3 of a mixture of triamcinolone acetonide 10 mg/ml and lidocaine hydrochloride with adrenaline 1:80,000 in a 1:1 ratio was administered on a weekly basis for 6 weeks. During the last two treatments, a slight resistance during injections was found. One month post-intralesional treatment, no obvious changes were noted except for a slight improvement of lower lip sensation.

Two months post-intralesional treatment, there were some changes which included a slight reduction of teeth mobility (44 and 45), improved lower lip sensation and a slight increase in opacification of the lesion as had been shown on a panoramic radiograph. One year later, there was no mobility in teeth 44 and 45, hard mass on palpation (Fig 4) and panoramic radiograph showed complete re-ossification of the region with an increasing growth of the roots of tooth 48 (Fig 5). Surgical debulking of the newly grown bone was planned to improve the asymmetry of the mandible.

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Discussion

CGCG is a benign lesion of the jaw, facial bones and the skull of unknown aetiology[2]. It commonly affects children and young adults and is at least twice as common in females[4,10].

The traditional treatment of CGCG of the jaw is surgery, which ranges from curettage of the lesion[2] to total *en bloc* resection[11,12] depending on the following factors: aggressive versus non-aggressive behaviour, location, size and radiographic appearance. There are no histological differences between the aggressive and non-aggressive varieties[13]. The commonly considered recurrence rate is between 10% and 20%[14].

Non-surgical approaches have been used, including daily systemic doses of calcitonin[7] with the disadvantage of prolonged time of treatment and intra-lesional injections with corticosteroids as described by Terry and Jacoway in their protocol[15]. Confirmation of the lesion via biopsy must be performed before the administration of intra-lesional corticosteroid injections.

Conclusion

The present case of recurrent CGCG has been treated with 6, weekly intralesional injections of steroid with very good results. Greater consideration should be given to intralesional steroid as an alternative to surgery in the treatment of CGCGs. The technique is simple, inexpensive and avoids large post-operative defects of the jaw.

Acknowledgments

I would like to express my deepest thanks and appreciation to the following people for their help in preparing this paper: Dr Khalid Al-Guhani, Dr Yousef Al-Marzooq and Dr Nadia Al-Marzooq.

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