

Central Giant Cell Granuloma

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Introduction

Central giant cell granuloma (central giant cell granuloma) is an uncommon benign bony lesion that occurs in the mandible and maxilla and accounts for approximately 7% of all benign tumours of the jaws [1]. The World Health Organization (WHO) has defined central giant cell granuloma as an intraosseous lesion consisting of cellular fibrous tissue that contains multiple foci of haemorrhage, aggregations of multinucleated giant cells and occasional trabeculae of woven bone [2]. Central giant cell granuloma occurs predominantly in children or young adults, with approximately 75% of cases presenting before 30 years of age although presentation can occur at any age [3]. Females are affected more frequently than males, with a ratio of 2:1 [4].

The clinical behaviour of central giant cell granuloma ranges from a slow growing asymptomatic swelling to an aggressive lesion that presents pain, local bone destruction, root resorption or tooth displacement [5].

Clinical Relevance

Chuong et al. [6] outlined the criteria that can be used to classify a lesion as aggressive or non-aggressive. Aggressive lesions are characterized by one or more of the following features: pain, paraesthesia, root resorption, rapid growth, cortical perforation, and a high recurrence rate after surgical curettage. Different authors have classified central giant cell granuloma into two types, based on clinical and radiographic features [5].

Aggressive lesions are mostly found in younger patients. Histologically there is no strict criterion to differentiate between aggressive and non-aggressive lesions, however the number and volume of giant cells versus other components of the lesion might give an indication on its clinical behaviour [7].

Surgery is considered the traditional treatment and it is still the most accepted one, however in literature not all authors agree on the type of surgery which should be performed. Excision via curettage has been associated with a low rate of recurrence for what concerns small lesions. In case of recurrences, curettage plus peripheral osteotomy and bone resection should be performed instead [7]. Unal et al. proposed obtaining safety margins by means of microdrilling of the surgical field with a diamond burr [8]. Although en bloc resection is the treatment which provides the lowest recurrence rate, only a few single case reports describe the use of this technique followed by reconstruction with iliac crest graft [7].

Non-surgical treatments (alpha interferon [α-IFN], calcitonin, corticosteroids) have been described and their benefits may be worthy of consideration.

As pointed out by de Lange medical therapy success rates are still not reaching those of surgery in controlling the lesions and additional surgery is undoubtedly needed whenever medical therapy fails [9].

Case Report

An 8 year old boy reported to the Department of Pedodontics and Preventive Dentistry, Rungta College of Dental Sciences & Research, Bhilai, Chhattisgarh with a chief complaint of swelling in upper front region of the mouth for the last 20 days, with a history of sudden increase in size since one week. Associated with swelling there was no history of pain or bleeding. On intra oral examination, a 1.5 × 1.5 cm, well defined oval, reddish pink, soft, non-tender, extending toward the palatal surface between the two central incisors. Diastema was present with respect to teeth 11 and 21. There was no associated lymphadenopathy. [Figure 1 showing preoperative view of patient; Figures 2a and 2b Showing the central giant cell granuloma].

Figure 1: Showing preoperative view of patient.



Figure 2a and 2b: Showing the central giant cell granuloma.



No systemic abnormalities were detected. Hematological reports were noncontributory. A decision was thus made to excise the lesion. The growth was excised under local anesthesia with a cold scalpel. Care was taken to remove the entire base and the excised lesion was stored in 10% formalin and sent for histopathological examination. [Figure 3: Showing excisional biopsy].

Figure 3: Showing excisional biopsy.



The histopathological section showed well encapsulated lobulated mass, numerous giant cells and hyperparakeratinized stratified squamous epithelium. The presence of these features was suggestive of central giant cell granuloma. The lesion reoccurs during 2nd week and 3rd month follow-up period and was retreated. The lesion did not reoccur during the 1-week and 6-month follow-up period. (Figures 4a and 4b Showing histopathological view); (Figures 5a-5e Showing retreatment of the recurrent central giant cell granuloma), (Figure 6 Showing postoperative view after retreatment).

Figure 4a and 4b: Showing histopathological view.

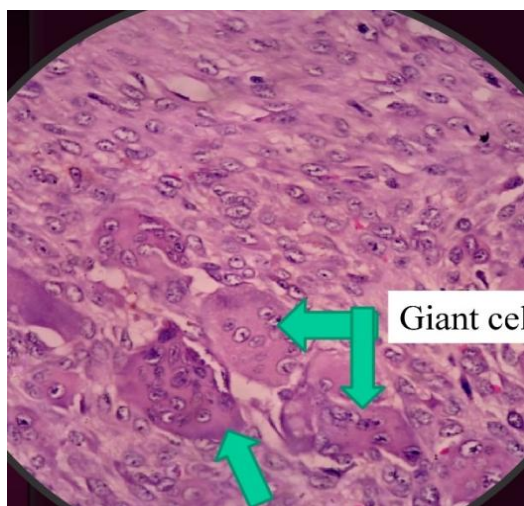
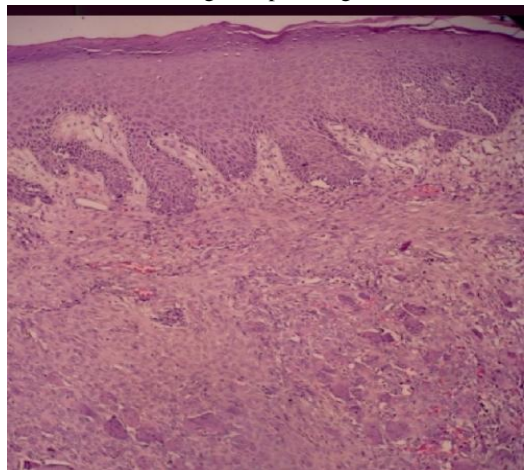


Figure 5a-5e: Showing retreatment of the recurrent central giant cell granuloma.

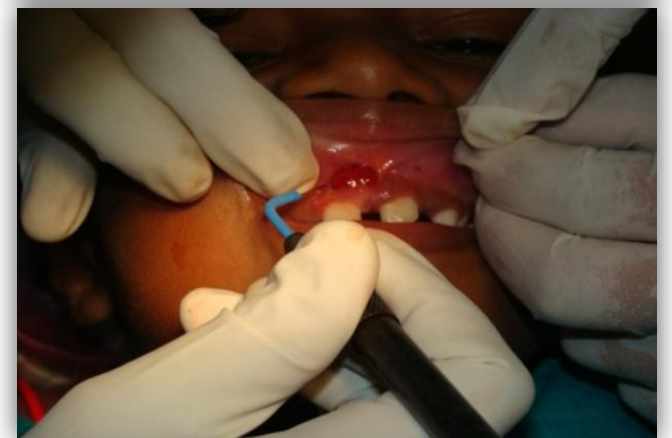


Figure 6: Showing postoperative view after retreatment.



Table 1: Results: surgical therapy

Author	No.	Aggressive/ non-aggressive	treatment	Follow-up	Overall recurrence rate
Chuong (1986) [6]	17	8/9	Curettage, radiation therapy in 4 patients	24-380 months	41.0%
Eisenbud (1988) [20]	37	--	Curettage and resection	2-16 years	11.0%
Whitaker (1993) [3]	47	26/21	Curettage	Mean 48 months	49.0%
Bataineh (2002) [21]	18	18/18	Resection	1-9 years	5.6%
Kruse-Losler (2006) [22]	26	10/16	Curettage and resection	9 months to 12 years	11.5%
Tosco (2008) [7]	18	11/7	Resection (.5 mm)	Mean 68 months	0%

Background

Various authors proposed excision via curettage and the overall recurrence rate has been reported to range from 16% to 49% [3,6]. A higher incidence of recurrence was found in aggressive central giant cell granulomas and in younger patients, especially males. According to Eisenbud et al., in case of recurrence curettage plus peripheral osteotomy and bone resection should be performed [20]. Unal et al. proposed to obtain safety margins by means of microdrilling of the surgical field with a diamond burr [8]. However Eisenbud et al. [20] indicate that surgical curettage with peripheral osteotomy is still not the safest treatment for central giant cell granulomas, especially in aggressive lesions. En bloc resection might provide the greatest certainty of a cure: in a study of 18 patients with aggressive central giant cell granuloma, treatment consisted of en bloc surgical resection with a 5 mm margin of healthy tissue and only 1 patient had a recurrence [21].

In growing patients, aggressive surgical approaches are not a suitable solution for central giant cell granulomas. More conservative surgery is instead the only applicable strategy for subjects with deciduous dentition. In general destructive surgery (en bloc surgical resection with 5 mm margins) seems to be the safest option for the control of recurrences but it may result in facial deformities which are obviously of great concern.

Conflict of Interest: None

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