

Modified Approach to Central Giant Cell Lesion

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This case report discusses a modified technique for treatment of a central giant cell lesion (CGCL) in children, where a recontouring procedure is performed prior to the treatment with intra lesional corticosteroid. We discuss the advantages of this less invasive technique, specially considering the early age of the patient and its bone growth, as well as the conservative approach for lesions in those cases. The treatment of an 8-year-old female patient exhibiting CGCL in anterior region of mandible with bone expansion is described. The procedure was performed using blade #15 and rongeur forceps, in order to obtain an adequate jaw contour. Two weeks later, drug treatment started with triamcinolone 10mg/ml diluted in 0.5% bupivacaine without vasoconstrictor agent, 1:1 ratio, for eight sessions. There were no complications in surgery and postoperative period. In 3-year follow-up, anatomical preservation is present with no signs of recurrence.

Key words: Central giant cell granuloma; corticosteroids; injection .

INTRODUCTION

Central giant cell lesion (CGCL) is an uncommon bone disease, accounting for 7% of all benign tumors of the jaw¹⁻². Despite the benign nature, it can be locally aggressive, causing extensive bone destruction, tooth displacement and radicular resorption³. The conventional treatment is surgical removal, which can result in significant esthetic and functional impairment due to the bone destruction. Alternatively, the literature has shown good results with intralesional corticosteroid, particularly in children⁴⁻⁵.

However, when bone expansion is present, the corticosteroid treatment may result in an excessive ossification and it is observed the need of osteoplasty in a highly mineralized tissue to restore anatomical contour⁶. The aim of this report is to present a modified technique for treatment of CGCL in children, where a recontouring procedure is performed prior to the intralesional corticotherapy. Also, we aim to discuss the advantages of this technique, regarding to the early age of the patient, the maintenance of the bone development, and the conservative approach.

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Case Report

An 8-year-old healthy female patient sought treatment because of painless swelling in the anterior mandible. The lesion had one year of evolution and recent report of local bleeding. Intraoral examination revealed ulcerated nodule with hardened erythematous areas, measuring approximately 3 cm and located in the anterior region of the mandible (Figure 1A). Cone Beam computed tomography (CBCT) shows a multilocular radiolucent lesion with imprecise limits, bone expansion and cortical perforation (Figure 1B). After incisional biopsy, histopathological diagnosis of central giant cell lesion was obtained (Figure 2A). Laboratory results revealed serum levels of parathyroid hormone, calcium and phosphorus within normal values.

Because of lesion expansion through the buccal cortex, we chose to perform a recontouring procedure before to the intralesional corticotherapy. This procedure consists of partial removal of the lesion in order to reach anatomical contour of mandible and also aims to preserve dental germs.

The recontouring procedure was performed under general anesthesia due to the patient's age and psychological profile, which did not allow surgery under of local anesthesia. Preoperative antibiotic prophylaxis was performed and the surgery lasted 30 minutes. The recontouring procedure consisted of exposure and dissection of the lesion with a blade #15 and rongeur forceps to obtain the mandible contour, and suture of soft tissues (Figure 2B). During surgery, no complications were observed. The postoperative period was uneventful, the patient progressed well and was discharged from hospital after anesthesia recovery.

For treatment of the remaining lesion, two weeks after the initial procedure, the administration of 2 ml per cm³ of a solution containing triamcinolone 10mg/ml, diluted in 0.5% bupivacaine without vasoconstrictor agent (1:1 ratio, in 5 sessions) was initiated⁴. After three months, three additional sessions were performed with resistance to needle penetration.

In three years of follow-up, CBCT images show trabecular bone healing and preservation anatomical contour. No evidence of lesion recurrence or systemic changes resulting of triamcinolone use (Figure 3AB).

Figure 1. A. Intraoral aspect of CGCL. B. Preoperative CBCT scan.

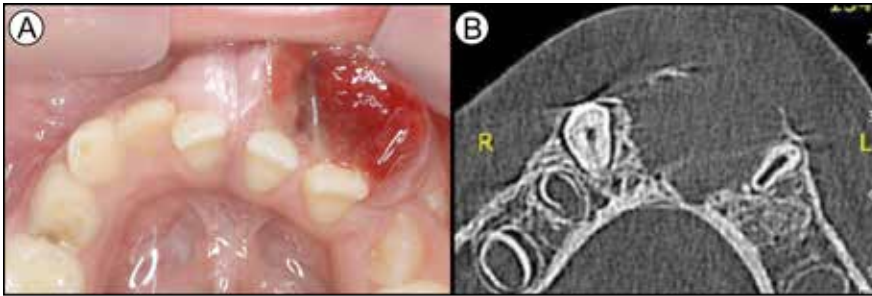


Figure 2. A. Histopathological image of CGCL. B. Contour of region obtained in surgical procedure.

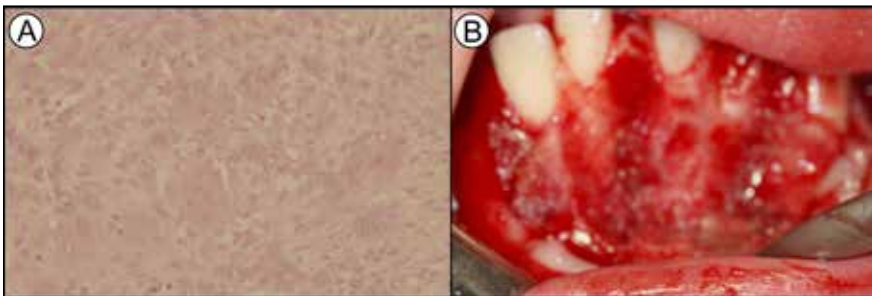
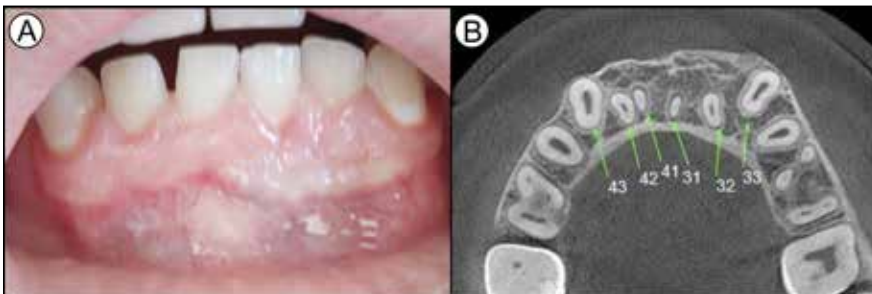


Figure 3. A. Intraoral aspect, 3-year follow-up. B. 3-year follow-up CBCT.



DISCUSSION

CGCL are benign tumors that may have aggressive behavior. The surgical treatment of these tumors ranges from local curettage to segmental resection. Despite its effectiveness, the resection is particularly crippling for children resulting in significant esthetic and functional impairment^{1,7}. In order to avoid such damages, it is preferable to choose drug treatments^{4,6} using calcitonin, interferon 2 α or intralesional corticoid injection¹⁻³. Among these options, intralesional triamcinolone injection is recommended for large tumors in order to reduce or eradicate the lesion, and is an effective, safe and non-crippling treatment⁷.

The reported technique is simple, relatively fast, has low cost and prevents significant functional and esthetic defects⁶⁻⁷. The surgical procedure removes the lesion in order to reach adequate anatomy and to preserve adjacent structures. The treatment of the remaining lesion is performed by intralesional corticotherapy. The triamcinolone action mechanism occurs by the inhibition of

extracellular lysosomal proteases and through apoptosis of osteoclastic cells, ceasing the process of bone resorption. Thus, resulting in regeneration and recovery of the normal bone function⁵⁻⁶.

Intralesional application of corticosteroids is more effective than systemic use, due to the higher local concentration and sporadic systemic adverse effects⁸. Intralesional corticotherapy without surgical treatment has a success rate of 65%. However, the remaining lesions require curettage or local osteoplasty in order to reach adequate anatomic bone contour^{3,6}. In our experience, the intralesional corticotherapy may induce an intense bone mineralization, which could be a challenge for the later recontouring procedure⁴. This fact occurs especially when the bone cortex is expanded, generating facial asymmetry. In addition, depending on the size and location of the expansion, the recontouring surgery can be quite difficult due to the extremely hard consistency of the tissue resulting from the ossification.

Corticosteroid therapy is specially recommended for

nonaggressive lesions in children because the involvement of dental germs and adjacent structures³⁻⁸. Although surgical curettage or resection are effective treatments with low rates of recurrence^{5,7}, these procedures may result in loss of teeth and tooth germs, and even in inferior alveolar nerve impairment^{2,7}. Moreover, surgical resection in children will result in segmental defects, which are associated with esthetic loss, functional damage and changes in the facial growth². In addition, reconstructive surgery for mandibular segmental defects represents a challenge⁷.

Therefore, we propose the recontouring procedure prior to drug treatment when the bone cortex expansion is present. To the best of our knowledge, recontouring produces an easier and safer technique, avoiding injury of the adjacent structures. Yet, because of the shrinkage of the tumor mass, we believe that the amount of drug required and the number of infiltration sessions are smaller and result in a faster treatment with less systemic consequences. However, it is necessary to have more clinical studies to prove this theory. In the present case, this method resulted in a suitable bone recovery and preservation of the anatomy, function and esthetics.

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