

Central Giant Cell Granuloma in Pediatric Patient

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Abstract

Central Giant Cell Granuloma (CGCG) is an osteolytic and expansile lesion of the mandible. This lesion affects a younger type of patients which generally require surgical treatment and hospitalization affecting vital structures and causing grow defects. We present a case in a 7-year-old patient using intralesional injections of triamcinolone acetonide. After such a treatment we observed new bone formation and reduction in the size of the lesion which derived in a great outcome in such a young patient. This treatment bypassed any required hospitalization or aggressive surgery reducing postoperative morbidity. This paper report successful treatment of intralesional administration of triamcinolone acetonide in a 7-year-old patient.

Keywords: Central Giant Cell Granuloma; triamcinolone acetonide; intralesional; infiltration.

Introduction

Central Giant Cell Granuloma (CGCG) is a benign intraosseous lesion affecting mandible and maxilla, and accounts for approximately 7% of the tumors of the jaws (1). 60% of the cases occur before the age of 30 (1). The World Health Organization has defined Central Giant Cell Granuloma (CGCG) as “an intraosseous lesion consisting of cellular fibrous tissue, multiple foci of hemorrhage, aggregations of multinucleated giant cells and occasionally trabeculae of woven bone”. Clinical features are slow asymptomatic swelling and cortical expansion in the area of molars (2). It affects male and female with a female-predilection ratio of 2:1. CGCG are reported to be present in children and young adults with approximately 75% of cases (2). In radiographic analyses, CGCL may range from small apical lesions to large destructive multilocular radiolu-cencies involving large areas of the jaws (3). Treatment varies from surgical curettage, corticoid therapy and the use of different medications. However, these treatments protocols remain unclear.

Case Report

A 7-year-old female referred from a general practitioner to our private dental office with a chief complaint of swelling in the right side of the face with about 1 month of evolution (Figure 1). On intraoral examination, we observed a diffuse swelling on both buccal and lingual side of the mucosa of the right side of the mandible, the lesion has no history of bleeding or pain. (Figure No. 2). Dental Cone Beam Computer Tomography (CBCT) revealed a large intraosseous lesion occupying mandibular symphysis through posterior molars of the right side, the lesion was considerably expansile bordered by well-defined cortex. Internally, the lesion had a mix density with a fine granular bone pattern, externally dental germ of lower right canine is observed (Figure No. 3). Histopathological study reveals fibrous connective tissue stroma with numerous scattered multinucleated giant cells. Based on the histological features described diagnosis of CGCG was reported (Figure No 4).



Figure 1: Right side swelling in the mandible. Ecchymosis observed after biopsy was taken.



Figure 1A: Intraoral view showing expansion of both cortical.

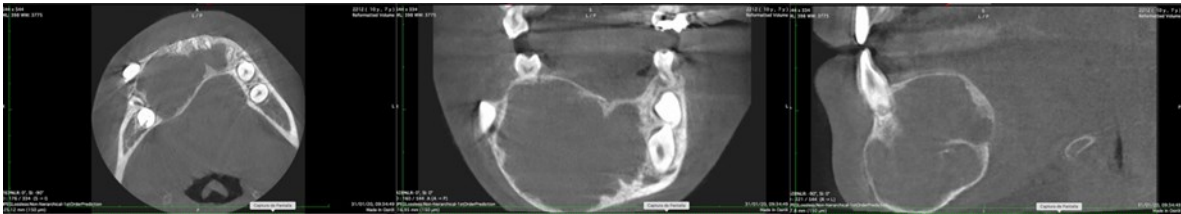


Figure 2. CBCT Axial, coronal and sagittal view showing expansion of cortical bone in the area of inferior incisors to premolars of the right side. Large multilocular regions are shown (arrows).

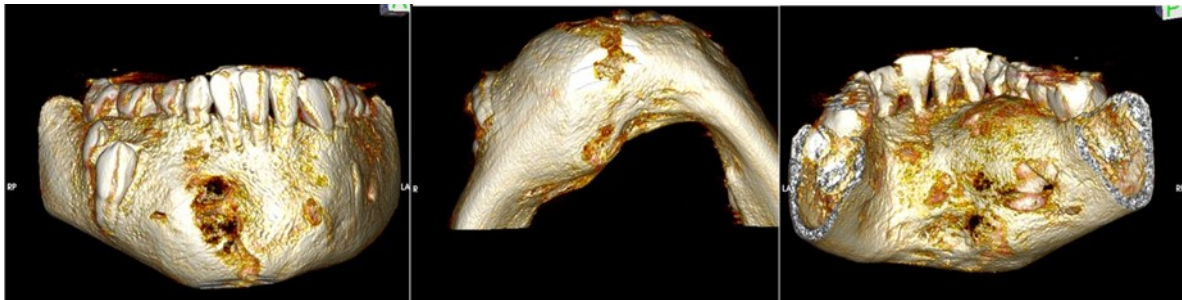


Figure 2A: CBCT 3D reconstruction.

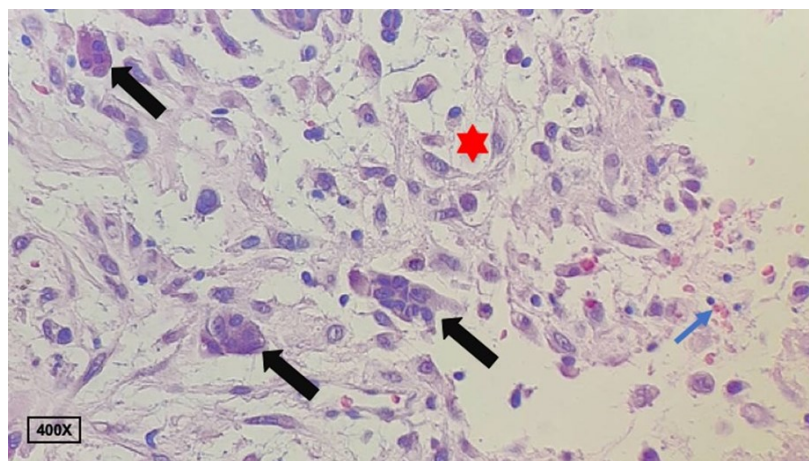


Figure 3: Histopathology revealed multiple giant cells (black arrows) in a loose fibrous stroma (red star) with extravasated red blood cells (blue arrow) H&E 400X.



Figure 4: Control after 9 months. Peripheral bone formation is noted surrounding the lesion.



Figure 4A. 3D reconstruction.

Materials and Methods

A solution consisting of Triamcinolone Acetonide 20mg/ml (Alocort, Piersan Lab.) mixed in 2% lidocaine epinephrine 1:100,000 in a 1:2 ratio, using a total amount of 1.8 mL, was infiltrated intralesional after perforating the lingual cortical bone with a No. 4 rounded bur. The protocol described was infiltrated once a week for four weeks. After four weeks of interval the protocol was repeated. During the infiltrations, no adverse effect was observed, and the patient was constantly monitored by her pediatrician. The first CBCT control was taken after 9 months of the first intralesional infiltration. Granular bone pattern was observed in the lesion, also bone formation on the peripheral border of the lesion was observed (Figure 4). We decided to infiltrate another round of four weeks and then patient remained under observation during another 6 months. The second CBCT control was taken at eleven months, and it was observed bone formation in almost the entire lesion from the peripheral to the center in concentric pattern, filling the multilocular regions. Clinically, reduction in facial swelling was noticed (Figure 5). The final CBCT control was taken at two years and 2 months of the first infiltration, observing thicker buccal and lingual corticals at the lesion and bone formation occupying almost the entire lesion (Figure 6).

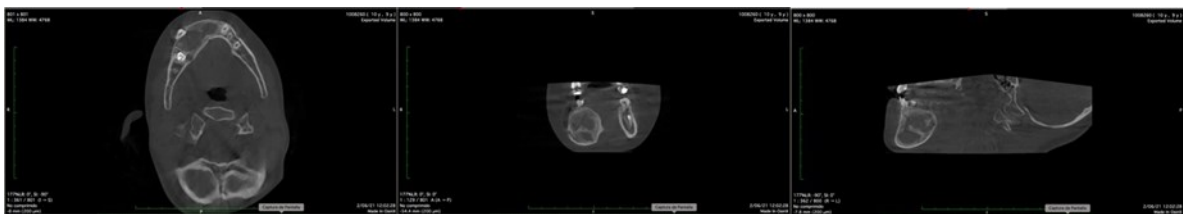


Figure 5: Eleven months CBCT. Concentric bone formation observed from the margin of the lesion to the center.

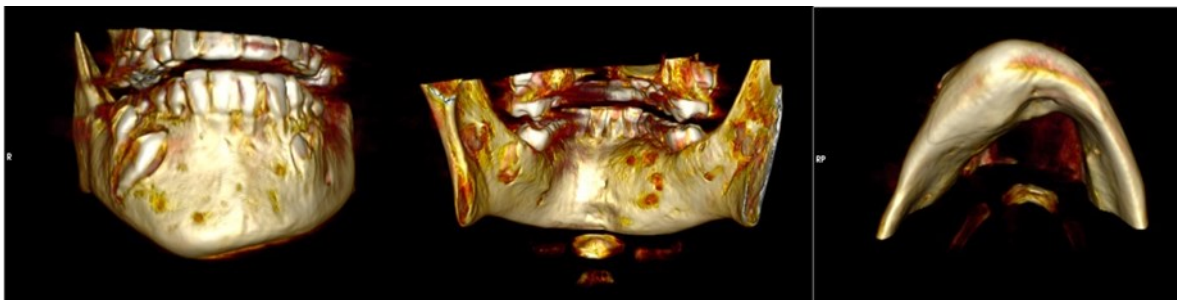


Figure 5A: CBCT 3D reconstruction.



Figure 6: Two year and 2 month control. Cortical appears thicker (arrows), trabeculae is observed and some small cystic-like zones (arrow heads).



Figure 6A. 3D reconstruction shows bone remodeling in the contour of the lesion.

Discussion

Intralesional infiltration of triamcinolone acetonide to treat CGCG in adults has been reported but in pediatric patients remains vague (4,6,7,8,10,16,17). It has been described that glucocorticoid receptor in multinucleated cells reacts to corticosteroids intralesional injections. Corticosteroids act by suppressing angiogenesis of the lesion and inhibiting bone resorption by inhibiting protease production from multinucleated giant cell and apoptosis of osteoclastic cells (10,16). The extent of the lesion presented in this case concerns parents and physicians for defects relating surgery or delayed teeth eruption affecting functionally and esthetically patients. In this case large mutilating surgical procedures are avoided thus rehabilitation and the use of dental implants and prosthetic devices expenses. It is important to remark that there is no consensus in the use and dosage of triamcinolone to treat CGCG in children thus report cases like ours maybe a guide considering our conservative protocol.

Conclusion

In this case we presented a protocol of intralesional infiltrations of triamcinolone to successfully treat Central Giant Cell Granuloma in a pediatric patient, since there is no consensus in protocols that can be replicated in pediatric patients and although we were successful after two years of reevaluation, long term follow-up is essential, and the patient may still need minor surgical procedures in some point of her life.

Conflict of Interest

The authors declare no conflict of interest.

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