Case Report

Central Giant Cell Granuloma: A Rare Clinical Entity

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Abstract

Central giant cell granuloma (CGCG) is a benign intraosseous lesion of the jaws that is found predominantly in children and young adults. CGCG is an asymptomatic lesion which shows a clinical behavior ranging from nonaggressive to aggressive variant and becomes evident during a routine radiographic examination or by the visible expansion of the affected jaw. The common therapy is aggressive curettage, peripheral osteotomy or resection, which may be associated with loss of teeth and in younger patient's loss of dental germs. This paper presents a case of CGCG involving the mandibular anterior region in a male child patient with clinical, radiological, histopathological, and surgical aspect of the lesion.

Keywords: Aggressive, giant cells, granuloma

Introduction

Jaffe, in 1953, separated giant cell tumors from other jaw lesions and termed them as giant cell reparative granulomas.[1] They were found in the first two decades of life, more frequently in females (approximately 2:1).[2] Giant cell lesions are benign, nonodontogenic, relatively uncommon tumors of the oral cavity, developing peripherally in soft tissues (gingiva) or centrally (in bone).[3] With the power and influence of evidence, it is concluded that the lesion once recognized as a central giant cell granuloma (CGCG) is actually a benign tumor of osteoclast precursors and must be accurately termed a "central giant cell tumor."[4] It accounts <7% of all benign jaw lesions.[5]

Case Report

A 9-year-old male child presented to the Department of Pedodontics and Preventive Dentistry with a swelling on the right side of the face for 4 months. The swelling was reported to be insidious in onset and had progressed slowly from a small lesion to the present size. It was also reported that two of his lower anterior teeth had become mobile 2 weeks back. The swelling was not associated with any systemic symptoms [Figure 1].

On examination, intraorally, swelling of the buccal vestibule and high tooth mobility was seen. Swelling was extending from the mandibular right permanent central incisor to the first deciduous molar obliterating the buccal sulcus [Figure 2]. Medical history and family history were noncontributory.

The patient did not report of any deleterious oral habits. Extraoral examination revealed mild swelling in the chin region. The overlying skin was normal. The swelling had no localized elevation of temperature. There was no associated lymphadenopathy. Panoramic radiographs showed a multilocular radiolucent area in the anterior mandible extending from tooth 41 to tooth 84, causing resorption of 41, 42, and 84 [Figures 3 and 4].

An incisional biopsy was performed, which showed multinucleated giant cells surrounded by a disorganized stroma with intense inflammatory cell infiltrates [Figures 5-7]. There were mainly mononuclear infiltrates with numerous hemorrhagic areas and viable bone tissue surrounding the lesion. Based on these characteristics, the final diagnosis was central giant cell lesion. The results of blood tests were normal, and after ruling out the possibility of the injury being associated with hormonal disorders (hyperparathyroidism), the proposed

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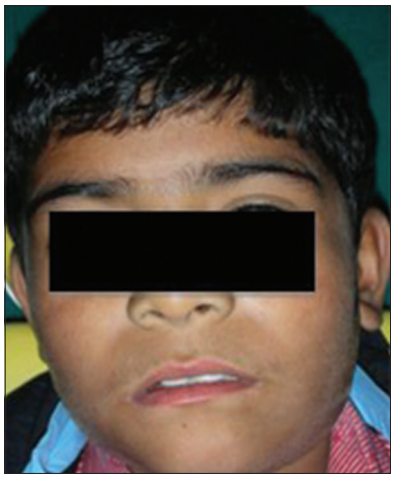

Figure 1: Extraoral examination showing a single, diffuse swelling on the right side of the face in mandibular region.

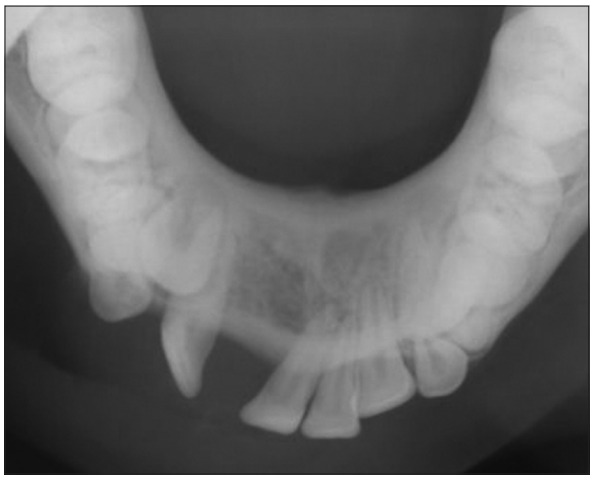

Figure 3: Radiograph showing the lesion in mandible.

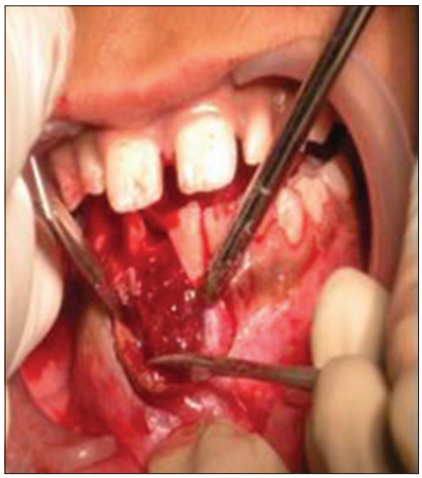

Figure 5: Biopsy of the lesion.

treatment was surgical excision of the lesion [Figures 8-12] followed by placement of an acrylic stent on it, to enhance healing of the surgical site as it helped to keep the site clean by avoiding deposition of food debris on it [Figures 13-15].

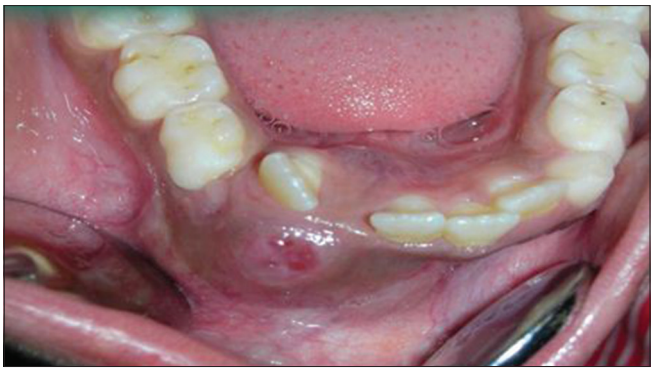

Figure 2: Intraoral photograph of the lesion.

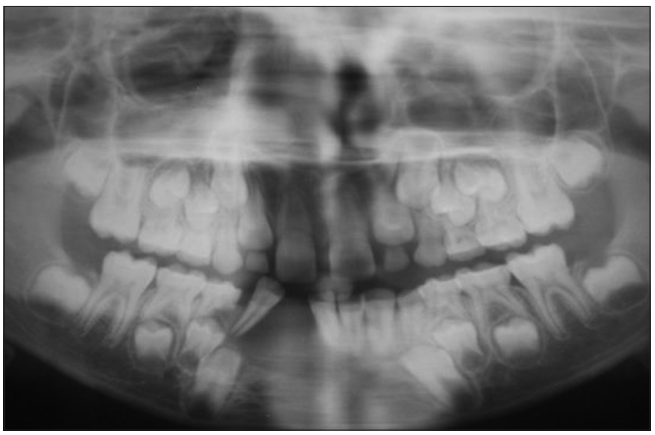

Figure 4: Orthopantomogram showing the extension of the lesion.

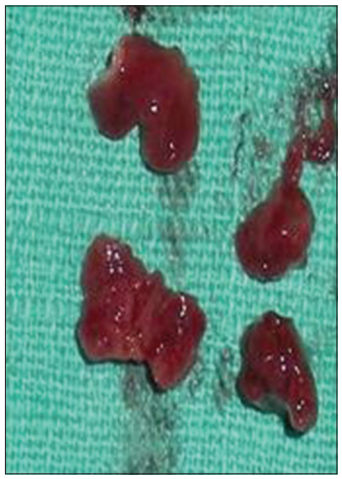

Figure 6: Tissue taken for biopsy.

The patient was recalled every month for periodic checkup and for evaluating healing of the surgical site. Complete healing could be seen after 9–10 months and after that, a removable partial denture was fabricated and delivered to the patient [Figures 16 and 17].

Discussion

CGCG is a benign bone lesion located in the jawbones more commonly in the mandible.[6] The etiology and pathogenesis

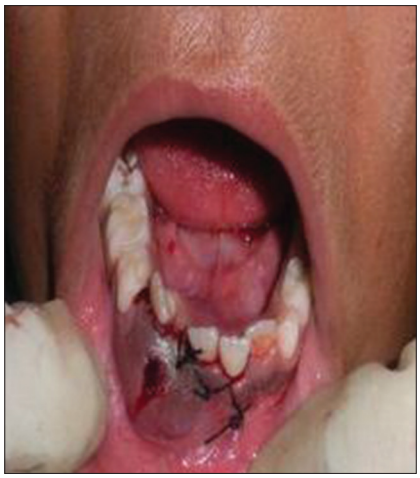

Figure 7: Wound closure after biopsy.

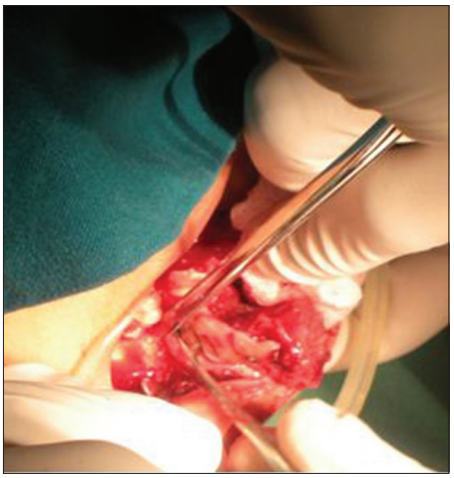

Figure 8: Surgical intervention of involved area.

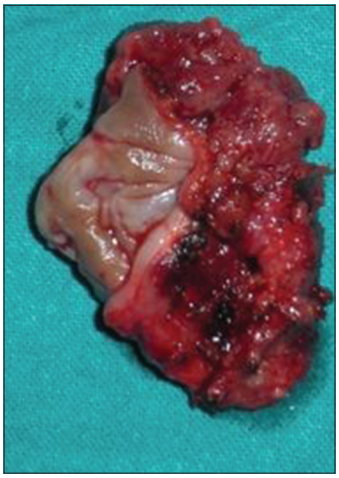

Figure 9: Sample of involved tissue.

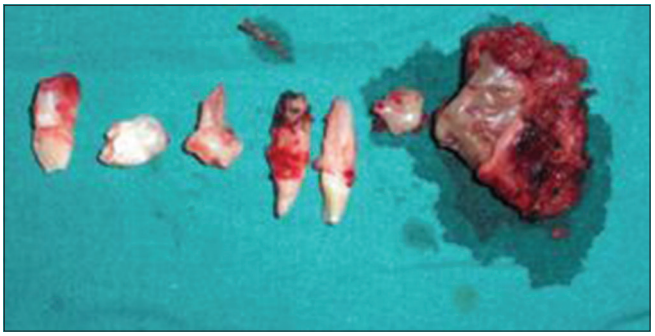

Figure 10: Surgical removal of the tissue and extraction of teeth involved.

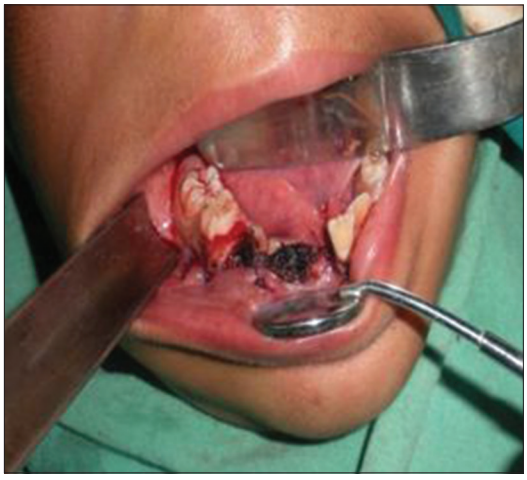

Figure 11: Sutures given after surgery.

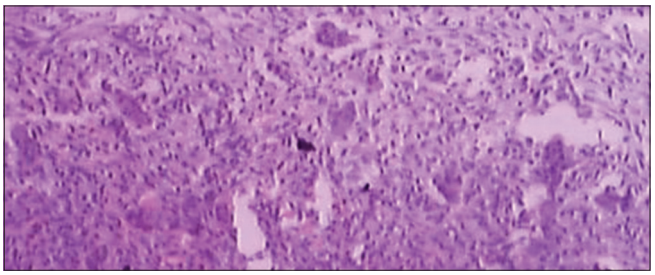

Figure 12: Multinucleated giant cells with dense inflammatory infiltrate.

of CGCG of jawbones have not been explicitly defined or recognized clearly. However, it has been supposed that it could result as a response to previous trauma or as a reactive granulomatous response to local changes in the blood flow to the bone.[7]

The clinical behavior of CGCG is marked by differences ranging from slow-growing, asymptomatic swelling with a significant facial asymmetry to an aggressive, painful lesion. Suspect bone area palpation may exhibit tenderness. The lesions develop without paresthesia, and the teeth in association with the lesion are vital but may become mobile.[8]

The radiological findings of the lesion may show a unilocular or multilocular radiolucency which may be well- or ill-defined. These features may be confused with that of many other lesions of jaws.[9-13] Hence, the final diagnosis eventually depends on histopathology.[9] Normal serum calcium, parathyroid hormone, alkaline phosphatase, and phosphorous levels distinguish CGCG from other conditions such as a brown tumor of hyperparathyroidism.[10,12]

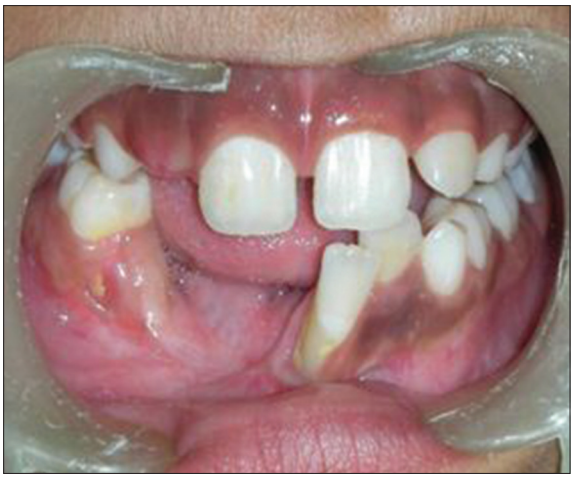

Figure 13: Postoperative intraoral photograph.

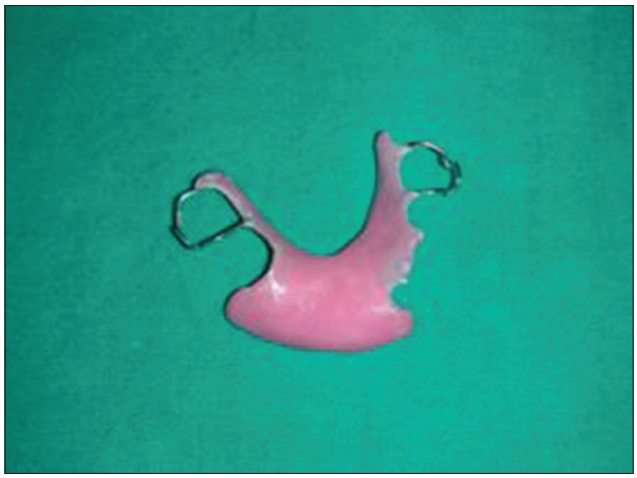

Figure 14: Acrylic stent fabricated.

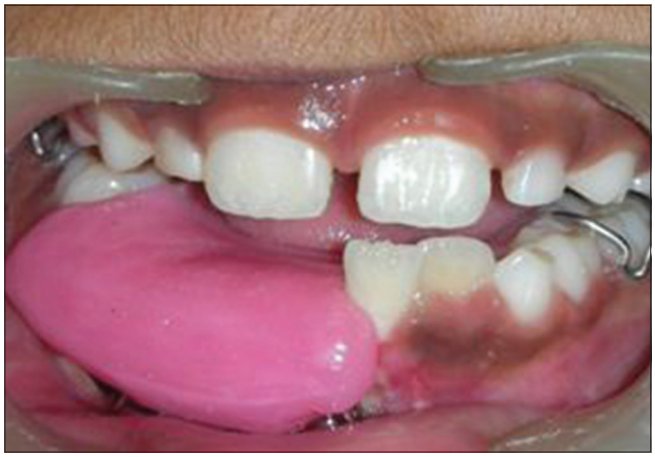

Figure 15: Acrylic stent in place.

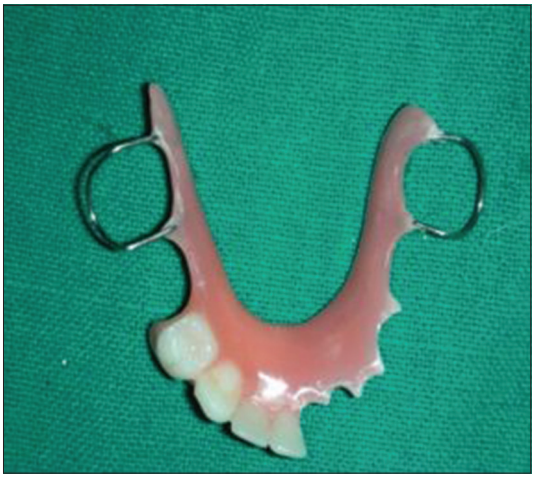

Figure 16: Removable partial denture fabricated and delivered.

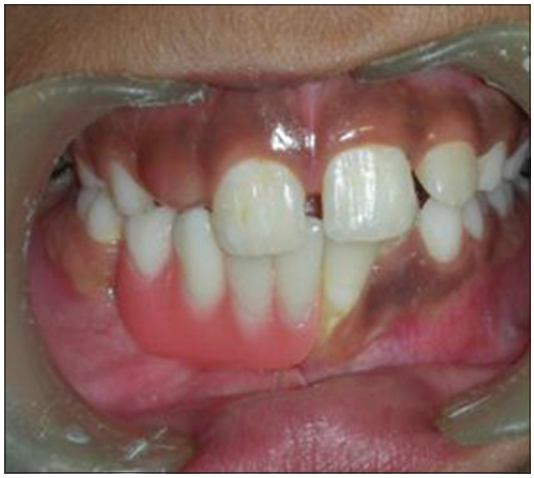

Figure 17: Removable partial denture delivered.

The presence of multinucleated giant cells surrounded by a disorganized stroma with intense inflammatory infiltrates, mononuclear infiltrates with numerous hemorrhagic areas, and viable bone tissue surrounding the lesion present case was the characteristic feature of the lesion.

Treatment of CGCG ranges from curettage to resection. Intralesional injections of corticosteroids, as has the systemic administration of calcitonin in the form of subcutaneous injections or nasal spray, have been used successfully.[14-16] However, surgery is the traditional and most accepted form of treatment for CGCG although the extent of tissue removal ranges from simple curettage to *en bloc* resection.[17]

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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