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CASE REPORT

Central Giant Cell Granuloma of the Mandible: A Case Report

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ABSTRACT
The Giant central cell granuloma (GCCG) is a benign intra-osseous lesion of the neo-plastic type. It appears mainly in the mandible, but can be observed in the maxilla and small bones of the hand and foot, with a predilection for the female sex and prevalence at a young age. Its diagnosis is clinical and radiological, confirmed by histological examination. The differential diagnosis is biological because it has a wide range of morphologies and a misinterpretation with other giant cell lesions can often occur. The authors present a case of the Giant central cell granuloma in a 62-year-old woman developing for 3 years after dental extractions. The most favorable treatment for giant cell granulomas is surgical whose main objective is to prevent recurrences.

KEYWORDS: Giant cells; Granuloma, Treatment; Hyperparathyroidism.

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INTRODUCTION

The repairing giant cell granuloma was first described by Jaff in 1953 [1] as the central type giant cell granuloma, which is commonly defined as an intra-osseous lesion consisting of cellular fibrous tissue containing several foci of hemorrhage, multinucleated giant cells and occasional trabeculae of woven bone [2]. This lesion falls within a structure of giant cell tumors and pseudo-tumors, classified as follows: cherubism, central giant cell granuloma, and aneurysmal cyst. Traditionally associated with it are two other types of lesions also characterized by the existence of giant cells: Giant cell tumor; brown hyperparathyroid tumors [3]. The lesion occurs in the mandible more often than in the maxilla [4] and more frequently affects the symphyseal and premolar region [5]. It is a reactive proliferation or an inhabited response to tissue damage caused by chronic irritation of the gum lining, resulting from inflammation or trauma. The condition occurs more frequently at young age during the first 3 years of life with a maximum incidence between 10 and 19 years, with a female predominance [6]. Its etiologies are multiple whereas its diagnosis is clinical and radiological, confirmed by histological examination.

Clinically, the lesion appears as a red to blue-violet mass. Radiographically, osteolysis is usually observed. It is characterized histologically by an exuberant proliferation of multinucleated giant cells [7]. However, laboratory analyses are necessary to exclude the differential diagnosis, despite being rare, of a brown tumor due to hyperparathyroidism with a usually histological appearance. It is identical to the central giant cell granuloma.

The common treatment for giant cell granuloma consists of complete surgical excision with curettage of the base of the lesion in order to avoid recurrence [8].

CASE REPORT

A 62-year-old woman in overall good health and without a medical history, consulted the surgical dentistry service of the Center for Dental Consultation and Treatments (CCTD) in Rabat, referred by her dentist who suspected during clinical examination, preceding prosthetic rehabilitation, the presence of a swelling growing for 3 years, after dental extractions.

The endo-oral examination (fig. 1) showed the presence of a two-centimeter tumor lesion at the level of the alveolar crest of the right mandibular premolar region, asymptomatic, without apparent inflammatory sign. The panoramic view (Fig. 2) revealed the presence of an osteolytic lesion eroding the alveolar ridge and extending to the lower right premolar region.

Excisional surgery (fig. 3, 4 and 5) was carried out with curettage, profuse bleeding was observed intra-operatively suggesting a high vascularization of the lesion, with anticipation of hemangioma. The lesion was adherent to

the lingual flap resulting in a slight tear. After suturing, hemostasis was accomplished.

Histological examinations were finalized with the diagnosis of giant cell granuloma. Yet, a phosphocalcic assessment was demanded in order to exclude the odds for a brown tumor of hyperparathyroidism, as well as an immunostaining with the anti-P63 antibody in order to rule out the possibility of a cell tumor giant.

The phosphocalcic balance was normal, and the anti-P63 antibody immune histochemistry turned out negative. The definitive diagnosis of giant cell granuloma was retained.

The sutures were removed after 10 days while healing was incomplete; the patient had ulceration on the inner side facing the canine premolar region, and a second ulceration at the intersection of the sulcus incision with the discharge incision.

The patient was under treatment for a period of 1 month and showed complete healing without complications.

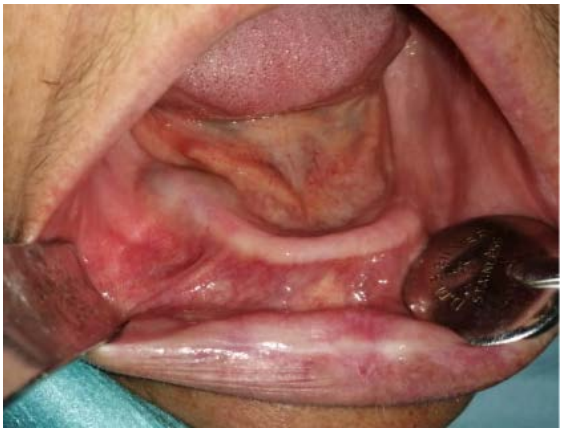

Figure 1: Intraoral close-up showing the lesion at the level of the lower right premolar region

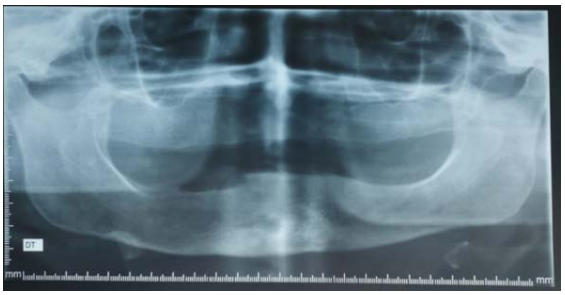

Figure 2: Panoramic x-ray showing a unilocular radiolucent image.

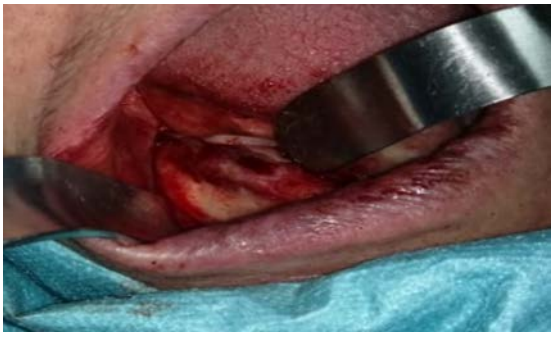

Figure 3: Intraoral view after detachment of the flap (destruction of the alveolar ridge).

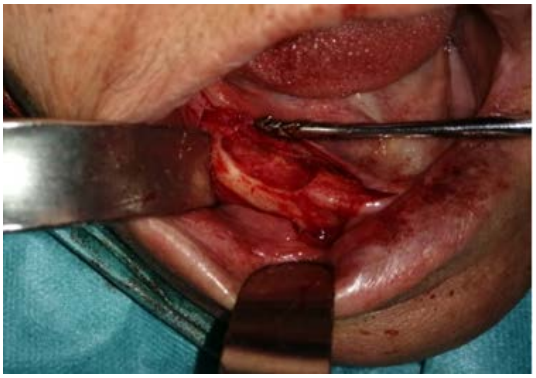

Figure 4: View showing the bone crypt after enucleation of the lesion

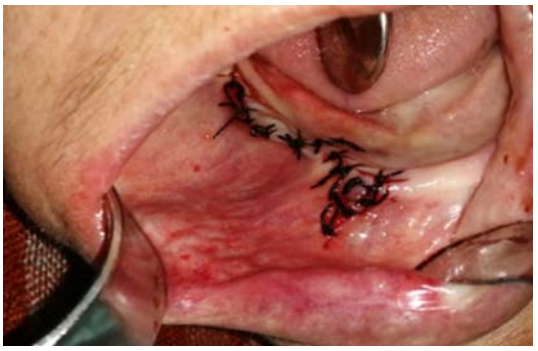

Figure 5: Postoperative suture with separate points.

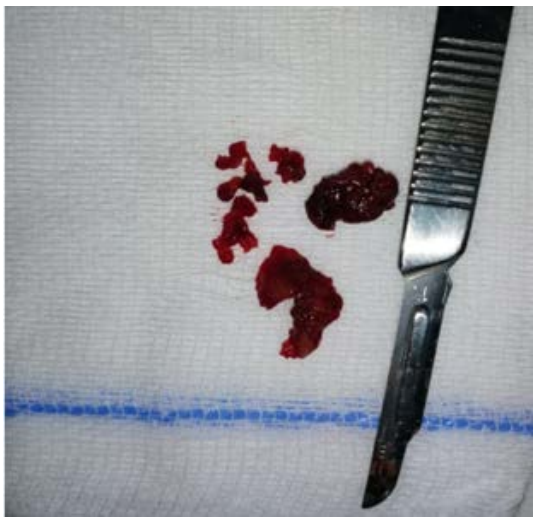

Figure 6: Macroscopic aspect of the excised lesion.

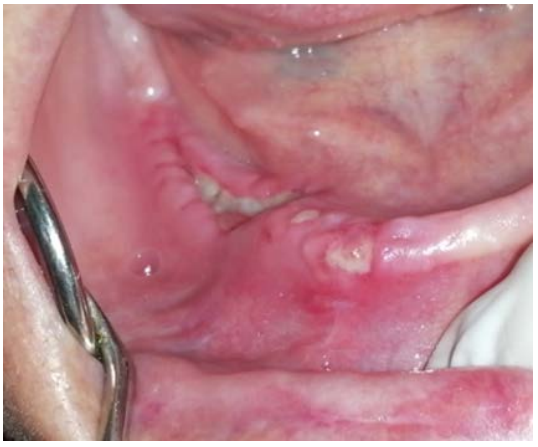

Figure 8: follow up 10 days after the operation.

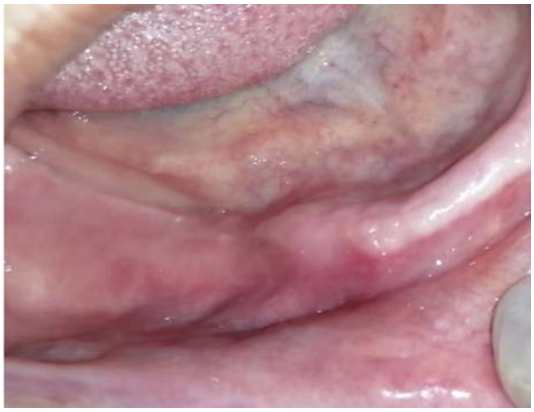

Figure 9: follow up after 1 month

DISCUSSION

Giant cell granuloma is a painless lesion discovered accidentally in most cases [2]. The literature states that this lesion mainly affects young individuals under 30 years [9] [10], unlike our patient who is 62 years of age, with a predominance of women (ratio1:2) [11]. Mandibular involvement is the most common condition. [4-7-11-12]

In 1993, Whitaker and Waldron found that 60% of the studied cases of central giant cell granuloma experienced a multilocular lesion on radiological examination [13]. This is a bone-initiated lesion that may or may not aggressive. The non-aggressive form is asymptomatic and characterized by slow growth, it can also rarely erode through bone, especially the alveolar ridge to generate a swelling covered with brownish mucosa [14], and it has low recurrence. On the other hand, the aggressive form is characterized by episodes of pain and rapid growth, with a size exceeding 5 centimeters, edema, mucosal ulceration, tenderness disturbances, root resorption, cortical perforation and a high rate of postoperative recurrence. [12-15-16]. Non-aggressive giant cell granulomas are the most common, while the aggressive form occurs only in 1 of 5 cases with a predilection for young age [2].

Several distinct lesions of the maxilla share similar clinical, radiological and histological features with giant cell granuloma [2], notably, the brown tumor of hyperparathyroidism.

The giant cell tumor resembles the central giant cell granuloma of the aggressive type, it occurs an often painful bone swelling and mono or polygeodic osteolysis blowing and perforating the cortices. Brown hyperparathyroid tumor lesions present as multiple giant cell granulomas [15]. To establish a differential diagnosis, immunostaining with anti P63 antibody and phosphocalcic balance are prescribed respectively [17]. However, the prevalence of brown tumors of the mandible remains minimal and only attains 4% of the hyperparathyroid patients [2]. In addition, few cases of what have been considered true giant cell tumors of the jaw have been described in the literature [18].

The treatment of central giant cell granuloma should be carried out on the basis of the following factors: size, aggressiveness or otherwise of the lesion, and location. However, in the literature, every author favors a type of treatment that should be performed. The usual treatment is resection surgery [11], operations range from curettage to treat well-defined localized lesions to radical surgical excision in larger lesions [19], as in our case, or both including the main goal of preventing recurrence [20]. Medical treatment in addition to surgery includes steroids, calcitonin, alpha intereron and bisphosphonates.

Furthermore, subcutaneous alpha interferon, the use of daily doses of calcitonin as a nasal spray [21] and intralesional injections of corticosteroids [22-23] are increasingly utilized for large and multiple lesions to avoid mutilating surgery especially in young patients and growing children. Intralesional corticosteroid infiltration can be used alone or in combination with other treatments such as bisphosphonates, calcitonin, denosumab or surgery. [24]. Subcutaneous denosumab is used for the management of recurrent aggressive lesions and may represent a specific treatment with promising potential. [25]

AUTHORS' CONTRIBUTIONS

All the authors have actively participated in the redaction, the revision of the manuscript, and provided approval for this final revised version.

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COMPETING INTERESTS

The authors declare no competing interests with this study.

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