ARTICLES SCIENTIFIQUES

Central Giant Cell Granuloma of the Mandible: Report of a Rare Case

Granulome à cellules géantes central de la mandibule : Rapport d'un cas rare

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Résumé

Introduction : Le granulome central à cellules géantes (GCCG) est une lésion intra-osseuse bénigne rare des maxillaires, touchant généralement les sujets jeunes, avec une prédilection pour la mandibule. Son comportement clinique peut varier de formes non agressives à des formes agressives. **Observation clinique** : Nous rapportons le cas d'un patient de sexe masculin âgé de 66 ans, ayant des antécédents d'hypertension artérielle traitée par captopril, adressé pour l'extraction de la dent 26. L'examen endobuccal a mis en évidence une tuméfaction gingivale au niveau du secteur mandibulaire droit, correspondant au site de la 44 précédemment extraite, recouverte d'une muqueuse ulcérée. L'exploration radiologique a révélé une image radioclaire à ce niveau, sans liseré de sclérose périphérique. L'analyse histopathologique a confirmé le diagnostic de granulome central à cellules géantes. Un curetage chirurgical a été réalisé, avec des suites postopératoires favorables. **Conclusion** : Cette observation souligne le caractère inhabituel du granulome central à cellules géantes chez un patient âgé et met en évidence l'importance de la corrélation entre les données cliniques, radiologiques et histopathologiques pour assurer un diagnostic précis et une prise en charge adéquate.

Mots clés : Granulome central à cellules géantes, Mandibule, Cellules géantes multinuclées, Observation clinique, Pathologie orale

Abstract

Background: Central Giant Cell Granuloma (CGCG) is a rare benign intraosseous lesion of the jaws, usually affecting young patients, with a predilection for the mandible. Its clinical behavior may range from non-aggressive to aggressive. **Case Presentation**: We report the case of a 66-year-old male patient with a history of hypertension under captopril, who was referred for the extraction of tooth 26. Intraoral examination revealed a gingival swelling in the right mandibular region, corresponding to the site of the previously extracted tooth 44, covered by an ulcerated mucosa. Radiographic assessment revealed a radiolucent lesion at the same site, without evidence of peripheral sclerosis. Histopathological analysis confirmed the diagnosis of central giant cell granuloma. Surgical curettage was performed, and the postoperative course was uneventful. **Conclusion:** This case highlights the unusual occurrence of CGCG in an elderly patient, emphasizing the importance of correlating clinical, radiological, and histopathological findings for accurate diagnosis and management.

Key words : Central giant cell granuloma, Mandible, Giant cell lesion, Case report, Oral pathology

INTRODUCTION

Central Giant Cell Granuloma (CGCG) is an uncommon intraosseous osteolytic lesion of the jaws, currently classified as a benign neoplasm due to its unpredictable and sometimes aggressive biological behavior (1,2). According to the World Health Organization (WHO), it is defined as an intraosseous lesion composed of cellular fibrous tissue containing multiple foci of hemorrhage, aggregates of multinucleated giant cells, and occasionally trabeculae of woven bone (3).

The etiology of CGCG remains uncertain and idiopathic. However, several factors such as local trauma, intraosseous hemorrhage, and genetic

abnormalities have been proposed as potential contributors (4). CGCG accounts for approximately 7% of all benign tumors of the jaws (5,6).
It shows a marked female predilection and is more frequently diagnosed in patients under 30 years of age (7).
Historically, Jaffe first described this lesion in 1953 as a "giant cell reparative granuloma" (8).
The term "reparative" was later abandoned when Chuong et al. distinguished between aggressive and non-aggressive variants of the lesion (9,10). Clinically, aggressive forms present with rapid growth, cortical perforation, pain, root resorption, and high recurrence rates, whereas non-aggressive forms remain slow-growing and asymptomatic.
Radiographically, CGCG often appears as a unilocular or multilocular radiolucency with well-defined or scalloped margins. However, its appearance can mimic other lesions such as ameloblastoma, odontogenic myxoma, aneurysmal bone cyst, or brown tumor of hyperparathyroidism, making histopathological confirmation essential (2,11).
The management of CGCG depends on its biological behavior. For small, non-aggressive lesions, conservative curettage remains the most common approach. Nevertheless, several adjuvant therapies have been proposed, including intralesional injections of corticosteroids, calcitonin, interferon, or bisphosphonates (12). More aggressive or recurrent lesions may require surgical enucleation with curettage, or in severe cases, en bloc resection (12).
This article presents a rare case of mandibular CGCG in an elderly patient, emphasizing its unusual occurrence and discussing diagnostic and therapeutic considerations in light of the current literature.

CASE REPORT

A 66-year-old male patient with a medical history of hypertension under Copril was referred to our department for extraction of a severely decayed maxillary left first molar (26). During intraoral examination, a gingival swelling was incidentally noted in the right mandibular region, corresponding to the site of a previously extracted tooth 44. The swelling was covered by ulcerated mucosa (Figure 1).

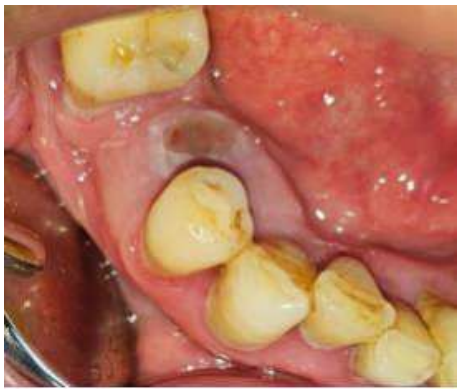

Figure 1 Clinical intraoral presentation: gingival swelling in the right mandibular premolar area at the site of extracted tooth 44, covered by ulcerated mucosa.

Panoramic radiography revealed a radiolucent lesion at the extraction site of tooth 44, without peripheral condensation or cortical sclerosis (Figure 2). No resorption of adjacent roots or displacement of teeth was observed.

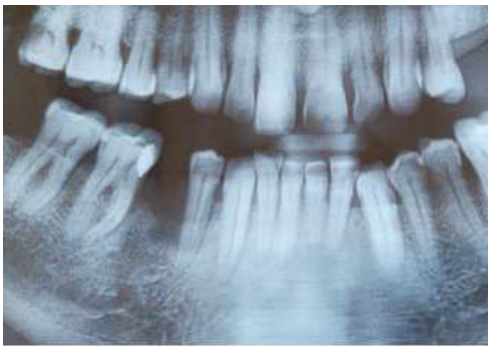

Figure 2 Panoramic radiograph showing a radiolucent lesion without peripheral sclerotic borders at the site of the extracted mandibular right first premolar (tooth 44)

Surgical excision was performed under local anesthesia. The procedure consisted of complete enucleation of the lesion with careful curettage of the surrounding bone (Figs. 3 and 4). The specimen was submitted for histopathological examination.

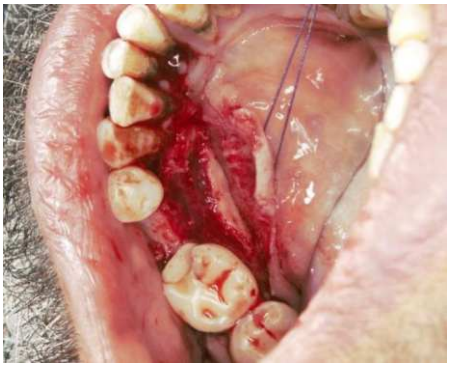

Figure 3 Intraoperative views: complete enucleation of the lesion performed under local anesthesia

Figure 4 Immediate postoperative aspect after surgical excision and suturing

Histological analysis confirmed the diagnosis of central giant cell granuloma, showing a fibrocellular stroma containing multiple multinucleated giant cells, hemorrhagic areas, and newly formed trabeculae of woven bone.

The postoperative course was uneventful. At the 15-day follow-up, the mucosa had healed satisfactorily, with no signs of infection or complications (Figure 5). No recurrence was noted during the subsequent follow-up period.

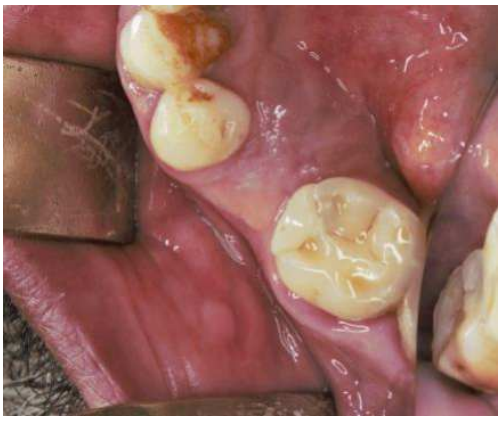

Figure 5 Postoperative intraoral view at 15-day follow-up showing satisfactory mucosal healing without signs of infection or recurrence.

DISCUSSION

Central Giant Cell Granuloma (CGCG) is a rare benign intraosseous lesion of the jaws, characterized by variable clinical presentation and biological behavior. Although most cases occur in children and young adults under 30 years of age, its presentation in elderly individuals, such as our 66-year-old patient, remains uncommon (1,2). This highlights the need to consider CGCG in the differential diagnosis of radiolucent mandibular lesions in older patients.

According to the 2017 WHO classification, CGCG was defined as a benign intraosseous lesion composed of multinucleated osteoclast-like giant cells within a fibroblastic stroma, with a clinical spectrum ranging from non-aggressive to aggressive forms. In the 2022 WHO update, this definition was refined to emphasize the presence of true osteoclasts within a stromal background containing their precursors, capable of differentiating through specific molecular signaling pathways. This evolution reflects advances in cellular and molecular understanding, while the clinical and histopathological features remain essentially unchanged (13).

Clinically, CGCG may present either as a non-aggressive lesion, often asymptomatic and discovered incidentally, or as an aggressive variant characterized by rapid growth, cortical perforation, root resorption, and high recurrence rates (3). In the present case, the lesion was discovered incidentally during a consultation for extraction of tooth 26, and its mandibular localization with mucosal ulceration emphasized its unusual presentation.

Radiographically, CGCG typically appears as a unilocular or multilocular radiolucency with well-defined or scalloped margins (4). The absence of peripheral sclerosis in our patient is consistent with previously reported cases (5). However, radiographic features alone are not pathognomonic, as similar findings may be observed in ameloblastoma, odontogenic myxoma, aneurysmal bone cyst, and brown tumor of hyperparathyroidism. Therefore, biochemical tests for serum calcium, phosphate, and parathyroid hormone are essential to exclude systemic conditions such as hyperparathyroidism (6). Histopathological examination remains the gold standard for diagnosis. CGCG is characterized by a fibrocellular stroma containing numerous multinucleated giant cells, areas of hemorrhage, and occasional trabeculae of woven bone (3). These features overlap with other giant cell–containing lesions, reinforcing the importance of a multidisciplinary diagnostic approach (7).

Management of CGCG depends on the size, location, and biological behavior of the lesion.

Conservative curettage remains the treatment of choice for small, non-aggressive lesions, with recurrence rates ranging from 10% to 20% (8). In our case, simple curettage was effective, and no recurrence was observed during follow-up. For aggressive or recurrent lesions, en bloc resection may be required (9).

In recent years, several non-surgical or adjunctive therapies have been explored, particularly for large or surgically challenging lesions. These approaches

are mainly indicated in cases where surgery would cause significant functional or esthetic impairment, in pediatric patients to avoid damage to growth and tooth development, in lesions involving critical anatomical structures, or when patients present medical comorbidities contraindicating extensive surgery.

They may also be used in recurrent or aggressive cases as adjuvant options. Such therapies include intralesional corticosteroids, calcitonin, interferon-α, and bisphosphonates (10,11).

More recently, denosumab, a monoclonal antibody against RANKL, has shown promising results in reducing lesion size and activity within a few months of treatment (11). However, recurrence after discontinuation and concerns regarding long-term safety warrant further investigation.

CONCLUSION

Central Giant Cell Granuloma is a rare benign intraosseous lesion of the jaws with variable biological behavior. Although most commonly encountered in young individuals, this case demonstrates that CGCG may also occur in elderly patients. Accurate diagnosis requires a multidisciplinary approach, combining clinical, radiographic, and histopathological findings.

Conservative surgical curettage remains an effective treatment for non-aggressive lesions, but careful long-term follow-up is essential due to the risk of recurrence.

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