

Giant Cell Reparative Granuloma in the Maxilla and Mandibula

Case Report

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Abstract

Giant cell reparative granuloma is a disease with an unknown etiology, characterized of benign locally aggressive lesions invading mandible and maxilla in the head and neck region. These lesions usually present as a mass and cause deformities at bony structures. The use of various medical and surgical procedures in the treatment of the disease with its rare occurrence makes these lesions interesting. In this case report we present a 47 years old female patient who had a painful swelling in the left

lower left jaw and oral cavity since 8 months. After her complaints proceeded despite medical therapy, she has been operated and pathology report confirmed a giant cell reparative granuloma. We also discuss differential diagnosis and the achievements in treatment procedures.

Key Words: Giant cell reparative granulom, partial maxillectomy, hemimandibulectomy

Introduction

Giant cell reparative granuloma (GCRG) is a lesion with unknown etiology, which is thought to induce the formation of a reactive process, such as inflammation or trauma.

It is seen more frequently in females than in males, and it presents in the first 3 decades of life (1, 2). It is divided into two groups as peripheral and central lesions. If the lesion arises from gingival and alveolar processes, it is called peripheral GCRG, and if it originates from the bone, it is called central GCRG. As in this case, central GCRG begins with the resorption of dental roots, and it makes the cortical bone thinner; it occurs more frequently in the mandibula than in the maxilla. In the physical examination, the mucosa on the surface appears normal. GCRGs are viewed as uni- or multiloculated radiolucent lesions in radiological imaging. From a histological perspective, they are exactly the same as Brown tumors, which are seen in hyperparathyroidism (3). Exclusion of malignancy and hyperparathyroidism should be taken into consideration for the differential diagnosis.

In this case report, a patient with an extremely big central giant cell reparative granuloma is presented and discussed based on a literature review.

Case Presentation

In this report, information about a patient has been presented with an informed consent form obtained from the patient. A 47-year-old female patient without any medical history of chronic dis-

ease was admitted to our clinic with the complaint of not being able to use a dental prosthesis. She was first admitted to an oral and dental health center 2 years ago and had been exposed to a 3-dimensional computed tomography evaluation, which had revealed masses leading to expansile, lytic, and cortical resorption in the left anterior and also posterior mandibular body and an expansile lesion with a heterogeneous appearance at the level of the apex of premolar teeth in the maxillary dental alveolus (Figure 1a). It had been observed that the widest part of the lesion was 3.7x2.4x3.2 cm in the mandibular, and it had included septation and loculations inside (Figure 1b). In the maxilla, it had been found that it had extended across the left nasal passage base and maxillary sinus base and reached a size of 2.4x1.8x1.7 cm at its widest point (Figure 1c). After incisional biopsy, the patient had been diagnosed with central giant cell granuloma and was recommended for follow-up.

The physical examination of the patient, performed when she was admitted to our clinic, revealed swelling in the left mandibula and maxilla, extending from the anterior to molar region. It was covered with smooth-surface mucosa and painless on palpation. Considering the previous examination results and the size of the lesion, total surgical excision of the lesion was planned. After the lesion was excised through hemimandibulectomy and partial maxillectomy, the mandibula was reconstructed with a free iliac bone graft and titanium plaque. She was discharged on the 7th postoperative day. In the pathological examination, macro-

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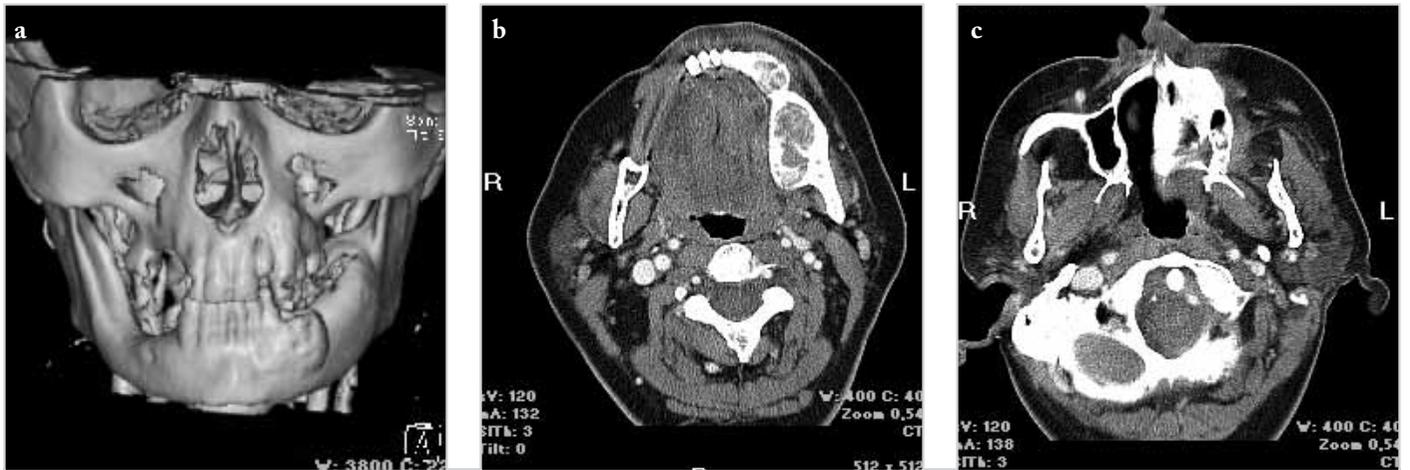


Figure 1. a-c. Image of lesion on 3 dimensional computed tomography (a), Axial CT image of mandibular lesion (b), Axial CT image of maxillary lesion

CT: Computed tomography

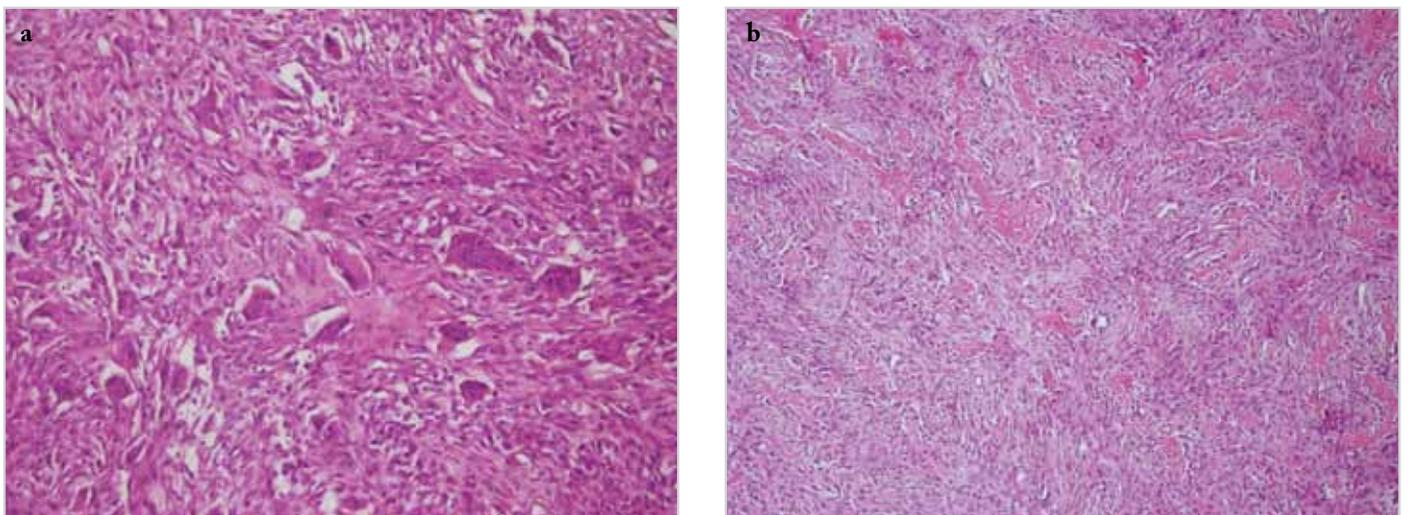


Figure 2. a, b. Lesion located in cellular ground formed by fusiform cell proliferation and surrounded by bone spicules with osteoblastic activity (a), Fusiform cell proliferation areas with focal giant cells (b)

scopic evaluation showed that the size of the lesion was 5x3.8x3 cm in the mandibula and 3x2.5x1.7 cm in the maxilla. In the microscopic evaluation, a lesion that included fusiform cell proliferation areas with focal giant cells in conjunctive stroma was surrounded by bone spicules displaying osteoblastic activity and was consistent with central giant cell granuloma was detected (Figure 2a, b). In order to evaluate the location of the lesion and the inserted graft and plaque, computed tomography was performed in the postoperative 1st month, and it was found that the location of the lesion was clean and that the titanium plaque was in place (Figure 3).

Discussion

Giant cell reparative granuloma is a rarely seen benign, hyperplastic, reactive lesion of oral mucosa. Its etiology includes local irritation of the periost and periodontal ligament, such as plaque, tartar, chronic infection, chronic irritation, tooth extraction, dental prostheses, and misapplied dental fillings (4). It is

more common in females. It usually appears in the mandibula and maxilla and sometimes displays a locally aggressive course (1-3). It is histologically defined as a non-encapsulated mass, including fibroblastic fusiform cells, multinuclear giant cells, and extravasated erythrocyte clusters. Microscopically, it is seen as multinucleate giant cells in conjunctive stroma. In light of the literature, it can be suggested that fusiform cells, endothelial cells, phagocytes, and osteoblasts contribute to giant cell proliferation (5, 6). The histological appearance of GCRG can be confused with hyperparathyroidism, Brown tumor, fibrous dysplasia, cherubism, aneurysmal bone cyst, and Paget's disease of bone (7).

Moreover, while diagnosing, the age of the patient, serum calcium and phosphorus levels, and radiological and histological features of the lesion should be taken into consideration. The size of GCRG generally ranges from 0.5 cm to 1.5 cm (4). A 5-cm lesion is a rarely seen situation. However, in our case, the size of

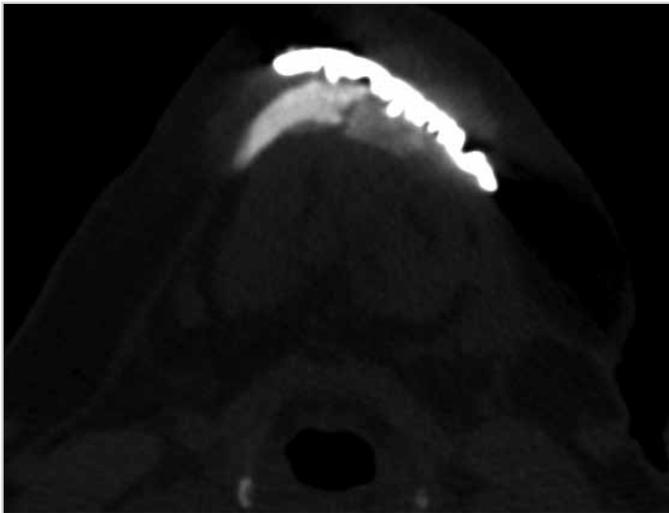


Figure 3. Axial CT image of the plaque in postoperative mandibula
CT: Computed tomography

the lesion was 5x3.8x3 cm in the mandibula and 3x2.5x1.7 cm in the maxilla. When GCRGs reach an adequate size, deformity of bone cortex, displacement of teeth, and facial asymmetry become more apparent. Small lesions appear unilocular, but as the lesion gets bigger, it becomes septated multilocular.

The most commonly accepted method for the treatment of giant cell reparative granuloma is surgery with a wide range, from simple curettage to block resection. The recurrence rate of incompletely excised lesions is 4%-20% (2). Calcitonin and intralesional steroid are given daily as medical treatment (1-3). Recent studies suggest that surgical operation is more efficient after subcutaneous interferon alpha treatment (1). Treatment with the osteoclast inhibitor osteoprotogenin is another therapeutic method (1). Radiotherapy is not preferred, because it causes the benign lesion to transform into a malignant lesion (2). Moreover, some giant cell granulomas can be sterilized with cryotherapy and laser (2). For the case in our study, considering the size of the lesion, medical treatment was not preferred. The lesion, which expanded in the maxilla and mandibula, was excised through hemimandibulectomy and maxillectomy, and then, reconstruction was provided by free iliac bone graft and titanium plaque.

Conclusion

Simple curettage can be performed for small lesions, but total surgical excision and reconstruction are required for bigger lesions causing cosmetic deformities, as in our case.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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References

1. Reddy GV, Reddy GS, Reddy NVS, Kumar A. Surgical Management of Aggressive Central Giant Cell Granuloma of Maxilla through Le Fort I Access Osteotomy. *J Clin Imaging Sci* 2012; 2: 28. [\[CrossRef\]](#)
2. Jeaven K, Humayun S, Pavan, J Brahmaji Rao. Reparative giant cell granuloma of the maxilla. *Ann Maxillofac Surg* 2011; 1: 181-6. [\[CrossRef\]](#)
3. Jadu F, Pharoah M, Lee L, Baker, Allidina A. Central giant cell granuloma of the mandibular condyle. a case report and review of the literature. *Dentomaxillofac Radiol* 2011; 40: 60-4. [\[CrossRef\]](#)
4. Mannem S, Chava V. Management of an unusual peripheral giant cell granuloma; A diagnostic dilemma. *Contemp Clin Dent* 2012; 3: 93-6. [\[CrossRef\]](#)
5. Lucas RB. Pathology of tumors of the oral tissues. 4th ed. London: Churchill Livingstone; 1984. pp. 259-72.
6. Shafer WG, Hine MK, Levy BM. A textbook of oral pathol. Philadelphia: WB Saunders. (4th ed) 1983: 144-6.
7. Ayhan G, Gülbey T, Gürkan T. Central giant cell granuloma. *The Journal of Otolaryngology, Head and Neck Surgery* 1994; 2: 51-3.