Journal of Craniomaxillofacial Research

Vol. 9, No. 2 Spring 2022

Central giant cell granuloma mimicking a malignant lesion of mandible: A case report

Fereshteh Najar Karimi [1*], Mina Jazayeri [2], Fatemeh Abbasi [2], Deniz Safabakhsh [2], Fatemeh Ahmadi Motamayel [3]

1. Department of Oral Medicine, School of Dentistry, Guilan University of Medical Sciences, Guilan, Iran.

2. Department of Oral Medicine, School of Dentistry, Hamadan University of Medical Sciences, Hamadan, Iran.

3. Dental Implants Research Center and Dental Research Center, Department of Oral Medicine, School of Dentistry, Hamadan University of Medical Sciences, Hamadan, Iran.

ARTICLE INFO

Article Type:
Case Report

Received: 8 Nov. 2021
Revised: 5 Jan. 2022
Accepted: 10 Mar. 2022

**Corresponding author:*
Fereshteh Najar Karimi

Dental Research Center, Department of Oral Medicine, School of Dentistry, Guilan University of Medical Sciences, Guilan, Iran.

Tel: +98-914-8366267
Fax: +98-21-84902473
Email: mastane_fk91@Yahoo.com

ABSTRACT

Central giant cell granuloma (CGCG) is a relatively uncommon benign osseous lesion with sometimes aggressive nature. The nature of this lesion is unknown and although the exact cause is unclear, the three theories about possibility of its nature are: developmental anomaly, reactive lesion or benign neoplasm. Histologically by presence of multinucleated giant cells within a stroma of spindle-shaped mesenchymal and fibro vascular connective tissue along with containing of hemorrhagic areas is characterized. This case report presents the diagnosis and management of a CGCG in a 50 years-old man with biopsy and surgical treatments. The lesion involve the left side of mandibular. Diagnosis plan was designed based on the combination of pathology and imaging. Finally after en bloc resection of involved regions of mandible, a titanium plate prosthesis was used for the jaw reconstruction. Since some of CGCG lesions can be highly invasive and inclinically and radiographic features can mimic as malignancy lesions.

Keywords: Central giant cell granuloma; Malignant lesion; Case report.

Introduction

Giant cell granuloma (CGCG) is an uncommon non-odontogenic that generally considered as a benign non-neoplastic usually lesion with unknown etiology that find almost exclusively in the jaws [1-4] as <7% of all tumors in the jaws [5]. Lesions are more common in young adults and children, with a higher prevalence (75%) in before the age of 30 and usually occurs in anterior region of mandibular first molars and females are affected almost twice more than males [3,5-7]. It is solitary lesion with radiographic features of a multilocular radio-

radiolucency with a soap bubble-like or honeycomb appearance and scalloped margins and [5]. The predominantly histological features of this lesion is consisting of fibrous tissue with the presence of many osteoclast-like giant cells scattered in stroma along with hemosiderin deposits [8]. This lesion has two non-aggressive (more common) and aggressive subtypes [9]. In this article we report the rare invasive type of CGCG with malignancy like Clinical manifestation in a 48-years-old male patient.

Case History

A male patient (48 years-old) complaining of swelling in the left side of mandibular body since 4 months, referred to the dental faculty of Hamedan University, in 2021. The patient complained of a gradually grow thing swelling that had over the past 4 months with vague pain and loosening and Spontaneous exfoliation of the seemingly healthy second premolars. There is not any history of trauma or systemic infection but the patient reported a history of abscess at the site of tooth 45 about 1 year ago and recovery after taking metronidazole and amoxicillin. Slightly facial asymmetry with a poorly defined solitary swelling measuring 3 x 4cm by normal appearance of overlying skin was visible on extraoral presentation (Figure 1).

Intraoral examination (Figure 2) showed a diffuse firm enlargement of left side of body of mandible measuring 3*4cm in diameter from 43 to 47 regions with thinning of buccal cortex in the same region. Tooth mobility with 43 (grade 1) and 44, 47 (grade 2) was seen. Teeth 43, 44 has positive response to pulp vitality test but 47 is non-vital. The overlying mucosa has normal appearance with slightly blue hue. The consistency of the lesion was bony hard, with smooth surface and tender with fluctuant mass in some areas. The adjacent teeth and oral mucosa have normal appearance. Associated teeth has normal pulpal response to vitality test. On aspiration the lesion had not shown anything (any blood). OPG view (Figure 3) revealed a solitary ill-defined radiolucent lesion in left side of mandible measuring 3X4 cm^2 visible from the mesial of 43 to the mesial of 47 with obliteration of Lamina Dura of tooth 43 and mesial root of tooth. The inferior alveolar canal was not involve. In mandibular CBCT (Figure 4) from areas 43 to 47 of the cross-sectional sections from cut 4, the onset of heterogeneous hypodense lesion is seen (the lesion causes expansion in the buccolingual dimension and thinning of the buccal and lingual cortex is seen. Residual septa or reactive bone are seen. The lesion did not involve the mandibular nerve and any root resorption was seen. A provisional diagnosis of malignancy (osteosarcoma) lesion was considered with the differential diagnosis: CGCG, Ameloblastoma. On surgical observation the lesion involved both buccolingual cortical plates. after incisional biopsy of lesion under lidocaine 2% with 1:100 000 epinephrine (Figure 5), Specimen was sent for histopathological examination, which showed CGCG characteristic numerous multinucleated giant cells (Figure 6). Since laboratory values of serum calcium, alkaline phosphate, phosphorous and PTH and CBC diff were within normal ranges, brown tumor of the hyperparathyroidism was rulled out. Later the lesion was completely removed and then reconstruction of defected jaw with patient's iliac graft was done.

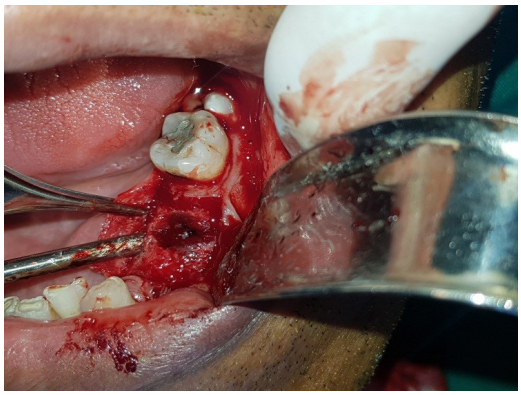

Figure 1.

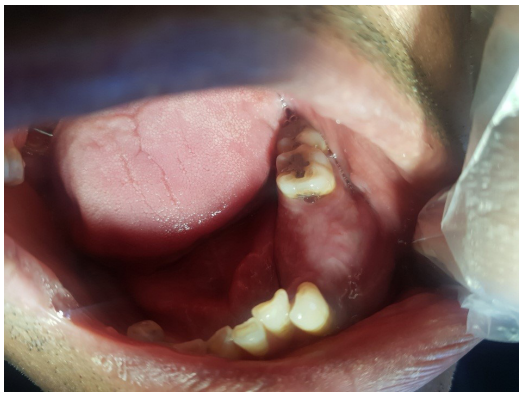

Figure 2. Expansion of buccolingual cortical plates.

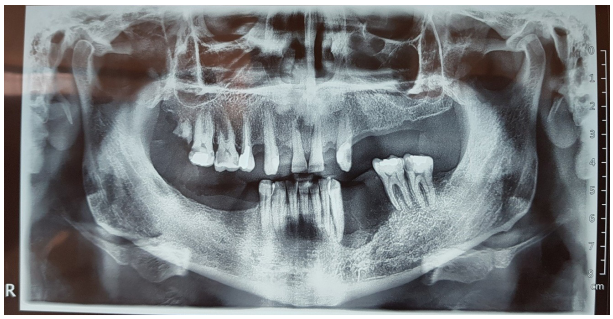

Figure 3. OPG showing radiolucent lesion in area of 43 to 47 teeth.

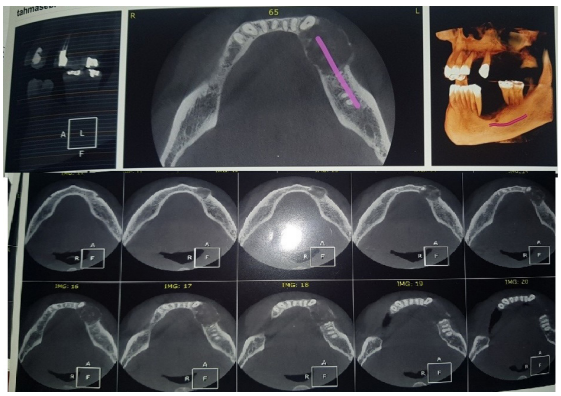

Figure 4. Mandibular CBCT from areas 43 to 47 of the cross-sectional sections.

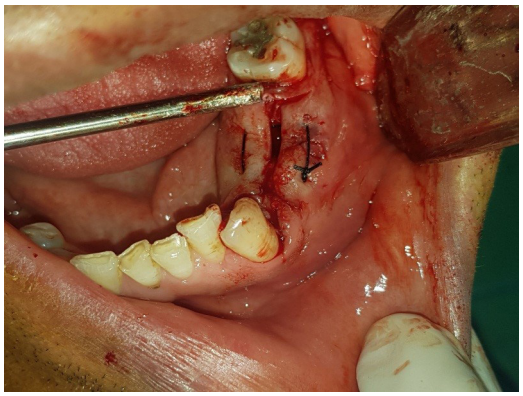

Figure 5. Intra-oral photograph view showed incisional biopsy was performed.

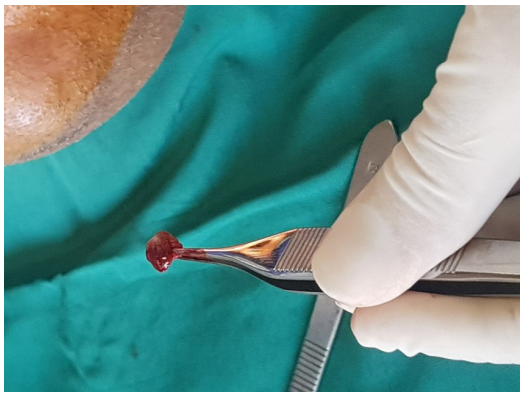

Figure 6.

Discussion

Reports of Misdiagnosis of invasive giant cell lesions with malignant lesions is occasionally occur in literature [8-10]. The CGCG clinical behavior varies from an Insidious slow-grow thing asymptomatic swelling detected on routine radiographs to much less common regionally rapid-grow thing aggressive lesion with painful symptoms, cortical perforation and root resorption with higher recurrence that can mimics malignant lesions has [2,8,11,12]. The CGCG pathogenesis of oral region is unknown, but the three theories that more accepted about possibility of lesion's nature are: developmental anomaly, reactive lesion or a benign neoplasm [13]. Due to excessive recurrence of aggressive CGCG, well timed diagnosis and accurate surgical resection is require to reduce the risk of recurrence [14]. Since aggressive CGCG can mimics the features of malignancy, rapid diagnosis of those benign tumors is critical to enhance of this lesion and its long-term prognosis management. Differential diagnosis based on clinical and radiology findings includes malignancy lesions and other regionally invasive lesions like Ameloblastoma. Malignancy lesions are often similary rapid aggressive lesion and can reason more root resorption or teeth mobility and invave the mandibular which could present as pain, numbness or paresthesia [15,16]. Even though the report case lesion is mimic some clinical and radiographic features of malignancy lesions however the site of lesion (anterior of first mandibular molar) and the slight blue undertone of lesion can assist in diagnosis despite the fact that CGCG is much less common cab be so aggressive and it has usually blood aspiration in FNA. Ameloblastoma has tendency to involve angle of mandible, normally occurs in older adults (20-50 years old) and often has more swallowing. Histopatological features of CGCG and giant cell tumor (GCT) are compareble; however GCT giant cells has more nuclei than CGC cells. Treatment approach of CGCG is rest on it's clinical behavior but the gold standard management of CGCG is surgical enucleation and curettement [5] other treatment options include surgical excision with wide margin resection that cause major defects of jaw, cryotherapy, enucleation and aggressive local curettage with or without chemical cauterization and adjunctive modalities like intralesion injection of corticosteroids, calcitonin or systemic interferon alpha [1,5,17].

Conclusion

The aggressive CGCG should be one of the differential diagnosis of rapid grow lesions with some aggressive behaviour of the jawbone especialy when the lesion is anterior region of the molars. Early and accurate diagnosis can prevent further complications due to the lesion progression and the selection of inappropriate treatment methods.

Conflict of Interest

There is no conflict of interest to declare.

References

[1] Al-Jandan B. Combined management of large ag-

gressive central giant cell granuloma of the mandible: A case report. The Saudi Journal for Dental Research. 2015; 6(2):157-60.

[2] Choe M, Smith V, Okcu MF, Wulff J, Gruner S, Huisman TAGM, et al. Treatment of central giant cell granuloma in children with denosumab. Pediatric Blood & Cancer. 2021; 68(3):e28778.

[3] Stewart JCB. Chapter 12 - Benign Nonodontogenic Tumors. In: Regezi JA, Sciubba JJ, Jordan RCK, editors. Oral Pathology (Sixth Edition). St. Louis: W.B. Saunders; 2012. p. 293-313.

[4] Elmezwghi AM, Alarabi NM, Elsagali AH, Zariba SSM, BenGharbia NE, Musa NH. An aggressive central giant cell granuloma of maxilla: Diagnostic dilemma, Precise differential diagnosis and successful traditional surgical approach: A case report. Egyptian Dental Journal. 2020; 66 (Issue 4-October (Oral Surgery)):2075-83.

[5] Jeyaraj P. Management of Central Giant Cell Granulomas of the Jaws: An Unusual Case Report with Critical Appraisal of Existing Literature. Ann Maxillofac Surg. 2019; 9(1):37-47.

[6] Stavropoulos F, Katz J. Central giant cell granulomas: a systematic review of the radiographic characteristics with the addition of 20 new cases. Dento maxillo facial radiology. 2002; 31(4):213-7.

[7] Deshpande A, Munde A, Mishra S, Kawsankar K, Sawade R, Nayak P. Aggressive giant cell granuloma of mandible: A case report. IP International Journal of Maxillofacial Imaging. 2021; 6(4):118-21.

[8] Ustad F. Aggressive Variant of Central Giant Cell Granuloma. 2018.

[9] Wang Y, Le A, El Demellawy D, Shago M, Odell M, Johnson-Obaseki S. An aggressive central giant cell granuloma in a pediatric patient: case report and review of literature. Journal of Otolaryngology - Head & Neck Surgery. 2019; 48(1):32.

[10] Adesina AO, Ladeji MA, Opaleye TO, Moradeke A, Ojikutu R, Salami AY, et al. Case reports: An aggressive central giant cell granuloma of the jaws in two pediatric patients. Journal of Pediatric Surgery Case Reports. 2021; 73:102019.

[11] Kruse-Lösler B, Diallo R, Gaertner C, Mischke KL, Joos U, Kleinheinz J. Central giant cell granuloma of the jaws: a clinical, radiologic, and histopathologic study of 26 cases. Oral surgery, oral medicine, oral pathology, oral radiology, and endodontics. 2006; 101(3):346-54.

[12] Ustündağ E, Iseri M, Keskin G, Müezzinoğlu B. Central giant cell granuloma. International journal of pediatric otorhinolaryngology. 2002; 65(2):143-6.

[13] Jadu FM, Pharoah MJ, Lee L, Baker GI, Allidina A. Central giant cell granuloma of the mandibular condyle: a case report and review of the literature. Dento maxillo facial radiology. 2011; 40(1):60-4.

[14] Cidrac L, Kadri M, Pecorari R, Nguyen T, Radoï L. Diagnostic difficulty of an aggressive and recurrent giant cell granuloma: a short case report. Journal of Oral Medicine and Oral Surgery. 2021; 27:12.

[15] Kumar G, Manjunatha B. Metastatic tumors to the jaws and oral cavity. J Oral Maxillofac Pathol. 2013; 17(1):71-5.

[16] Lee RJ, Arshi A, Schwartz HC, Christensen RE. Characteristics and prognostic factors of osteosarcoma of the jaws: a retrospective cohort study. JAMA otolaryngology-- head & neck surgery. 2015; 141(5):470-7.

[17] Shohat I, Shoshani Y, Taicher S. [Medical treatment of central giant cell granuloma of the jaws]. Refu'at ha-peh veha-shinayim (1993). 2002; 19(4):37-44, 70.

Please cite this paper as:
Najar Karimi F, Jazayeri M, Abbasi F, Safabakhsh D, Ahmadi Motamaye F. Central giant cell granuloma mimicking a malignant lesion of mandible: A case report. J Craniomax Res 2022; 9(2): 106-109