CRCP Case Reports in Clinical Practice

Case Report

Journal Homepage: http://crcp.tums.ac.ir

Giant Cell Fibroma Clinically Mimicking Malignancy: A Case Report

Maryam Jalili Sadrabad[1], Samaneh Yazdanpanah[2], Maedeh Mobarhan[3], Shabnam Sohanian[4*]

1. Department of Oral Medicine, School of Dentistry, Semnan University of Medical Sciences, Semnan, Iran.
2. Department of Oral and Maxillofacial Radiology, School of Dentistry, Semnan University of Medical Sciences, Semnan, Iran.
3. Student Research Committee, School of Dentistry, Semnan University of Medical Sciences, Semnan, Iran.
4. Department of Oral and Maxillofacial Pathology, School of Dentistry, Semnan University of Medical Sciences, Semnan, Iran.

Use your device to scan and read the article online

Citation Jalili Sadrabad M, Yazdanpanah S, Mobarhan M, Sohanian Sh. Giant Cell Fibroma Clinically Mimicking Malignancy: A Case Report. Case Reports in Clinical Practice. 2021; 6(6):251-255.

Running Title An Unusual Giant Cell Fibroma

Article info:

Received: 10 Nov 2021

Revised: 08 Dec 2021

Accepted: 25 Dec 2021

Keywords:

Fibroma; Fibroblasts; Oral; Gingiva; Bone resorption

ABSTRACT

Giant Cell Fibroma (GCF) is a benign rare fibrous lesion that predominantly occurs on the mandibular gingiva. Clinically, it is presented as a sessile or pedunculated mass that frequently occurs in the third decade with a slight female predilection. The lesion is usually characterized by stellate and multinucleated fibroblasts located in the lamina propria near the overlying epithelium and radiographically treated as a benign lesion.

A 20-year-old female was referred to the Oral and Maxillofacial Medicine Department of Semnan Dental School, with the chief complaint of tooth displacement and gingivitis. Clinical examination revealed maxillary protrusion, mouth breathing, localized gingivitis in the interdental areas of the papilla of the lateral and canine teeth; also alveolar bone with pus discharge in the right mandibular premolar area. Radiographically, the lesion leads to the bone resorption and linguistic movement of the teeth in the right side of Mandible. There were no root resorption and no bone expansion. Gentle scaling and root planning, biopsy, and second premolar extraction were performed. The presence of the giant fibroblasts in superficial connective tissue confirmed the diagnosis of Giant Cell Fibroma. At the follow-up session, tissue repair was accomplished, and the first premolar was immobile and was no longer loose.

Nevertheless, further studies are required to investigate the precise nature of the mono or multinucleated cells, i.e., atypical fibroblasts that illustrate degenerative and functional changes. Moreover, a high index of suspicion and appropriate analytical examination is required for distinct lesions to achieve a proper diagnosis and suggest an appropriate treatment.

*** Corresponding Author:**
Shabnam Sohanian, PhD.
Address: *Department of Oral Medicine, School of Dentistry, Semnan University of Medical Sciences, Semnan, Iran.*
E-mail: *dr.sh.sohanian@gmail.com*

Introduction

Giant Cell Fibroma (GCF) is a rare fibrous lesion that occurs as a benign sessile or pedunculated mass of oral mucosa [1, 2]. The lesion is characterized by stellate and multinucleated fibroblasts near the overlying epithelium in the lamina propria [3, 4]. Usually, an unexplained stimulus is designed as an etiologic factor and frequently occurs in patients younger than 30 years with a slight female predilection [5].

Several gingival growths, including Fibroepithelial Polyp, Peripheral Gingival Fibroma, Pyogenic Granuloma, Peripheral Ossifying Fibroma, and Peripheral Giant Cell Granuloma are considered as the differential diagnosis of Giant Cell Fibroma. Accurate diagnosis is based on histopathologic examination [6, 7]. Most cases of GCF typically arise on the mandibular gingiva twice more than the maxillary gingiva. However, the tongue, lip, buccal mucosa, palate, and floor of the mouth are also common sites [8-10]. We presented an interesting case of GCF with an unusual Radiographic finding and diagnosed based on the characteristic histopathological features.

Case Presentation

The patient was a 20-year-old female who complained of tooth displacement and gingivitis, referred to the Oral and Maxillofacial Medicine Department of Semnan Dental School. There was no suspected medical history. It was the first time she had presented to a dentistry center. In general examinations, short stature attracted attention. Examining the head and neck revealed maxillary protrusion without a lip's seal. The patient was asked about mouth breathing, and the answer was yes. In intraoral examinations, localized gingivitis was observed in the interdental areas of the papilla of the upper bilateral canine and lateral teeth; thus, the gums were enlarged, swollen, red, and bled easily. On the examination of the mandible, we noticed that the width of the ridge on both sides was not symmetrical, and the patient claimed that unaware of its presence in the first session (Figure 1).

There was a pink spindle-shaped swelling on the right side of the mandible, i.e., firm. Moreover, the first and second right premolars protruded above the occlusion and tilted toward the lingual. They were utterly loose and clinically appeared to be separate from the alveolar bone; pumping was detected with pus discharge. The patient had two extra teeth in the upper jaw, irrelevantly. Periapical (PA), panoramic, pre-biopsy tests, and cone-beam computed tomography systems (CBCT) were prescribed for the patient. In the second session, the patient stated that she had encountered this lesion for about 5 to 6 months, experienced no particular pain or problems, and did not present due to economic difficulties. All laboratory test data were normal. Gentle scaling and root planning and biopsy from central lesion bulk and second premolar extraction were performed at the same session. The histopathological examination showed an inflammatory lesion. The pus discharge had completely improved by the third session. Furthermore, the maxillary localized gingivitis had resolved. In this session, the rest of the lesion was removed then the histopathologic report was Giant Cell Fibroma (GCF).

In the panoramic view of the patient, changes in the trabecular pattern of the mandible bone and condensing the right side of the crest of the bone compared with the opposite side were observed. The first and the second premolar have been moved. Besides, in the acquired CBCT view, there are several areas of soft tissue swelling that include the area from the mesial of the right second molar to the mesial of the right central incisor and from the cervical area of teeth to 1/3 of the superior crest of the bone. Alveolar bone loss from the mesial of the right first molar tooth to the distal right canine was observed. The bone resorption was seen only 1/3 of apical of both the first and second premolars, leading to linguistic movements. There were no root resorptions and no bone expansions that caused impaction. The inner structure of the bone in the superior area of the crest of the first premolar has a lower density than the other areas. But in the different areas, the density of the bone was similar to the opposite side. Lamina Dura, which surrounded the canine and the first molar, is normal (Figure 2). In the subsequent follow-up

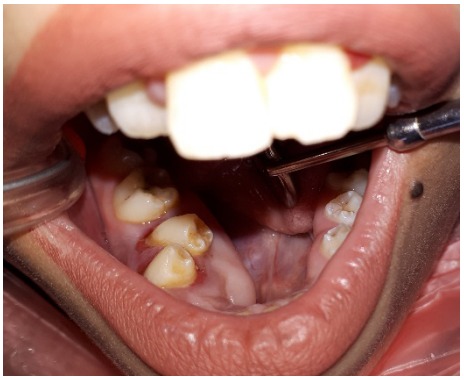

Figure 1. Intraoral feature

An exophytic mass on the lingual side of the lower premolars was observed.

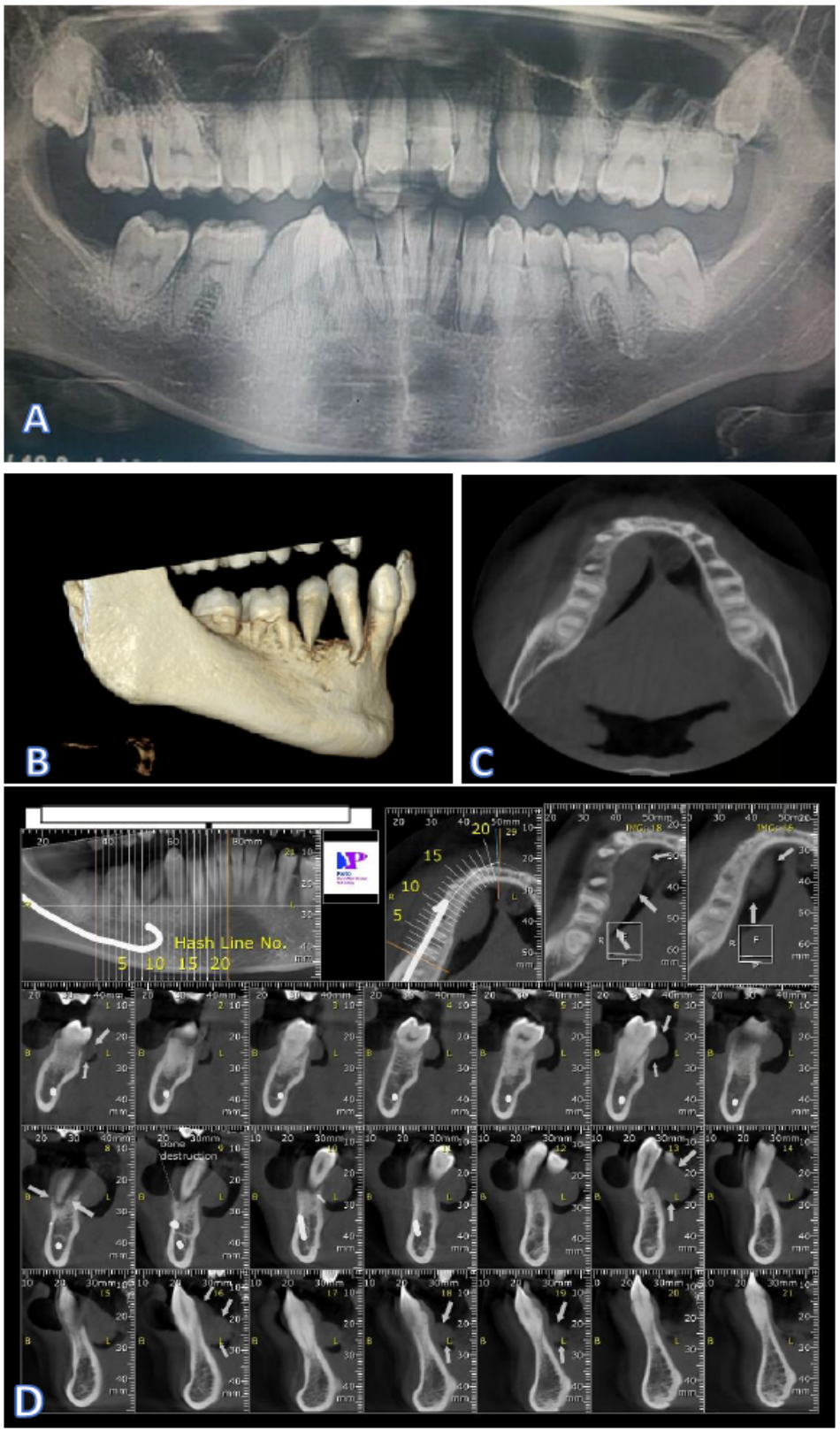

Figure 2. Radiographic features

Showing bone resorption in the area of the lower right premolars and the displacement of the right mandibular premolars, and the widening of the Periodontal Ligament (PDL).

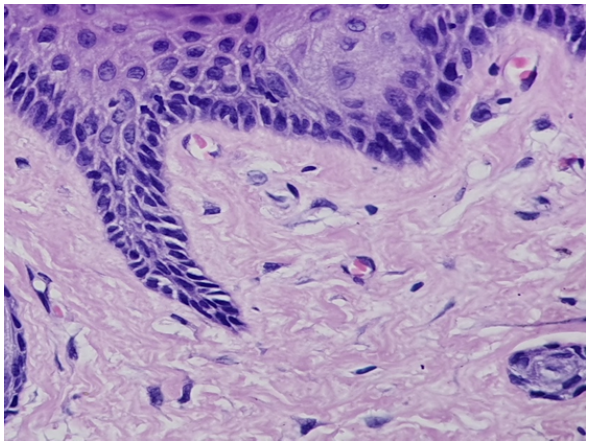

Figure 3. The histopathological feature

Showed stellate fibroblasts within the superficial fibrovascular connective tissue (H&E×400)

session, tissue repair was accomplished, and the first premolar was immobile and was no longer loose.

Histopathologically, the excised specimen revealed stellate fibroblasts within the superficial fibrovascular connective tissue, confirming Giant Cell Fibroma. The covering epithelium displayed psuedoepithelial hyperplasia. The adjacent minor salivary glands contained severe chronic inflammatory cell infiltration and dilated ducts (Figure 3).

Discussion

Giant cell fibroma is an oral soft tissue benign neoplasm with distinctive clinicopathological features. It was first described as a distinct entity among fibrous hyperplastic soft tissue lesions by Weathers and Callihan in 1974 [11]. Giant cell fibroma represents as many as 5% of all oral fibrous proliferations submitted for biopsy [1, 11]. The lesion is typically an asymptomatic sessile or pedunculated nodule, usually less than 1 cm in size [5, 10]. This lesion is generally observed in the first three decades with a slight female preference; however, a congenital variant was reported [12]. The surface of the mass frequently appears papillary. Therefore, GCF may be clinically mistaken for papilloma [1, 13]. This lesion is most commonly detected in the gingiva, in which the mandibular gingiva is affected twice as often as the maxillary gingiva. The tongue and palate are also common sites of occurrence [13]. Subsequently, clinical and histologic features are necessary to determine the final diagnosis [2, 3].

In the current case, the patient is a 20-year-old with a soft tissue lesion in the lingual surface of the mandibular gingiva related to the teeth with different colors of the oral mucosa. This issue and the localized maxillary gingivitis, the rapid growth of the lesion and the mobility of the teeth, and aggressive bone resorption made us doubt hematologic malignancies, such as leukemia and lymphoma. Relevant laboratory tests were done before the biopsy, the results were normal; the histopathological report did not declare any evidence of malignancy. It is more than 1cm and extended from the right first molar to the right central incisor. This lesion is more extensive than the usual size determined in the literature. Giant Cell Fibroma typically causes no bone loss [1, 13]; however, some changes in the trabecular pattern of the mandible bone were seen in our patient, but there are no root resorptions and no bone expansion. Moreover, alveolar bone loss from the mesial of the right first molar tooth to the distal right canine was detected. Accordingly, Antony et al. reported a moderate amount of horizontal bone loss in their case [11].

The histological examination of GCF indicated the existence of multiple large stellate and giant fibroblasts in a fibrovascular stroma. These giant cells are usually detected in the connective tissue near the epithelium, with well-defined cell borders and dendritic processes. Some of these cells, especially those near the epithelium, may contain small brown granules with staining melanin characteristics [7, 10]. An artificial space dividing the giant fibroblasts from the surrounding fibrous stroma is sometimes detected. The overlying epithelium is hyperplastic with thin elongated rete ridges. In our case, the covering epithelium exhibited psuedoepithelial hyperplasia. Inflammatory infiltrate is usually absent [7]. According to clinical appearance, irritation fibroma, papilloma, fibroma, pyogenic granuloma, fibrous hyperplasia, and peripheral giant cell granuloma are considered a differential diagnosis of GCF. Irritation fibroma is the lesion with the most similarity to GCF. The age range of irritation fibroma is 40-60 years, with a female prediction. Besides, this lesion occurs along the line of occlusal plane on buccal mucosa rather than on the gingiva. The definitive histological features of GCF separate it from the other lesions [4, 7, 14, 15].

Positive reactivity for vimentin and negativity for S-100, alpha-smooth muscle actin, CD8 Leukocytes Common Antigen (LCA), and HLA-DR confirm the fibroblastic origin and rule out melanocyte, Langerhans, endothelial, myofibroblast, and macrophage-monocyte lineage [11, 15, 16]. Treatment of GCFs are conservative surgical excision, electrosurgery, or laser excision. in the reports mentioned of this lesion, recurrence may occur, but it is rare [11, 13].

Conclusion

GCF has similar clinicopathological features to the conventional fibroma/fibroepithelial polyp; however, there are discriminative histopathologic features for GCF that are still a controversial topic in pathological literature that need additional attention clinicopathological, Immunohistochemical and molecular confirmation. Furthermore, occasionally benign lesions clinically mimic malignancy which confuses the clinicians. Nevertheless, further studies are necessary to investigate the precise nature of the mono or multinucleated cells, atypical fibroblasts that illustrate degenerative and functional changes. Moreover, a high index of suspicion and appropriate analytical examination is required for distinct lesions to achieve a proper diagnosis and suggest an appropriate treatment.

Ethical Considerations

Compliance with ethical guidelines

All ethical principles are considered in this article. The participants were informed of the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them. A written consent has been obtained from the subjects. principles of the Helsinki Convention was also observed.

Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

Conflict of interest

The authors declared no conflict of interest.

References

[1] Gnepp DR. Diagnostic surgical pathology of the head and neck e-book. Philadelphia: Saunder, Elsevier; 2009. https://www.google.com/books/edition/Diagnostic_Surgical_Pathology_of_the_Hea/ZapDKS55gMgC?hl=en&gbpv=0

[2] Kuo YH, Hwang MJ, Lee YP, Chiang CP. Oral giant cell fibroma: A report of three cases. Journal of Dental Sciences. 2021; 16(1):552-4. [DOI:10.1016/j.jds.2020.09.001] [PMID] [PMCID]

[3] Reddy VKK, Kumar N, Battepati P, Samyuktha L, Nanga SP. Giant cell fibroma in a paediatric patient: A rare case report. Case Reports in Dentistry. 2015; 2015:240374. [DOI:10.1155/2015/240374] [PMID] [PMCID]

[4] De Souza IF, Salgueiro AP, Rados PV, Visioli F. Giant cell fibroma: 10-year survey in an oral pathology service. Oral Surgery, Oral Medicine, Oral Pathology and Oral Radiology. 2020; 129(1):e173. [DOI:10.1016/j.oooo.2019.06.737]

[5] Bagheri F, Rahmani S, Azimi S, Taheri JB. Giant cell fibroma of the buccal mucosa with laser excision: Report of unusual case. Iranian Journal of Pathology. 2015; 10(4):314. [PMID][PMCID]

[6] Sanjeeta N, Nandini D, Banerjee S, Devi PA. Giant cell fibroma: A case report with review of literature. Journal of Medicine, Radiology, Pathology and Surgery. 2018; 5(4):11. https://www.researchgate.net/profile/Nandini-Db//330132997_Gi--of-literature.pdf

[7] Sonalika WG, Sahu A, Deogade SC, Gupta P, Naitam D, Chansoria H, et al. Giant cell fibroma of tongue: Understanding the nature of an unusual histopathological entity. Case Reports in Dentistry. 2014; 2014. [DOI:10.1155/2014/864512] [PMID] [PMCID]

[8] Mello-Moura ACV, Santos AMA, Bonini GAVC, Del Conte Zardetto CG, Moura-Netto C, Wanderley MT. Giant cell fibroma in a two-year-old child. Case Reports in Dentistry. 2016; 2016:7058356. [DOI:10.1155/2016/7058356] [PMID] [PMCID]

[9] Datar UV, Kamat MS, Kanitkar SS, Byakodi SS. Clear cell odontogenic carcinoma: A rare case report with emphasis on differential diagnosis. Journal of Cancer Research and Therapeutics. 2017; 13(2):374-77. [DOI:10.4103/0973-1482.187381] [PMID]

[10] Ismael FJ, Abdullah BH. Clinicopathological study of oral giant cell fibroma. Indian Journal of Forensic Medicine & Toxicology. 2020; 14(1):928-32. clinicopathological-study-of-oral-giant-cell-fibroma.pdf (researchgate.net)

[11] Naaz S, Ahad A, Bey A, Ansari H. Use of GaAlAs Diode Laser for Excisional Biopsy of Gingival Giant Cell Fibroma: A Case Report of a Rare Lesion. Frontiers in Dentistry. 2021; 18(3):1-6. [DOI:10.18502/fid.v18i3.5433]

[12] Razi MRM, Harith NS, Tahir NFM, Selvaraj N. Congenital giant cell fibroma: A case report. Malaysian Journal of Paediatrics and Child Health. 2020; 26(1):21-8. MyMedR | Congenital Giant Cell Fibroma – A Case Report (afpm.org.my)

[13] Neville BW, Damm DD, Allen CM, Chi AC. Oral and maxillofacial pathology. Amsterdam: Elsevier; 2015. https://www.google.com/books/edition/Oral_and_Maxillofacial_Pathol=false

[14] Sam SE, Suresh A, Rao RJ, Padmanabhan S. Giant cell fibroma of the gingiva: A case report and review of literature. International Journal of Advanced Medical and Health Research. 2017;4(1):33-5. [DOI:10.4103/IJAMR.IJAMR_13_17]

[15] Braga MM, Carvalho AL, Vasconcelos MC, Braz-Silva PH, Pinheiro SL. Giant cell fibroma: A case report. Journal of Clinical Pediatric Dentistry. 2006; 30(3):261-4. [DOI:10.17796/jcpd.30.3.j784203n931w3x6j] [PMID]

[16] Soujanya P, Ravikanth M, Kumar NGR, Reena K, Reddy MS. Giant cell fibroma of maxillary gingiva: Report of a case and review of literature. SRM Journal of Research in Dental Sciences. 2011; 2(1):61-4. SRMJResDentSci2161-389586_104918.pdf (srmjrds.in)