

CASE REPORT



Giant cell fibroma: A case report with review of literature

Ngairangbam Sanjeeta, D. B. Nandini, Sumita Banerjee, P. Aparna Devi

Department of Oral Pathology, Dental College, Regional Institute of Medical Sciences, Imphal, Manipur, India

Keywords:

Fibroblast, fibroma, giant cell, gingiva

Correspondence:

Dr. Ngairangbam Sanjeeta, Department of Oral Pathology, Dental College, Regional Institute of Medical Sciences, Imphal, Manipur, India Phone: +91-9774554497. E-mail: dr.sanjeeta.ng@gmail.com

Received: 11 June 2018;

Accepted: 21 July 2018

doi: 10.15713/ins.jmrps.137

Abstract

Benign gingival overgrowths are not uncommon in the oral cavity. Reactive lesions and neoplasms comprise the spectrum of local proliferations that occur in the gingiva. Similarity in the clinical features of these diverse lesions further compound the dilemma in arriving at a proper clinical diagnosis. Giant cell fibroma (GCF) is one such interesting lesion that may clinically mimic a fibroma or a papilloma that can only be diagnosed after histopathological examination from its unique and characteristic features. In this paper, the first case of GCF in an 18-year-old north-eastern Indian of Mongoloid origin is reported for its rarity.

Introduction

Giant cell fibroma (GCF) is a unique lesion of the oral mucosa that is believed to be of fibrous tissue origin. The lesion was so named by Weathers and Callihan in 1974 who examined more than 2000 fibrous hyperplastic lesions and found that 108 lesions exhibited unique histopathological features that warrant a separate entity for the lesions. The consistent presence of large, stellate-shaped, mononuclear, and multinucleated giant cells in the fibrous connective stroma of these lesions was the basis for naming the lesions, "GCF."

Pyogenic granuloma, peripheral gingival fibroma, peripheral giant cell granuloma, and peripheral ossifying fibroma are lesions that come under the consideration of fibrous hyperplastic gingival lesions. These lesions are diagnosed from their characteristic histopathological features as they are indistinguishable clinically. GCF presents clinically as an asymptomatic, sessile, or pedunculated nodule, with a papillary surface and normal coloration. The lesion can be mistaken for a papilloma or a fibroma. In this paper, we present an interesting case of GCF which was diagnosed on the basis of the characteristic histopathological features.

Case Report

An 18-year-old female reported to the outpatient Department of Dentistry, on February 25th, 2008, with the chief complaint of a swelling in the mouth. On intraoral examination, there was

a growth on the gingiva in the upper right retromolar region, posterior to 17 [Figure-1]. The lesion was 1.2 cm × 0.9 cm in size, well-demarcated, pedunculated, the color of normal gingiva, and soft in consistency with a lobulated surface. No contributory findings such as carious, broken tooth with sharp edges or the third molars clinically seen. The patient's oral hygiene was satisfactory. History revealed that the growth had been present for the past 2 years and was asymptomatic. The growth was initially small but had slowly enlarged to the present size. The medical history was non-contributory. Based on the clinical features, a provisional diagnosis of fibroma was made. The lesion was surgically excised under local anesthesia and submitted for histopathological examination.

The histopathological examination revealed numerous large, stellate-shaped fibroblasts in a background of dense collagenous fibrous tissue [Figure 2]. The large, stellate-shaped fibroblasts were seen in the superficial connective tissue. The giant stellate-shaped cells exhibited short dendritic processes and some showed multiple nuclei surrounded by a retraction space [Figure 3]. The overlying epithelium was parakeratinized stratified squamous with mild acanthosis and few elongated, slender rete ridges. Based on the histopathological findings, the case was diagnosed as GCF.

Discussion

GCF is a unique benign fibrous tissue tumor first reported by Weathers and Callihan,^[1] that is, distinct from fibroma clinically

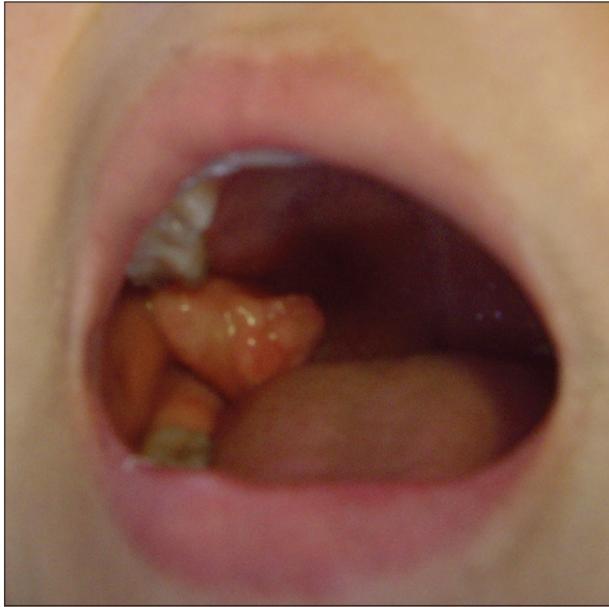


Figure 1: Growth seen in the right maxillary retromolar region



Figure 2: Numerous large, stellate-shaped fibroblasts seen in connective tissue (H and E, 10×)

and histopathologically. 2–5% of all oral fibrous proliferations submitted for biopsy constitute GCFs. The lesions occur commonly in the first three decades of life with a significant female predominance. They are usually small, with the majority measuring not more than 1 cm in greatest diameter. Common sites of occurrence are the mandibular gingiva followed by the maxillary gingiva, tongue, palate, buccal mucosa, and lip. Contrary to the more common fibroma, irritation as a cause of the fibrous proliferation is usually not a finding as in our case.

Clinically, GCF is asymptomatic and appears as a raised nodular growth which is pedunculated or sessile fibrous lesion with the color of normal mucosa, measuring 0.5–1 cm with a pebbly or papillary surface. Thus, it is often misdiagnosed

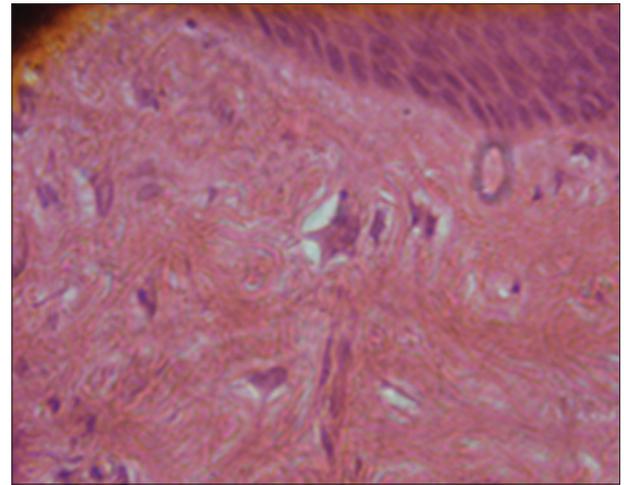


Figure 3: Giant stellate cell showing short dendritic processes and multiple nuclei surrounded by a retraction space (H and E, 40×)

as a papilloma or a fibroma.^[2] In their report of 21 cases of GCF, Sabarinath *et al.*^[3] found that none of the 21 lesions were diagnosed correctly as GCF at the time of initial clinical presentation. Similar mucosal lesions with giant fibroblasts have been earlier reported which include retrocuspid papilla and pearly penile papule of glans penis. Cutaneous counterparts include fibrous papule of nose, ungula fibroma, acral fibroblastoma, and fibroblastoma, a virus-induced tumor of deer.

Histopathologically, unique and characteristic findings of these lesions are the stellate fibroblasts that may be scattered throughout in an immature and sometimes avascular loose collagenous stroma in moderate numbers. Occasionally, fibroblasts will be quite large and angular and may have more than one nucleus [Figure 3]. The hallmark of GCF is the presence of these giant cells that appear to be atypical fibroblasts which are usually seen in the connective tissue in close proximity to the overlying epithelium and have a hematoxylin or amphophilic cytoplasm with a peripheral retraction space.^[4]

Immunohistochemical studies done to determine the origin of these giant cells have found that these cells show negative reactivity for cytokeratin, neurofilament, HNF, CD 68, HLA DR, Tryptase, and S-100 protein.^[5] The cells have showed positive staining only for vimentin and prolyl-4-hydroxylase.^[6-8] This suggests that the stellate and multinucleate cells of GCF have a fibroblast phenotype.^[9] Histochemical and immunohistochemical studies have also revealed that fibroepithelial polyps contain elastin, but GCF does not. This is the distinct difference in the extracellular matrix between GCF and fibroepithelial polyp.^[8] Further, minor subsets of giant cells in few cases showed positivity for factor XIIIa indicating that stellate cells may be of fibroblastic lineage with variable mixture of cells from mucosal dendrocytes.^[6]

Several mechanisms that explain the fusion of macrophages to form giant cells have been extensively studied and put forth which include production of large amounts of lymphokines

that cause fusion of macrophages, leading to the formation of multinucleated giant cells in immune-mediated mechanisms, recognition of alterations in cell surface by young macrophages resulting in the fusion of young and older cells, and simultaneous attempted phagocytosis, wherein two or more macrophages try to ingest the same particle at the same time resulting in the fusion of endosomal margins and form multinucleated giant cells.^[10]

GCFs are treated by conservative surgical excision and electrosurgery or laser excision though the latter method is mostly opted in children. Recurrence may occur but has been reported to be rare.

References

1. Weathers DR, Callihan MD. Giant cell fibroma. *Oral Surg* 1974;37:374-84.
2. Fowler CB. Benign and malignant neoplasms of the periodontium. *Periodontol* 2000;21:33-83.
3. Sabarinath B, Sivaramakrishnan M, Sivapathasundharam B. Giant cell fibroma: A clinicopathological study. *J Oral Maxillofac Pathol* 2012;16:359-62.
4. Odell EW, Morgan PR. Mucosal fibroepithelial hyperplasias, gingival inflammation and enlargement. In: Odell EW, Morgan PR, editors. *Biopsy Pathology of the Oral Tissues*. 2-6 Boundary Row, London SE1 8HN, UK: Chapman and Hall; 1998. p. 98-100.
5. Magnusson BC, Rasmusson LG. The giant cell fibroma. A review of 103 cases with immunohistochemical findings. *Acta Odontol Scand* 1995;53:293-6.
6. Souza LB, Andrade ES, Miguel MC, Freitas RA, Pinto LP. Origin of stellate giant cells in oral fibrous lesions determined by immunohistochemical expression of vimentin, HHF-35, CD68 and factor XIIIa. *Pathology* 2004;36:316-20.
7. Weathers DR, Campbell WG. Ultrastructure of the giant-cell fibroma of the oral mucosa. *Oral Surg Oral Med Oral Pathol* 1974;38:550-61.
8. Sivapathasundharam B. Giant cell fibroma-report of four cases and review of literature. *J Indian Dent Assoc* 2007;72:19-21.
9. Campos E, Gomez RS. Immunocytochemical study of giant cell fibroma. *Braz Dent J* 1999;10:89-92.
10. Odell EW, Lock C, Lombardi TL. Phenotypic characterisation of stellate and giant cells in giant cell fibroma by immunocytochemistry. *J Oral Pathol Med* 1994;23:284-7.

How to cite this article: Sanjeeta N, Nandini DB, Banerjee S, Devi PA. Giant cell fibroma: A case report with review of literature. *J Med Radiol Pathol Surg* 2018;5:11-13.