International Journal of Clinical and Diagnostic Pathology

ISSN (P): 2617-7226
ISSN (E): 2617-7234
www.patholjournal.com
2021; 4(1): 20-22
Received: 13-11-2020
Accepted: 15-12-2020

Dr. Meera Mathai
BDS MDS, Reader, Department of Oral Medicine and Radiology, St. Gregorious Dental College, Kothamangalam, Kerala, India

Dr. V Menaka
BDS MDS, Senior Lecturer, Department of Periodontology, Ragas Dental College and Hospital, Chennai, Tamil Nadu, India

Dr. Karthik Shunmugavelu
BDS, MSC (LONDON), (MDS OMFP), MFDS RCSENG, MCIP, FIBMS (USA), MASID Australia, Director, Mercy Multispeciality Dental Centre, Chennai, Tamilnadu, India

Dr. RN Mugundan
BDS MDS OMFP, Consultant Oral and Maxillofacial Pathlology, Mercy Multispeciality Dental Centre Chennai, Tamilnadu, India

Dr. Evangeline Cynthia
MBBS DMCH Fellowship US-OBG, MD Pathology, Mercy Multispeciality Dental Centre Chennai, Tamilnadu, India

Dr. Vishnupriya V
BDS MDS OMFP Consultant Oral and Maxillofacial Pathlology Mercy Multispeciality Dental Centre, Chennai, Tamilnadu, India

Corresponding Author:
Dr. Karthik Shunmugavelu
BDS, MSC (LONDON), (MDS OMFP), MFDS RCSENG, MCIP, FIBMS (USA), MASID Australia, Director, Mercy Multispeciality Dental Centre, Chennai, Tamil Nadu, India

Oral giant cell fibroma-expect the unexpected

Dr. Meera Mathai, Dr. V Menaka, Dr. Karthik Shunmugavelu, Dr. RN Mugundan, Dr. Evangeline Cynthia and Dr. Vishnupriya V

DOI: https://doi.org/10.33545/pathol.2021.v4.i1a.318

Abstract
Giant Cell Fibroma (GCF) is a unique, non-neoplastic, fibrous hyperplastic soft tissue lesion of the oral mucosa. It was first described as a separate entity by Weathers and Callihan in 1974. It represents approximately 2%–5% of all fibrous lesions. The clinical appearance of the majority of non-neoplastic fibrous growths are similar, but their unique histopathological feature characterized by stellate shaped fibroblasts aids in their final diagnosis. GCF is frequently involves the gingiva, tongue and the buccal mucosa. Eversole, Rovin compared and contrasted 279 fibrous hyperplastic gingival lesions, before Weather and Callihan's description of GCF, they had compared and highlighted 279 fibrous lesions which were: pyogenic granuloma, peripheral gingival fibroma, peripheral giant cell granuloma, and peripheral ossifying fibroma. Each has its own diagnostic histopathologic characteristics but exhibit overlap of clinical presentation. It occurs as a localized reactive proliferation of fibrous tissue, which resembles irritation fibroma rather than a neoplastic proliferation. Here, we report a case of giant cell fibroma with clinical characteristics and histopathologic features that helped us to differentiate it from other fibrous hyperplastic lesions.

Keywords: Giant cell fibroma, oral cavity, hyperplastic fibrous lesions

Introduction
Giant Cell Fibroma (GCF) is a unique, non-neoplastic, fibrous hyperplastic soft tissue lesion of the oral mucosa. It was first described as a separate entity by Weathers and Callihan in 1974 [1]. It represents approximately 2%–5% of all fibrous lesions [2]. The clinical appearance of the majority of non-neoplastic fibrous growths are similar, but their unique histopathological feature characterized by stellate shaped fibroblasts aids in their final diagnosis. GCF is frequently involves the gingiva, tongue and the buccal mucosa [3].
Eversole, Rovin compared and contrasted 279 fibrous hyperplastic gingival lesions, before Weather and Callihan's description of GCF, they had compared and highlighted 279 fibrous lesions which were: pyogenic granuloma, peripheral gingival fibroma, peripheral giant cell granuloma, and peripheral ossifying fibroma. Each has its own diagnostic histopathologic characteristics but exhibit overlap of clinical presentation. It occurs as a localized reactive proliferation of fibrous tissue, which resembles irritation fibroma rather than a neoplastic proliferation [4]. The etiology of GCF has been a debate for many years, but later it was believed to arise as a result of traumatic stimulus, the source of which cannot always be determined [5]. Clinically GCF is asymptomatic and appears as pedunculated or sessile fibrous lesion with the color of normal mucosa, measuring 0.5-1 cm with a pebbly surface. The surface might be ulcerated due to acute trauma. Here, we report a case of giant cell fibroma with clinical characteristics and histopathologic features that helped us to differentiate it from other fibrous hyperplastic lesions.

Case Report
A 34 years male patient visited the clinic with chief complaint of growth in the upper front back tooth region for past 3 months. He had a no contributory history. He is a non-vegetarian and constantly has fish bone pricks occurring on the roof of his mouth which were only mild in pain intensity. On intraoral examination, a solitary, firm, sessile nodule of 2×2cm was seen in the palatal aspect of the teeth 21, 22. The growth was small at when patient had noticed it 3 months back but it had slowly progressed and reached the current size.

The overlying mucosa appeared normal in colour [Figure 1]. Radiographic exam did not show any evidence of a lesion in hard tissue [Figure 2]. Based on this a provisional diagnosis of fibroma was given. The patient was advised for routine blood investigation before performing the biopsy. The hematological parameters were within the normal range. Excisional biopsy was performed under local anesthesia, after obtaining the informed consent from the patient and was sent for histopathological examination.

The H&E stained section reveals the overlying hyperparakeratotic stratified squamous epithelium with thin elongated and anastamosing rete ridges [Figure 3]. The underlying fibrovascular connective tissue stroma shows numerous dense fibroblasts along with extravasated red blood cells [Figure 4]. The fibroblasts that were near the epithelial rete-pegs were stellate shaped exhibiting dendritic process with one or multiple nuclei and were suggestive of giant cell fibroblasts. Few cells exhibit binucleation [Figure 5]. Based on the above features a final diagnosis of giant cell fibroma was made.

The follow-up examination after a week confirmed uneventful healing. Patient was recalled after 3 months for routine follow-up to rule out any chances of recurrence.

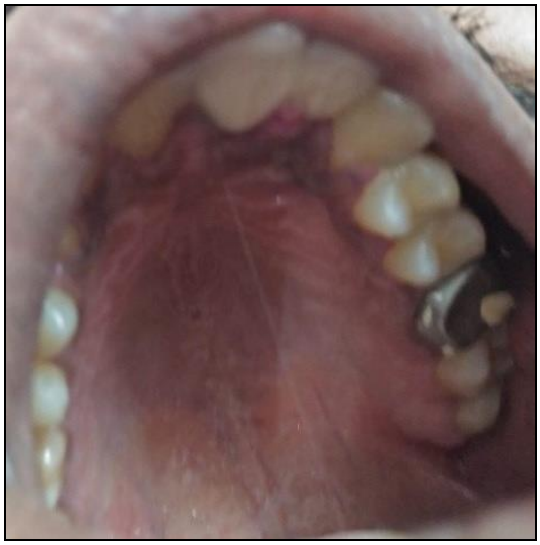

Fig 1: Solitary, firm, sessile nodule of 2×2cm seen in the palatal aspect of 21, 22.

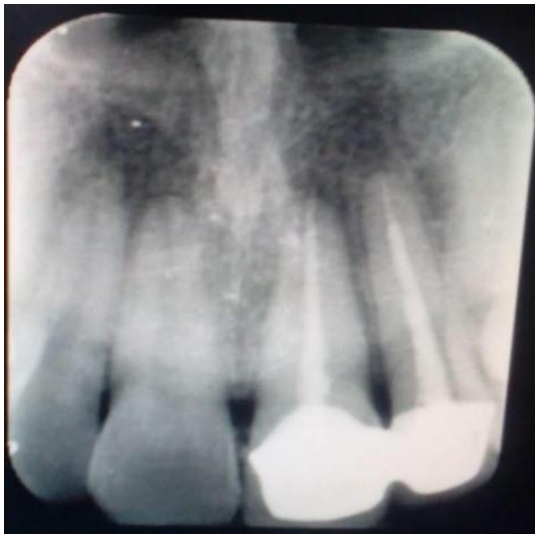

Fig 2: Radiograph demonstrating no significant changes.

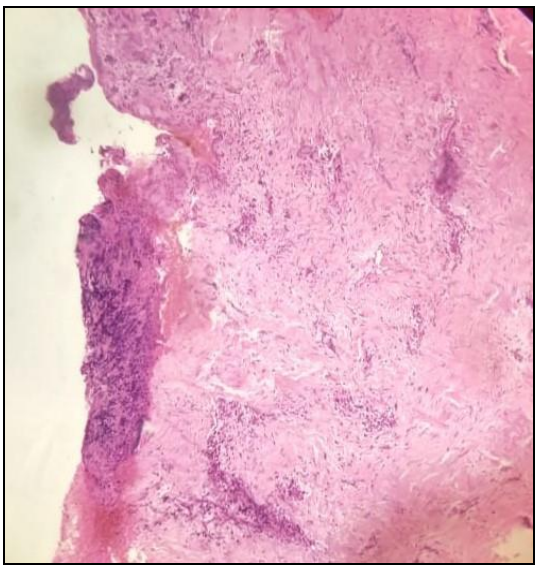

Fig 3: Histopathological picture (4x) showing fibrovascular connective tissue.

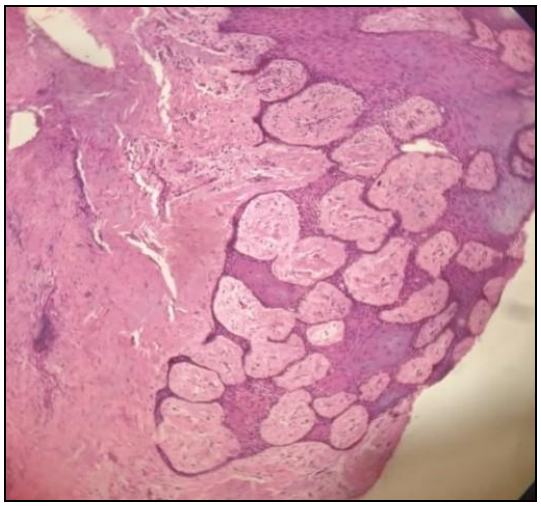

Fig 4: Histopathological picture (4x) showing hyperparakeratotic stratified squamous epithelium with thin elongated and anastamosing rete ridges and fibrovascular connective tissue.

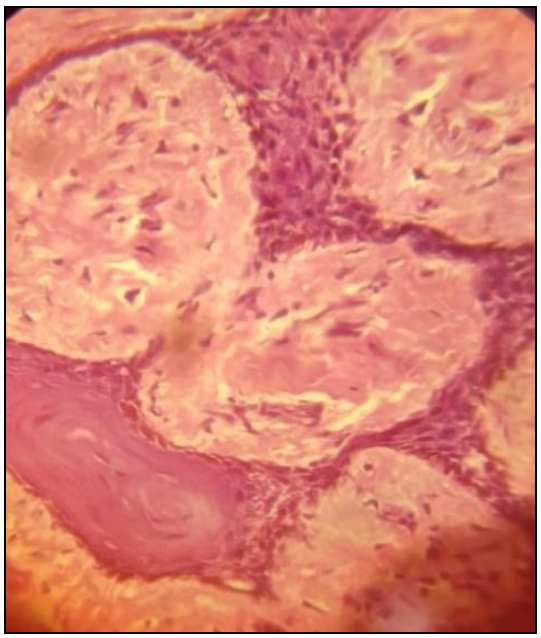

Fig 5: Stellate shaped fibroblasts exhibiting dendritic process with one or multiple nuclei, suggestive of giant cell fibroblasts.

Discussion

As evidenced in this case report, and in diagnosing lesions in general, both clinical and histologic features are important in determining a final diagnosis. In spite of similar histology, several distinctions can be made between a number of fibrous hyperplasia according to characteristics such as age distribution, gender predilection, location, and etiology. The youngest age of GCF described in children is 18 months old [5] and it has a highly seen among the Caucasian population [6] with an equal male to female population ratio. Histologically, GCF has abundant dense collagen fibers which is resembles the clinical appearance of hyperplastic fibrous lesions. Regezi *et al.* found more frequently on gingiva followed by tongue and buccal mucosa [7] with mandibular gingiva is affected twice as often as the maxillary gingiva [8].

The most common etiology for origin of GCF is trauma or recurrent chronic inflammation which are characterized by functional changes in fibroblastic cells. The origin of the giant cells has been disputed by many authors over the years. The most accepted theory supports a fibroblastic origin of giant cells. However, these giant cells contain more microfibrils, a distinctive appearance that may reflect a functional response to the requirement for higher protein and collagen formation.

In a report by Okamura *et al*, the giant fibroblasts in giant cell fibroma were considered to be of macrophage - monocytic lineage the fibroblasts are be quite large and angular, and may have more than one nucleus. GCF is characterized by the presence of numerous large stellate and multinucleated giant cells in a loose collagenous stroma. These pathognomonic cells often have a smudged appearance [9]. The electron microscopic and immunohistochemical study confirmed that this giant fibroblast are atypical fibroblasts formed by fusion of mononuclear cells. They concluded that the origin of these giant cells had negative reactivity for cytokeratin, neurofilament, HHF, CD 68, HLA DR, Tryptase and S 100 protein but were positive for vimentin and prolyl-4 - hydrolase. This suggests that the stellate and multinucleate cells of GCF have a mesenchymal phenotype [9]. Ultrastructural study by Weathers and Campbell in 1974 have suggested that the distinctive cells are atypical fibroblasts. Furthermore, accumulations of numerous microfibrils were seen in the cytoplasm, which were not observed in the normal fibroblasts, which was also seen in cultured fibroblasts, granulation tissue fibroblasts and fibrogenic tumors, however their nature of function could not been understood. These fibroblasts were described to be mesenchymal cells which possessed the properties of both macrophage and fibroblast [10].

In our case, the patient was of a young age and had a predominantly non-vegetarian diet and had a history of common fish bone pricks in his palate. We believe this bone rick could have been the source of trauma that ultimately resulted in GCF. The differential diagnosis for giant-cell fibroma should include irritation fibroma, retrocuspid papillae, papilloma, peripheral ossifying fibroma, focal fibrous hyperplasia, peripheral odontogenic fibroma. The presence of giant fibroblasts histopathologically distinguishes this lesion from others [11]. The treatment of GCF, a conservative surgical excision remains the treatment of choice in most cases. Electrosurgery is another option which provides direct tissue haemostasis without need for sutures [12]. In addition there can be access to areas difficult to reach and reduction of chair time, factors extremely valuable in paediatric dentistry. Laser therapy has been suggested as an alternative approach with many advantages especially in the dental treatment of children.

Recurrences have been reported only in solitary cases. However, recall visits are necessary to ensure the absence of recurrence. If the lesion is left untreated it may continue to proliferate but its benign nature certifies limited growth potential [13].

Conclusion

Benign hyperplastic fibrous lesions are encountered routinely in dental practice. They are often asymptomatic but may not be esthetic if present in the anterior region of the jaw can cause problems during mastication. GCF can be solely diagnosed as a separate entity from other fibrous hyperplastic lesions through histology. Surgical excision with long term follow-up is required to check for any recurrence.

Reference

1. Weathers DR, Callihan MD. Giant-cell fibroma. Oral Surg Oral Med Oral Pathol 1974;37(3):374-84.
2. Shah M, Rathod CV, Shah V. Peripheral giant cell fibroma:A rare type of gingival overgrowth. J Indian S Periodontol 2012;16:275-7
3. Nikitakis NG, Emmanouil. D, Maroulakos MP, Angelopoulou MV. Giant cell fibroma in children: report of two cases and literature review, Journal of Oral and Maxillofacial Research 20134(1)e5:1-7.
4. Houston GD. The giant cell fibroma. A review of 464 cases. Oral Surg Oral Med Oral Pathol 1982;53(6):582-587.
5. 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 Rep Dent 2014;2014:864512.
6. Campos E, Gomez RS. Immunocytochemical study of giant cell fibroma. Braz Dent J 1999;10:89-92.
7. Regezi JA, Zarbo RJ, Tomich CE, Lloyd RV, Courtney RM, Crissman JD, *et al*. Immunoprofile of benign and malignant fibrohistiocytic tumors. J Oral Pathol 1987;16:260-5
8. Bakos LH. The giant cell fibroma: A review of 116 cases. Ann Dent 1992;51:32-5.
9. Okamura K, Ohno J, Iwahashi T, Enoki N, Taniguchi K, Yamazaki J. Giant cell fibroma of the tongue: Report of a case showing unique s100 protein and HLADR immunolocalization with literature review. Oral Med Pathol 2009;13:75-9
10. Weathers DR, Campbell WG. Ultrastructure of the giant cell fibroma of the oral mucosa. Oral Surg 1974;38:650-561.
11. Anderman II. Indications for use of electrosurgery in pedodontics. Dent Clin North Am 1982;26(4):711-28.
12. Neville BW, Damm DD, Allen CM, Bouquot JE. Soft Tissue Tumors. In: Dollan J, ed. Oral and Maxillofacial Pathology. 3rd ed. St.Louis: Saunders Elsevier 2009, p. 509-10.
13. McGuff HS, Alderson GL, Cale Jones A, Keller TA. Oral and maxillofacial pathology.f