Giant Cell Fibroma of the Gingiva: A Case Report and Review of Literature

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Abstract

Giant cell fibroma (GCF) is considered a distinct variant among the fibrotic soft tissue lesions. It usually occurs in young people without any gender predilection. Mandibular gingiva is affected more commonly. This report describes a fibrotic lesion occurring in a 33-year-old man on the maxillary buccal gingiva. GCF was one among the various differentials considered, and the final diagnosis was confirmed on histopathological examination.

Keywords: Fibroepithelial polyps, giant cell fibroma, gingival diseases, irritation fibroma

Introduction

Gingival enlargement and gingival overgrowth are common features of gingival diseases. Weathers and Callihan were the first to describe giant cell fibroma (GCF) as a separate entity among fibrous soft tissue lesions of the oral cavity, in the early 1970s.[1] They considered GCF as a fibrous tumor with distinct diagnostic clinicopathological features. GCF represents approximately 2%–5% of all oral fibrous proliferations. GCF was once hypothesized to have a viral etiology; later, stimulus of unknown origin was believed to initiate the lesion.[2] GCF lesion is usually seen in the young with some studies showing female preponderance.[3] Fifty percent of all cases reported were found on the gingiva, mandibular gingiva being affected twice more commonly than maxillary gingiva.[4,5] This case report describes a solitary fibrotic lesion of the maxillary buccal gingiva and its surgical management.

Case Report

A 33-year-old man presented with a growth on the gums of his upper front teeth since childhood. The growth had gradually progressed asymptptomatically to the present size. The medical history was unremarkable. Intraoral examination revealed a solitary, grayish-brown sessile overgrowth on the labial surface of the marginal gingiva of maxillary left lateral incisor (22) measuring about 5 mm × 7 mm with no loss of attachment [Figure 1a]. The lesion was firm and fibrotic with a rough, pebbly surface, and corrugated gingival margin. 22 occluded in crossbite with the fused 31 and 32 and exhibited wear facets suggestive of traumatic occlusion. Radiographic examination did not reveal any associated bony changes [Figure 1b].

We made a provisional diagnosis of irritation fibroma and/or chronic inflammatory enlargement. As the lesion was smaller in dimension and less hemorrhagic, surgical scalpel excision of the entire lesion was planned. Scaling and root planing was done on the first visit. After 1 week, internal bevel gingivectomy using no. 15 BP blade under local anesthesia was done, excising the entire lesion and conforming to the gingival contour [Figure 2a]. The adjoining interdental papilla was trimmed and curetted [Figure 2b]. The patient was prescribed analgesics, to be taken if required. However, after histopathological examination, the lesion was diagnosed as GCF based on light microscopy findings [Figure 3]. On review after 1 week, a stabilized gingival contour with minimal signs of inflammation of adjoining papillae was observed [Figure 2c].

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Fibrous hyperplasias are described as “reactive” rather than neoplastic proliferations of fibroblastic tissue occurring as a result of chronic injury or irritation. They are most commonly seen in the first three decades of life without any gender predilection. They present clinically as an asymptomatic elevated small lesion. These lesions have a “bosselated” or “pebbly” surface. They may be pedunculated or sessile and are found most commonly on the mandibular gingiva. Infrequently, they also occur on the tongue, palate, and buccal mucosa. Unless traumatized while brushing or chewing, they typically have the color of normal mucosa.

Histopathological examination of GCF shows characteristic multiple large stellate-shaped and sometimes multinucleated fibroblasts (giant cells) with large nuclei and thin elongated cytoplasmic processes in a loosely arranged immature avascular fibrous connective tissue. These pathognomonic cells often have a smudged appearance and are most abundant just under the epithelium. Regezi et al. reported that the occurrence of stellate cells depends on the collagen pattern in the lamina propria and that they were concentrated in sites where the submucosa consisted largely of lamina propria. Rare occurrence of this lesion in extraoral sites like in the nose has been reported. However, the lesion was found to differ histologically by the presence of large stellate fibroblasts and have a tendency to recur. Among the various immunohistochemical markers such as cytokeratin, neurofilament, HGF, CD68, HLA-DR, tryptase, leukocyte common antigen, S-100, vimentin, and desmin, the giant fibroblasts showed positivity to only vimentin suggesting a fibroblastic origin. The negative reactivity of giant cells for desmin eliminates the possibility of a myofibroblastic phenotype. Immunostaining with PCNA and Ki-67 reveals negative reactivity with Ki-67, whereas PCNA shows variable expression, suggesting their formation from differentiated mononuclear cells.

Until the early 1970s, GCF was considered to belong to a group of similar lesions referred to as fibromas, fibrous hyperplasias, or fibroepithelial polyps. Although they may share common characteristics, various studies on the clinical and histologic features have enabled the classification of these lesions as a separate pathologic entity. The differential diagnosis includes irritation fibroma, papilloma, pyogenic granuloma, ossifying fibroma, and peripheral giant cell granuloma. The lesion with the most similarity to GCF is the irritation fibroma. It is usually seen in individuals between the ages of 40 and 60 years, with a female predilection. Irritation fibroma usually occurs along the line occlusal plane on the labial/buccal mucosa rather than on the gingiva. However, the provisional diagnosis was considered as the tooth was palatally located compared to the adjacent teeth predisposing the marginal gingiva to constant irritation during tooth brushing.

Chronic inflammatory gingival enlargement occurs as a discrete sessile or pedunculated slow-growing and usually painless overgrowth. It has abundant inflammatory cells and fluid, vascular engorgement, vascular neogenesis, and associated degenerative changes. Lesions that are relatively firm, resilient, and pink have a higher fibrotic component with more of fibroblasts and collagen fibers. In our case, characteristic giant stellate-shaped and spindle-shaped fibroblasts with large nuclei and thin elongated cytoplasmic processes were seen. Differential diagnosis of papilloma may be considered because of the papillary surface of most of the squamous papillomas. The lesion in this report presented only with a corrugated gingival margin. Pyogenic granulomas exclusively occur in areas of inflamed gingiva and are usually associated with compromised oral hygiene and local factors. They may be sessile or pedunculated with surface ulcerations, and the color can range from a purplish-red hue.
to deep blue, depending on the vascularity of the lesion and degree of venous stasis. They usually have a smooth surface, bleed easily, and may later become hyperplastic and nodular. They may develop rapidly to reach their full size. In the present case, the sessile lesion which had developed over a period of years, clinically presented with a gritty surface texture with no signs of spontaneous bleeding.\[13\]

Due to the similarity in the hue, a differential diagnosis of ossifying fibroma may be considered. However, the presence of islands of osteogenic cells within the ossifying fibroma differentiates it from GCF. Unlike GCF, peripheral ossifying fibroma occurs more in females and it is more of a gingival lesion as it is thought to arise from the periodontal ligament. The lesion in our patient was much smaller in dimension when compared to ossifying fibroma.\[11\] Peripheral giant cell granulomas are asymptomatic and hemorrhagic, rapidly growing lesions with a female predilection while the lesion was a slow-growing one in our patient. The tissue surface appeared near-normal with no signs of hemorrhage.\[14\]

GCF does not regress spontaneously because of the excessive collagenous tissue. GCF is best treated by conservative surgical excision and does not usually recur after excision. Periodontal root planing and curettage are also recommended while excising so as to remove any source of irritation. Recurrence has been reported in a few instances following incomplete excision.\[2\] Early recognition and complete excision are necessary to minimize repeated surgical intervention.

Conclusion

All fibrous hyperplasias are relatively innocent lesions. However, histologic examination is required in most cases to rule out a malignancy. These benign lesions may continue to grow unless the source of irritation is removed. It is important to distinguish GCF from other nonneoplastic lesions that could potentially affect developing structures or result in osteolytic lesions. Early diagnosis and treatment of these lesions are necessary to avoid developing unaesthetic soft tissue architecture and the need for extensive periodontal surgical management.

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Conflicts of interest
There are no conflicts of interest.

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