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International Dental Journal of Student's Research

Journal homepage: https://www.idjsronline.com/

Case Report

Clinical encounters of giant cell fibroma: A comprehensive report on two distinct cases, exploring varied clinical presentations

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ARTICLE INFO

Article history:
Received 11-11-2023
Accepted 02-01-2024
Available online 27-01-2024

Keywords:
Giant cell
Gingiva
Stellate fibroblasts
Diagnosis

ABSTRACT

A giant-cell fibroma (GCF) is a benign, localized mucosal mass composed of fibrous tissue that exhibits clinical similarities to other fibro-epithelial growths. Its differentiation from other lesions relies on its distinctive histopathological characteristics. GCF is a rare oral fibrous lesion, often misdiagnosed as other fibrous growths. The first case involves a 24-year-old female with a GCF located near mandibular buccal gingiva. The second case centers on a 14-year-old boy who developed GCF on the incisive papilla region. These cases shed light on the diverse clinical manifestations and histopathological markers used in the diagnosis of GCF. The report delves into the clinical presentation, histological features, and differential diagnoses, offering valuable insights for oral healthcare professionals. Understanding the occurrence of GCF on different aspects of the gingiva is crucial for accurate diagnosis and effective treatment. This report contributes to the growing body of knowledge regarding this rare oral lesion and emphasizes the importance of considering GCF in the differential diagnosis of gingival growths.

1. Introduction

Giant cell fibroma (GCF) is a rare fibrous mucosal mass that contrasts with other types of oral fibrous hyperplasias in an array of ways.[1] Weathers and Callihan made their original observations about GCF in 1974.[2] Overall 279 fibrous hyperplastic lesions that Eversole and Rovin analyzed fell into four categories: pyogenic granuloma, peripheral gingival fibroma, peripheral giant cell granuloma, and peripheral ossifying fibroma.[3] Although histological identification of each of them revealed distinctive characteristics, clinical assessment indicated that they were all indistinguishable.[4] GCF gets its name from the characteristic cells present within the fibrous stroma of the lesion, which are stellate fibroblasts with multi-nucleated giant cells.[5] GCF is commonly encountered in people of the Caucasus in the initial three decades of life with a slight feminine gender predilection.[6] GCF makes up between 2 and 5 percent of all oral fibrous proliferation. Fibrous hyperplasias are often reactive lesions as opposed to neoplastic proliferation.[7] GCF were formerly suspected to be induced by viruses, however this proposition proved unsubstantiated. There is no evidence to suggest a relationship between persistent irritation and GCF etiology, which is still unknown.[8] Clinically, GCF appears as a pedunculated, sessile growth with a papillary surface and normal mucosal hue. On the gingiva, where 50% of cases were discovered, mandibular gingiva was twice as likely to be closely associated as maxillary gingiva.[9] This case report sheds light on two cases of GCF with diverse clinical appearances, which could possibly be misdiagnosed as any other reactive mucosal lesion.

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https://doi.org/10.18231/j.idjsr.2023.039

2. Case Report

2.1. Case 1

A 24-year old dravidian woman complained of a growth in the lower left back region of the mouth since 1 year. Patient gave no history of pain or discomfort, and was only concerned due to the slow progressive increase in size of the growth. On further questioning patient revealed history of similar growth approximately 2 years back involving the similar region which was removed from a private clinic. Patient was moderately built and nourished while being well oriented to time, place and person. On intra-oral examination, A solitary, well-defined, round to ovoid shaped, exophytic overgrowth seen at the marginal and attached gingiva of 36 approx measuring 0.5×0.5cm in size appears to be sessile, extending antero-posteriorly from mesial aspect of 36 to distal aspect of 36. Overlying mucosa appears pearly white, smooth and intact, with surrounding areas appearing to be normal. No carious lesions involving 36 was noted. On palpation, the growth was noted to be firm in consistency, non-tender, non-compressible, non-pulsatile, non-fluctant on palpation. The growth was confirmed to be pedunculated by passing a probe underneath it. No discharge, bleeding or secondary changes seen on palpation. Provisional diagnosis of Peripheral ossifying fibroma was given with differential diagnosis of Fibrous odontogenic tumor and Focal reactive overgrowth. Radiographic examination revealed no areas of ossification on periapical and occlusal radiography. Hematologic and serologic investigations were carried out revealing no abnormalities and surgical excision was carried out using scalpel under local anesthesia, and tissue specimen was sent for histopathologic evaluation which revealed parakeratinized stratified squamous epithelium and large, stellate shaped fibroblasts exhibiting short dendritic processes and some showed multiple nuclei surrounded by a retraction space were seen in the superficial connective tissue.

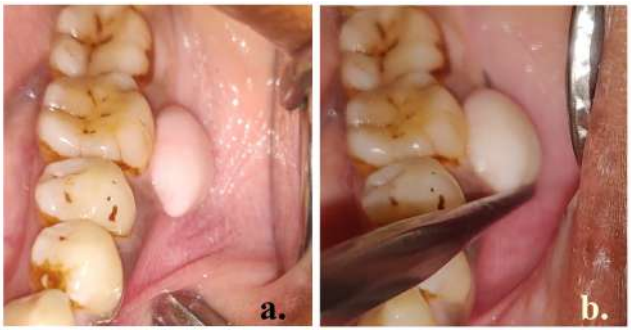

Figure 1: a): Solitary pearly white dome shaped exophytic growth at the attached gingiva of 36; **b):** Passage of probe through the inferior aspect showing pedunculated nature of growth

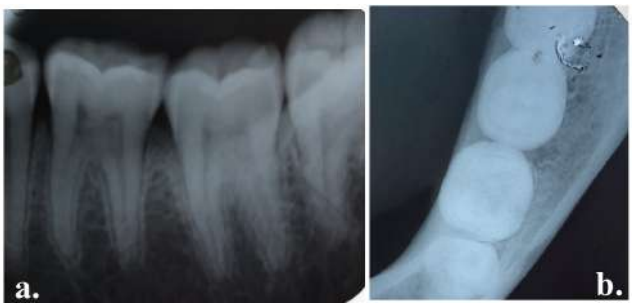

Figure 2: a): No evidence of ossification or opacities and caries on IOPA of 36; **b**): Mandibular lateral occlusal radiography showing no ossification on buccal aspect of 36

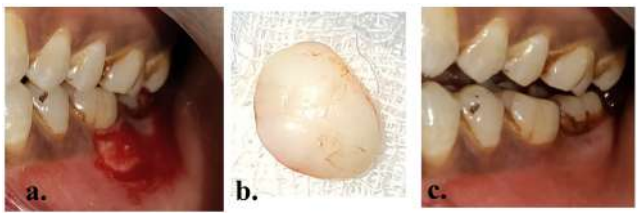

Figure 3: a): Post excision site of 36; **b):** Excised specimen of pearly white growth; **c)**: Follow-up after 6 months with no evidence of recurrence

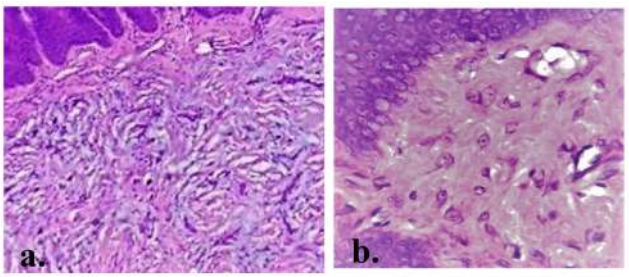

Figure 4: a): Photomicro graph showing scattered pleomorphic giant cells seen along with stellate-shaped cells in myxoid areas (x10, hematoxylin and eosin staining; **b**): Photomicro graph showing scattered pleomorphic giant cells seen along with stellate-shaped cells in myxoid areas (x40, hematoxylin and eosin staining

2.2. Case 2

A 14-year old Dravidian boy complained of swelling in the back region of upper front teeth of the mouth since 3-4 years. Patient gave no history of pain only discomfort while having food, and was only concerned due to alteration of speech due to slow but consistent increase in size of the growth. Patient also gave no history of trauma while brushing or mastication of food, or prior history of growths. Patient was moderately built and nourished while being well oriented to time, place and person. On intra-oral examination revealed a solitary, sessile, nodular, heart shaped, pale pinkish growth is seen on the palatal aspect of 11, 21 approximately measuring 0.8×0.8cm,

extending antero-posteriorly from cingulum level of 11, 21 till the incisive papilla obscuring it, and medio-laterally extending from the distal surface of 21 to distal surface of 11. Overlying surface appears to be irregular and roughened and surrounding mucosa appears to be normal. On palpation, the growth was noted to be firm to hard in consistency, non-tender, non-compressible, non-pulsatile, non-fluctant on palpation. The growth was confirmed to be pedunculated. Functional interference was noted on occlusion. No discharge, bleeding or secondary changes seen on palpation. Provisional diagnosis of Irritational fibroma was given with differential diagnosis of Peripheral ossifying fibroma, inflammatory papillary hyperplasia and Benign Tumor of Neural Origin? Radiographic examination revealed no areas of ossification on periapical and occlusal radiography. Hematologic and serologic investigations were carried out revealing no abnormalities and surgical excision was carried out using scalpel under local anesthesia, and tissue specimen was sent for histopathologic evaluation which revealed stratified squamous epithelium covering the fibrous connective tissue. Epithelium is parakeratinized with thin & elongated rete ridges partly showing prominent granular layer. Focal area of underlying connective tissue shows partially circumscribed dense fibrosis with lesional cells exhibiting, stellate shaped fibroblasts like appearance, scattered inflammatory cells & few blood capillaries.

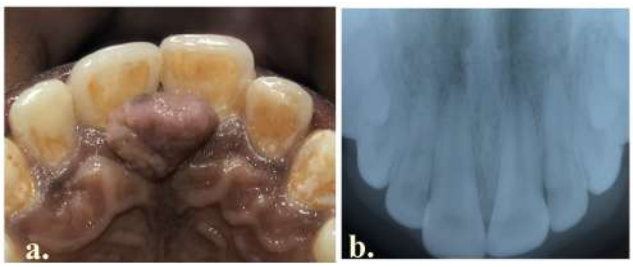

Figure 5: a): Solitary nodular heart shaped exophytic growth at the incisive papilla region of 11, 21; **b)**: Maxillary anterior occlusal radiography showing no evidence of ossification or caries

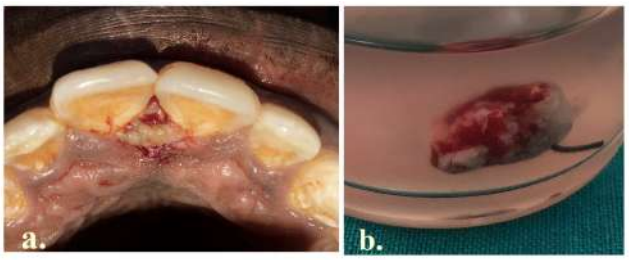

Figure 6: a): Post excision site of palatal aspect of 11, 21; **b**): Excised specimen of over growth

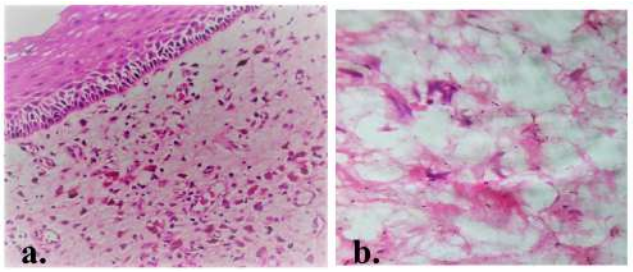

Figure 7: a): Photomicrograph showing parakeratinized stratified squamous epithelium with celluar connective tissue stroma comprising of stellate-shaped cells (x10, hematoxylin and eosin staining; **b**): Photomicrograph showing g giant fibroblasts with stellate shape and some contains tow nuclei (x40, hematoxylin and eosin staining

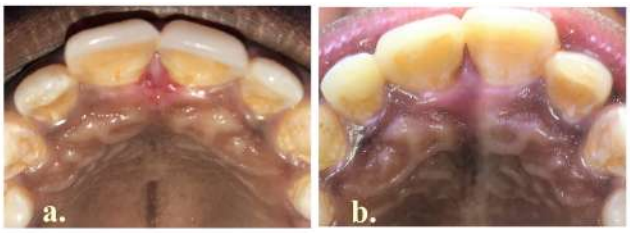

Figure 8: a): Follow-up after 1 week; **b**): Follow-up after 6 months showing no recurrence

3. Discussion

Both clinical and histological features play a crucial role in making a final diagnosis of lesions, as shown in this case report and in diagnosing lesions in general.[1] Several distinctions can be made between a diverse array of fibrous hyperplasia having shared similar histology dependent on characteristics like age distribution, gender predilection, location and its etiology.[5,8] The most common diagnosis of these is irritation fibroma, a reactive lesion, but GCF, its histopathological form, is a rare entity.[10] While GCF, unlike other fibrous overgrowths, appear benign despite having the peculiarly manifest giant fibroblasts in the stroma, their clinical presentation and histology are the same as the vast bulk of non-neoplastic lesions in the oral cavity.[11] According to multiple reports, the etiology of GCF suggests that minor trauma can induce the lesion to develop, and that it is marked by functional changes in fibro-blastic cells.[12] Histopathological examination of GCF reveals distinctive multiple large stellate-shaped and occasionally multi-nucleated fibroblasts sparsely arranged in a fibrous connective tissue with large nuclei and thin elongated cytoplasmic processes.[6] It is most pervasive for these pathognomonic cells to appear tainted and to be situated just underneath the epithelium.[13] The abundance of stellate cells were observed in gingival and palatal oral lesions, according to Regezi JA et al., and their presence

is reliant on the collagen pattern in the lamina propria.[14] Lesions with a relatively high fibrotic component and more fibroblasts and collagen fibers are generally firm, robust, and pink.[9] The provisional and differential diagnosis of peripheral ossifying fibroma and fibrous odontogenic tumor respectively was coined due to the firmness and pale pearly white coloration of the lesion in case one while the provisional and differential diagnosis of irritational fibroma and inflammatory papillary hyperplasia, was given due to the inadvertent location which is prone to trauma and close proximity to incisive papillae which contains vascular and neural components. Due to the immense collagenous tissue, GCF does not innately regress.[15] One of most effective method of therapy for GCF is conservative surgical excision, which very seldom results in recurrence,[4–6] but in our case one history of recurrence was noted hence thorough debridement and soft tissue curettage is advised to remove further scope of recurrence. To mitigate the necessity of ancillary surgical intervention, early intervention and comprehensive excision are crucial.[9,15] Diode laser excisions seems to be an effective technique for maintaining the integrity of tissue specimens due to their many potential advantages, which include high patient acceptance, while further studies are needed to understand the influence of various laser configurations on tissue microstructure.

4. Conclusion

Mostly in course of everyday normal dental practice, considerable fibrous lesions are encountered. Despite being rare GCF are frequently seen among children and young adults. However, dentists should be aware of its existence in varied aspects of gingiva and diverse appearances, making it cumbersome to diagnose merely based on clinical findings. Thus, an accurate histopathological examination is vital to make a correct diagnosis of this rare entity.

5. Source of Funding

None.

6. Conflict of Interest

None.

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Cite this article: Ramesh S, Ramdurg P, Srinivas N, Amaran EGYN, Puranik SR. Clinical encounters of giant cell fibroma: A comprehensive report on two distinct cases, exploring varied clinical presentations. *International Dental Journal of Student's Research* 2023;11(4):186-189.