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Case Report

Rare Hyalinized Variant of Oral Fibroepithelial Lesion: Case Report and Review of the Literature

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Rare Hyalinized Variant of Oral Fibroepithelial Lesion: Case Report and Review of the Literature

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Abstract

Benign fibroepithelial lesions of the oral cavity, commonly referred to as irritation fibroma, traumatic fibroma, or focal fibrous hyperplasia, represent reactive proliferations arising in response to chronic tissue injury. While their clinical and histopathological features are well established, hyalinized variants are exceptionally rare and sparsely documented in the literature. Here, we present a case of a hyalinized fibroepithelial lesion of the oral mucosa, initially presenting as a nonspecific pedunculated nodular mass. The lesion was surgically excised, and histopathological examination revealed dense collagen deposition with prominent hyalinization, confirming the diagnosis. A brief review of previously reported cases is also provided to highlight the diagnostic challenges and clinical implications of this unusual histological presentation. This report underscores the importance of considering hyalinized variants in the differential diagnosis of oral soft tissue lesions and reaffirms surgical excision with elimination of irritative factors as the treatment of choice.

Keywords: Hyalinization, Hyperplasia, Irritation fibroma, Traumatic fibroma.

Özet

Ağız boşluğunun iyi huylu fibroepitelyal lezyonları, genellikle irritasyon fibromu, travmatik fibrom veya fokal fibröz hiperplazi olarak adlandırılır ve kronik doku hasarına yanıt olarak ortaya çıkan reaktif proliferasyonları temsil eder. Klinik ve histopatolojik özellikleri iyi bilinmesine rağmen, hyalinize varyantları son derece nadirdir ve literatürde çok az sayıda vaka bildirilmiştir. Burada, başlangıçta nonspesifik sapslı nodüler kitle olarak ortaya çıkan oral mukozanın hyalinize fibroepitelyal lezyonu olan bir vaka sunuyoruz. Lezyon cerrahi olarak eksize edildi ve histopatolojik inceleme, belirgin hyalinleşme ile yoğun kollajen birikimi olduğunu ortaya koyarak tanıyı doğruladı. Bu olağandışı histolojik bulgunun tanısal zorluklarını ve klinik sonuçlarını vurgulamak için daha önce bildirilmiş vakaların kısa bir özeti sunulmuştur. Bu rapor, oral yumuşak doku lezyonlarının ayırıcı tanısında hyalinize varyantları dikkate almanın önemini vurgulamakta ve tercih edilen tedavi olarak irritan faktörlerin ortadan kaldırılmasıyla birlikte cerrahi eksizyonu yeniden teyit etmektedir.

Anahtar kelimeler: Hiperplazi, Hyalinizasyon, İrritasyon fibroması, Travmatik fibroma.

Introduction

Benign hyalinized fibroepithelial lesion, also referred to in the literature as focal fibrous hyperplasia, irritation fibroma, or traumatic fibroma, represents a reactive connective tissue hyperplasia (1). Although it may occur at any age, it is most frequently observed in older adults, with a reported prevalence of 1–2%. The lesion develops as a localized response to chronic tissue injury, characterized by fibroblast proliferation and subsequent collagen deposition leading to an increase in tissue volume. Among the most common etiological factors in the oral cavity are chronic irritations such as lip and cheek biting, ill-fitting denture borders, overcontoured restorations, and dental calculus (2).

Clinically, these lesions usually present as sessile nodular masses with a smooth surface, mucosa-colored or yellowish-white in appearance, asymptomatic, and soft in consistency. Repeated trauma may lead to surface changes including hyperkeratosis or ulceration. The most frequent site of occurrence is the occlusal plane of the buccal mucosa exposed to masticatory trauma, although the lower lip, tongue, hard palate, and edentulous alveolar rid-

ges may also be affected. Histologically, they are characterized by dense, collagenous connective tissue covered by variable degrees of stratified squamous epithelium (1,3). The differential diagnosis includes pyogenic granuloma (PG), peripheral giant cell granuloma (PGCG), and peripheral ossifying fibroma (POF) (4).

Although they lack neoplastic potential, such lesions are common in dental practice and may adversely affect patient comfort and oral function. The mainstay of treatment is complete surgical excision in conjunction with elimination of the underlying sources of irritation (5).

The present case report describes a benign fibroepithelial lesion that was initially not considered within this category, but was ultimately identified through histopathological examination by the presence of hyalinization — a rarely reported finding in the literature. The aim is to contribute to the existing knowledge on its diagnosis, management, and prognosis.

Case Report

Case Presentation

A 47-year-old female patient presented to the Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, XXX University, for a routine dental examination. Medical history revealed that the patient had asthma.

Clinical and Radiological Findings

Intraoral examination revealed a pedunculated, erythematous lesion located in the vestibular gingiva of the right mandibular lateral incisor and canine region, extending beyond the mucogingival junction (Figure 1).

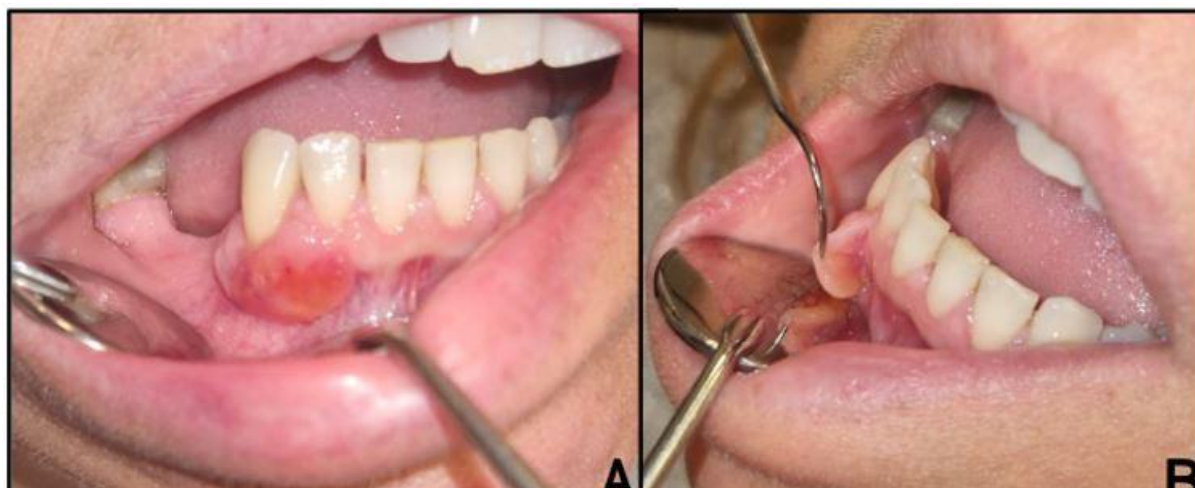


Figure 1. Intraoral image of the lesion during the diagnostic evaluation

A panoramic radiograph taken during the routine examination showed no abnormalities in the related region (Figure 2).



Figure 2. Panoramic radiograph obtained during routine examination

The patient was unaware of the lesion and reported no pain or discomfort, and therefore the exact onset of the lesion could not be determined. Although partial edentulism was observed, the patient did not use any prosthetic appliances. Further history revealed no deleterious oral habits such as nail biting, holding objects like pens or straws in the mouth, or aggressive tooth brushing. Based on the clinical features, a provisional diagnosis of peripheral giant cell granuloma or pyogenic granuloma was made, and the patient was referred to the Department of Periodontology for biopsy.

Surgical Procedures

The patient was informed about the lesion, the proposed treatment, and possible risks, benefits, and alternatives. Written informed consent was obtained for treatment and for the publication of this case report to contribute to the existing literature.

As an initial step, oral hygiene instruction and phase I periodontal therapy were performed to reduce local inflammation and allow the lesion to become more fibrotic in appearance (Figure 3A, B).

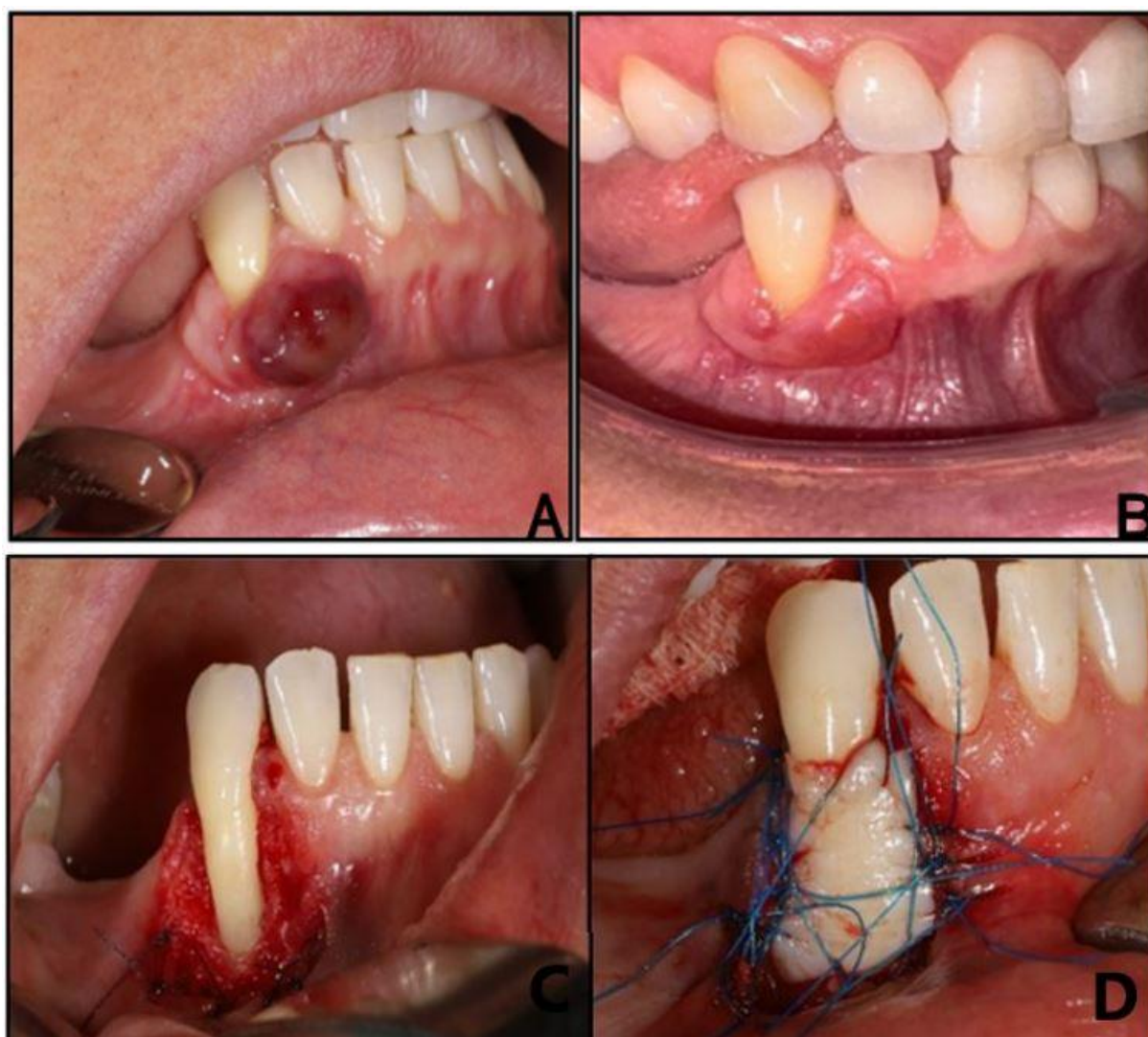


Figure 3 A–D. Images documenting the initial treatment and surgical procedure. (A) Before phase I periodontal therapy (B) After oral hygiene instruction and completion of phase I periodontal therapy (C) Exposed root surface following biopsy (D) Free ging graft secured to the recipient site

Subsequently, excisional biopsy was performed under local anesthesia, and the lesion was completely removed. The excised specimen was placed in a formalin container and sent for histopathological evaluation. Following the excision, a free gingival graft procedure was planned to cover the exposed root surface and to increase the width of keratinized gingiva in the region (Figure 3C). Root planing of tooth #43 was performed using a Gracey 5/6 curette. A free gingival graft measuring approximately 1.5 mm in thickness and 7 × 15 mm in size was harvested from the maxillary right palatal donor site under local anesthesia. The graft was adapted to the recipient site and stabilized with 5/0 monofilament sutures, and a pressure suture was applied to enhance stability. Hemostasis of the donor site was achieved with Spongostan, which was subsequently closed with 3/0 silk sutures (Figure 3D).

Histopathological Characteristics

The excised tissue consisted of two fragments measuring $1.2 \times 0.8 \times 0.2$ cm and $0.7 \times 0.5 \times 0.3$ cm, respectively, with a brownish-cream appearance. Histopathological examination revealed hyperplastic stratified squamous epithelium overlying subepithelial connective tissue exhibiting marked hyalinization, small vascular structures, and mild lymphocytic infiltration. CD34 immunostaining showed endothelial expression, while Ki-67 was within normal limits. No accumulation was detected with PAS-AB or Congo red staining. The morphological features were not specific for pyogenic granuloma and were consistent with a benign hyalinized fibroepithelial lesion (Figure 4).

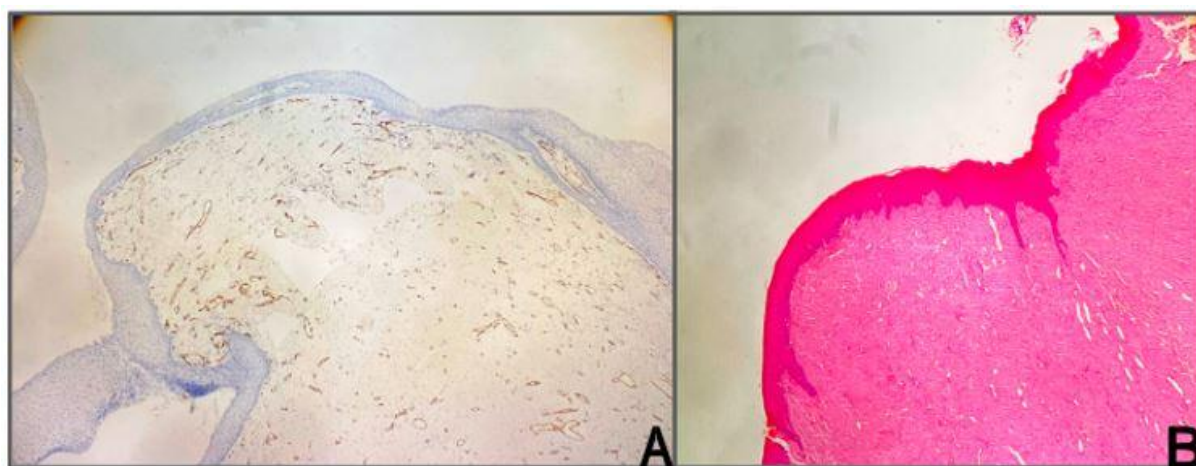


Figure 4 A, B. Histological images. (A) A fibroepithelial polyp with benign hyperplastic stratified squamous epithelium overlying a hyalinization-rich fibrovascular stroma is observed (Hematoxylin & Eosin, $\times 100$) (B) Immunohistochemical staining shows CD34, $\times 100$).

Differential Diagnosis and Diagnostic Challenges

In this case, the lesion was initially misdiagnosed as a peripheral giant cell granuloma or pyogenic granuloma due to its clinical presentation. The pedunculated, erythematous nodular appearance, along with the absence of pain and the relatively small size, closely resembled these common reactive lesions, making initial misdiagnosis plausible. The rarity of hyalinization in fibroepithelial lesions and the unusual location on the attached gingiva further contributed to the diagnostic challenge.

Histopathological examination ultimately clarified the diagnosis. The presence of marked subepithelial hyalinization, combined with the absence of features specific to pyogenic granuloma (such as lobular capillary proliferation) or peripheral giant cell granuloma (such as multinucleated giant cells), allowed for accurate identification. CD34 expression confirmed

normal endothelial structures, while Ki-67 proliferation index was within normal limits, ruling out neoplastic processes. This underscores the importance of histopathology in differentiating rare variants from more common reactive lesions.

Postoperative Follow-up and Treatment Outcomes

The patient was informed about the postoperative instructions. A chlorhexidine gluconate spray was prescribed to be applied three times a day for two weeks on the surgical site. In addition, ketoprofen 100 mg was prescribed for systemic analgesic effect. The patient was recalled after 14 days for suture removal. During examination, erythema was observed in the surgical area due to insufficient oral hygiene caused by the sutures, and the patient received repeated oral hygiene instructions (Figure 5A,B).

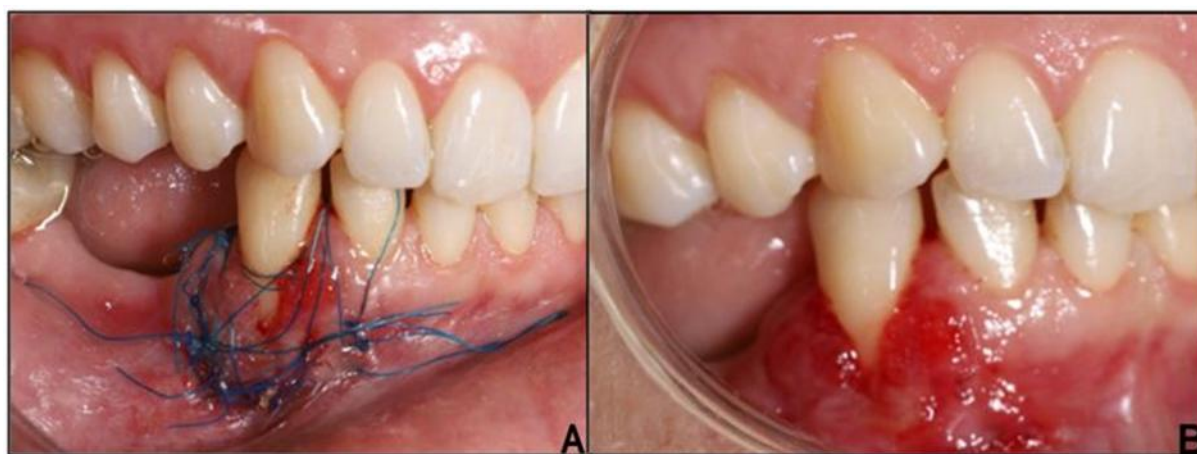


Figure 5 A, B. Fourteenth-day follow-up before and after suture removal.

The patient was followed up at 1, 3, and 6 months postoperatively, with no evidence of recurrence (Figure 6).



Figure 6 A–C. Postoperative follow-up. (A) One-month postoperative follow-up (B) Three-month postoperative follow-up (C) Six-month postoperative follow-up.

Postoperative gingival recession had largely resolved, and adequate keratinized gingival tissue was achieved, demonstrating that the treatment met the desired clinical outcomes.

Discussion

Compared to commonly encountered fibroepithelial lesions in the oral cavity, the hyalinized variant is extremely rare. Therefore, the present case represents a significant contribution to the literature, filling a gap and providing a different perspective on the differential diagnosis. Previous studies have shown that fibroepithelial lesions most frequently occur between the third and fifth decades of life (6). Consistent with these findings, the lesion in the present case appeared in a patient during the fifth decade of life. In the case report published by Samudrawar et al. (7) in 2017, the patient was 42 years old, whereas Asundari and Tavargeri (8) reported a hyalinized fibroepithelial lesion in an 11-year-old patient.

Mortazavi et al. (9), in their study on exophytic oral lesions, reported that traumatic fibromas occur more frequently in women. Although the present case occurred in a female patient, most previously reported cases of hyalinized fibroepithelial lesions involved male patients.

Another remarkable feature of this case is the lesion's location, which does not correspond to the sites most frequently reported in the literature. Whereas these lesions are typically found on the buccal mucosa or lower lip (1), the current lesion was observed on the attached gingiva, making this presentation noteworthy. Additionally, the absence of deleterious oral habits and the lack of significant calculus deposition suggest that typical predisposing factors for fibroepithelial lesion development were not present, complicating the diagnostic process (2). Furthermore, histopathological examination revealed stromal hyalinization, a feature that has been reported only rarely; to the authors' knowledge, only two previously published case reports have explicitly mentioned hyalinization (7,8).

Hyaline is a pale, glassy, acellular material, generally rich in protein, and stains eosinophilic in histological preparations. Hyaline degeneration is characterized by the accumulation of eosinophilic plaques, bands, or rounded masses in the extracellular tissue. Hyalinization is defined as the deposition of a homogeneous material that can be intensely stained with acidic dyes and is considered a product of interactions between cellular and extracellular matrix components (10-12). In pathological lesions, the hyalinized stroma undergoes biochemical alterations, which may influence the biological behavior of neoplastic lesions. It often appears

as a manifestation of degenerative changes in lesions of prolonged duration. In many odontogenic lesions, it develops as a result of interactions between epithelial and mesenchymal tissues. It has been suggested that abnormal accumulation of basal membrane material synthesized by tumor cells may contribute to hyalinization. Furthermore, the hyalinized stroma contains glycosaminoglycans, hyaluronic acid, and proteoglycans, and the excessive presence of these components may play a role in more aggressive biological behavior observed in certain lesions (13-15).

In conclusion, the initial misdiagnosis was understandable due to the clinical similarity to more common reactive lesions, the absence of typical predisposing factors, and the lesion's unusual anatomical location. This case emphasizes that careful histopathological evaluation, with particular attention to rare features such as stromal hyalinization, is crucial for accurate diagnosis and appropriate management of fibroepithelial lesions in the oral cavity. Furthermore, it underscores the broad clinical and histopathological spectrum of these lesions, highlighting the educational value for clinicians by raising awareness of atypical presentations. Reporting such rare variants can improve clinical decision-making, guide treatment planning, enhance patient outcomes, and contribute meaningfully to the existing literature.

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