RESEARCH PAPER

Surgical Management of Bilateral Denture-Induced Inflammatory Fibrous Hyperplasia Using Scalpel Excision with Adjunctive 940-nm Diode Laser: A Case Report

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ABSTRACT

Rationale: Denture-induced inflammatory fibrous hyperplasia (IFH), clinically referred to as epulis fissuratum, is a reactive soft tissue lesion caused by chronic mechanical irritation from ill-fitting or overextended dental prostheses. Bilateral presentation is uncommon and reflects prolonged, symmetrical trauma. Surgical excision with elimination of the etiological factor remains the treatment of choice. **Patient Concerns:** A 55-year-old female denture wearer presented with progressively enlarging, painless soft tissue overgrowths in the maxillary anterior vestibular region for three months, associated with discomfort during mastication and speech. **Diagnosis:** Clinical examination revealed bilateral, sessile, firm fibrous masses in the maxillary labial vestibule corresponding to the denture flange. Based on clinical findings, a provisional diagnosis of denture-induced inflammatory fibrous hyperplasia was made and later confirmed by histopathological evaluation. **Interventions:** The lesions were surgically excised under local anesthesia using a scalpel for precise removal and preservation of tissue architecture. A 940-nm diode laser was used adjunctively to achieve hemostasis. Histopathological analysis demonstrated parakeratinised stratified squamous epithelium overlying a fibrocellular connective tissue stroma with chronic inflammatory infiltrate. The ill-fitting denture was discontinued, and prosthetic rehabilitation was planned following healing. **Outcomes:** Postoperative healing was uneventful, with satisfactory soft tissue resolution and no evidence of recurrence during the follow-up period.

Lessons: This case highlights the importance of early diagnosis and correction of prosthetic etiological factors in denture-induced reactive lesions. A combined scalpel and diode laser approach offers precise excision, superior hemostasis, and favorable healing outcomes, particularly in extensive bilateral IFH.

Keywords: Fibrous hyperplasia, Epulis fissuratum, Diode laser, Scalpel excision, Ill-fitting denture

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INTRODUCTION

Inflammatory hyperplastic lesions of the oral cavity represent reactive proliferations of connective tissue resulting from chronic local irritation or trauma.

Common etiological factors include dental calculus, foreign bodies, overhanging restorations, chronic biting habits, bony spicules, and ill-fitting or overextended dental prostheses. When such reactive fibrous overgrowth is induced by continuous mechanical irritation from a denture flange, particularly in the vestibular region, the lesion is termed epulis fissuratum, a clinical variant of inflammatory fibrous hyperplasia (IFH).[1]

Epulis fissuratum is a benign, non-neoplastic fibroblastic proliferation arising as a protective tissue response to persistent low-grade trauma. Clinically, it presents as a painless, firm, pink to flesh-colored exophytic fold of tissue, often with a fissure corresponding to the denture flange. Lesions may be unilateral or bilateral, depending on the extent and symmetry of prosthetic overextension.

Bilateral presentation is relatively uncommon and reflects prolonged, symmetrically distributed mechanical irritation. If left untreated, extensive lesions may lead to soft tissue distortion, compromised oral function, and difficulties in prosthetic rehabilitation. Complete surgical excision combined with elimination of the etiological factor remains the treatment of choice to prevent recurrence.[2] This case report describes an extensive bilateral epulis fissuratum managed using a combined scalpel and diode laser approach.

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CASE REPORT

A 55-year-old systemically healthy female presented with swelling and soft tissue overgrowth in the maxillary anterior region, gradually increasing over three months and associated with discomfort during mastication and speech. Dental history revealed the use of a maxillary removable partial denture for six years.

CLINICAL EXAMINATION

Intraoral examination revealed bilateral, sessile, firm, non-tender fibrous overgrowths involving the labial vestibule of the maxillary anterior region (Figure 1). The lesion on the right side extended from the maxillary lateral incisor to the distal aspect of tooth 14 and measured approximately 12 × 10 mm, while the left-sided lesion extended from the maxillary lateral incisor to the second premolar, measuring approximately 20 × 12 mm. The denture flange was overextended and impinging on the vestibular mucosa.

Figure 1: Intraoral view of the Bilateral lesion

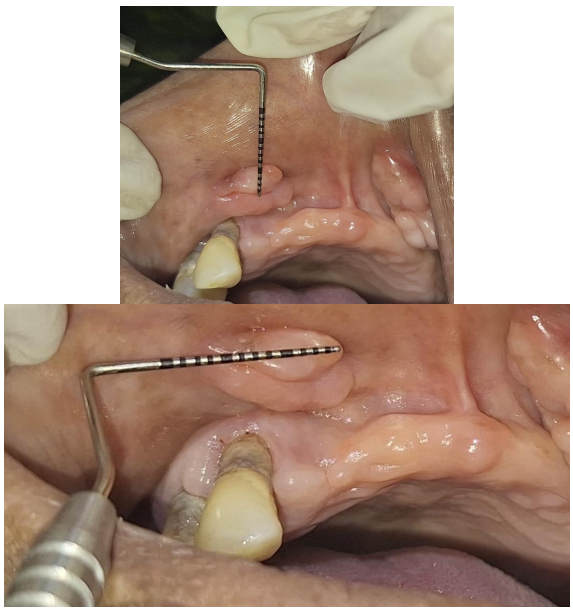

Fig. 2(a, b): Measurements on the Right side

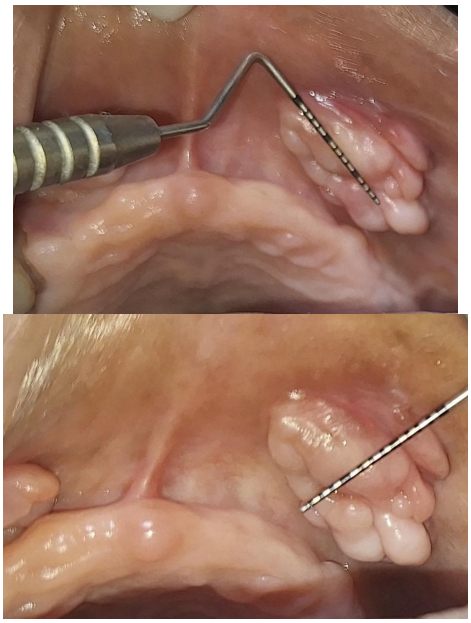

Fig 3 : Measurements on the left side

DIFFERENTIAL DIAGNOSIS

Differential diagnoses included denture-induced inflammatory fibrous hyperplasia, irritation fibroma, peripheral giant cell granuloma, and pyogenic granuloma. Pyogenic granuloma was considered unlikely due to the absence of bleeding or ulceration. Peripheral giant cell granuloma was ruled out owing to the lack of discoloration and bone involvement. Although irritation fibroma was considered, the bilateral vestibular location and clear association with an overextended denture flange favored a diagnosis of denture-induced IFH, later confirmed histopathologically.[3]

Fig. 4: Excision of fibroma on the right side

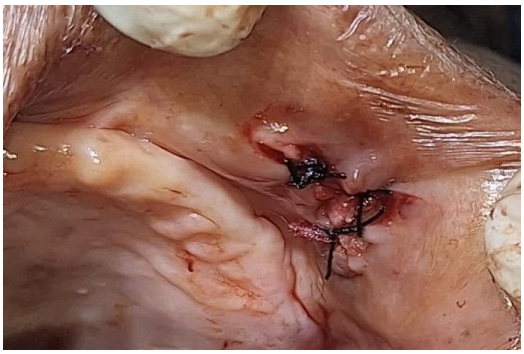

Fig.5: Excision of fibroma on the left side with sutures placed

MANAGEMENT

Histopathological examination revealed parakeratinised stratified squamous epithelium overlying a fibrocellular connective tissue stroma with dense collagen bundles, fibroblasts, chronic inflammatory cell infiltrate, and vascular proliferation, confirming the diagnosis of denture-induced inflammatory fibrous hyperplasia (Figure 8). Sutures were removed after seven days. Follow-up at 14 and 21 days demonstrated uneventful healing with no evidence of recurrence (Figures 6,7)

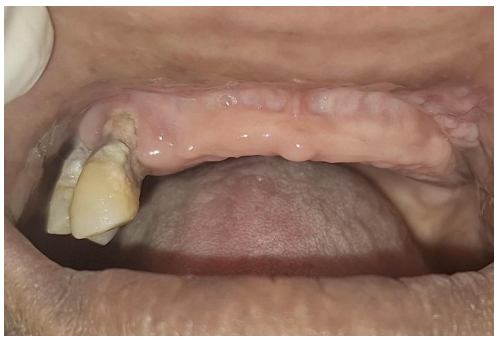

Fig 6: Healing after 14 days

Fig 7: Healing after 21 days

Fig 8: Histopathological slide

SECTION HISTOPATHOLOGICAL FINDINGS AND FOLLOW-UP

The excised tissue was preserved in 10% neutral buffered formalin and submitted for histopathological examination. Hematoxylin and eosin–stained sections revealed parakeratinised stratified squamous epithelium overlying a fibrocellular connective tissue stroma with dense collagen bundles, numerous fibroblasts, chronic inflammatory cell infiltrate, and areas of vascular proliferation (Figure 8). These findings confirmed the diagnosis of denture-induced inflammatory fibrous hyperplasia.

Sutures were removed on the seventh postoperative day, and satisfactory healing was observed. Follow-up visits at 14 and 21 days demonstrated uneventful healing with no evidence of recurrence (Figure 6,7).

PROSTHETIC MANAGEMENT

To eliminate the etiological factor, the existing denture was discontinued postoperatively. After complete soft tissue healing, fabrication of a new maxillary removable denture was planned. Accurate border molding and flange contouring were performed to prevent vestibular impingement. The labial flange was shortened, and pressure-indicating paste was used to identify and relieve areas of excessive pressure, ensuring optimal adaptation and reducing the risk of recurrence.

DISCUSSION

Inflammatory fibrous hyperplasia, clinically termed epulis fissuratum when associated with denture flanges, is a reactive lesion caused by chronic mechanical irritation from ill-fitting prostheses.[4] Unlike inflammatory papillary hyperplasia, which involves the palatal mucosa, IFH primarily affects the vestibular region along the denture flange, as observed in the present case.

Although IFH commonly presents unilaterally, bilateral lesions indicate long-standing, symmetrical trauma. Epidemiological studies report varying prevalence rates, with Ettinger reporting approximately 14% among maxillary denture wearers and Gual-Vaqués et al. reporting 4.43%.[5,6] In the present case, absence of tobacco use supports mechanical irritation as the primary etiological factor.

Histopathological features include stratified squamous epithelium overlying a fibrocellular connective tissue stroma with chronic inflammatory infiltrate, consistent with the

findings in this case.[7] Management requires complete excision and elimination of the causative factor to prevent recurrence, which has been reported in 8–20% of cases.[8]

While scalpel excision remains the gold standard for precise removal and histological evaluation, adjunctive use of diode lasers offers superior hemostasis, improved surgical visibility, and favorable postoperative healing. The 940-nm diode laser used in this case contributed to effective intraoperative bleeding control and uneventful healing.[9]

CONCLUSION

This case highlights the importance of early diagnosis and correction of prosthetic etiological factors in denture-induced inflammatory fibrous hyperplasia. Management using a combined scalpel and diode laser approach enabled precise excision, effective hemostasis, and satisfactory healing, emphasizing its clinical utility in extensive bilateral lesions.

Declaration of patient consent

The patient provided informed consent for publication of data and images, with confidentiality maintained.

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None.

Conflicts of interest

None declared

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