Case Series

Dual Approach to Traumatic Fibroma Removal: A Case Series Evaluating Scalpel and Diode Laser Surgical Methods

ABSTRACT

Aims:
To compare the clinical outcomes of conventional scalpel excision and diode laser ablation in the management of traumatic fibroma.

Presentation of Case:
This report presents two cases of traumatic fibroma treated using different surgical modalities. In Case 1, a traumatic fibroma was excised using a conventional scalpel technique, resulting in complete lesion removal with satisfactory healing at 15 days and no recurrence at one-month follow-up. In Case 2, excision was performed using an 880-nm diode laser, which provided excellent intraoperative haemostasis, minimal patient discomfort, and rapid postoperative healing without scarring within eight days. Histopathological examination in both cases confirmed the diagnosis of traumatic fibroma.

Discussion:
Both treatment modalities were effective in achieving complete lesion removal. However, diode laser excision demonstrated superior clinical advantages, including better haemostasis, reduced postoperative discomfort, and faster wound healing compared to conventional scalpel excision.

Conclusion:
While both scalpel and diode laser techniques are effective for the management of traumatic fibroma, diode laser excision offers enhanced clinical efficiency and patient comfort, making it a valuable alternative for soft-tissue lesion management.

Keywords: Traumatic fibroma, Irritation fibroma, Diode laser, Scalpel excision, Soft-tissue surgery.

1. INTRODUCTION

Traumatic fibroma, also known as irritation fibroma or focal fibrous hyperplasia, is a frequently observed benign lesion of the oral soft tissues. It represents a reactive hyperplasia of fibrous connective tissue rather than a true neoplasm, and typically develops as a chronic response to low-grade mechanical irritation or trauma such as lip/cheek biting, sharp teeth, dental prostheses, or orthodontic appliances.[1,2] The lesion usually appears as a smooth, dome-shaped nodule that is similar in color to the adjacent mucosa, although

variations such as pallor or hyperpigmentation may occur due to keratinization or previous hemorrhage[3]. Traumatic fibromas most often occur on the buccal mucosa along the occlusal line but may also present on the lips, tongue, and gingiva.[4] The lesion has more middle-aged predilection. One of the advantages of this lesion is that appropriate treatment typically results in healing without postoperative scarring. Oral fibromas exhibit slow growth over weeks to months and generally measure around 1 cm at their largest, though the size can differ depending on the case. A provisional diagnosis can be made based on characteristic clinical features observed during examination. However, definitive diagnosis and exclusion of other lesions require biopsy of the tissue. Histopathological analysis typically demonstrates dense, collagenous fibrous tissue with sparse cellularity, while the overlying epithelium may be ulcerated, atrophic, or hyperplastic.[5] Neurofibroma, myxoma, lipoma, and pleomorphic adenoma are differential diagnoses of traumatic fibroma. Complete surgical excision is the primary treatment modality for the lesion. Alternative treatment options include cryosurgery and intralesional corticosteroid injections, which may be employed in selected cases. Proper blood investigations are essential before initiating the treatment plan. The recurrence is rarely seen after complete excision.[6] This case series evaluates both conventional scalpel excision and diode laser ablation in the management of a traumatic fibroma, highlighting the clinical benefits and limitations of each technique.

2. CASE PRESENTATION

This series involves two cases of traumatic fibroma associated with buccal mucosa and retromolar area, which were treated with surgical intervention and diode laser ablation respectively, reported with functionality issues during speech and mastication.

2.1 Case 1

A 19-year-old male reported to the department of oral medicine and radiology with the chief complaint of soft tissue growth over the left buccal mucosa of the mouth gradually increasing over 10 years following trauma while chewing. No significant medical history was present. Intraoral examination revealed a smooth, greyish-brown painless sessile mass with a white patch on the left buccal mucosa, approximately 1.0 × 0.5 cm in size, soft to firm in consistency, non-tender, and not fixed to the underlying tissues, as shown in Figure 1.

FIGURE 1: Pre-operative view showing traumatic fibroma associated with left buccal mucosa.

Based on the clinical presentation and patient history, a provisional diagnosis of traumatic fibroma was established. Possible differential diagnoses included lipoma, mucocele, and neurofibroma. The patient was advised for the surgical removal of the lesion and counselling for cheek biting is done. Routine hematological investigations were within normal limits. After explaining the surgical procedure, informed consent was obtained. An excisional biopsy under local anesthesia using a scalpel was performed, hemostasis was achieved and sutures were placed as appreciated in Figure 2. The removed tissue was sent for histopathological analysis (Figure 3).

FIGURE 2: Surgical excision of traumatic fibroma was done by using a scalpel and sutures were placed

FIGURE 3: An excised lesion specimen was sent for histopathological examination

Histopathology shows stratified squamous surface epithelium with keratosis and epithelial atrophy in the focal area. Underlying connective tissue stroma is fibrous, collagen fibers are arranged in bundles. The histopathological features confirmed the diagnosis of fibroma (Figure 4).

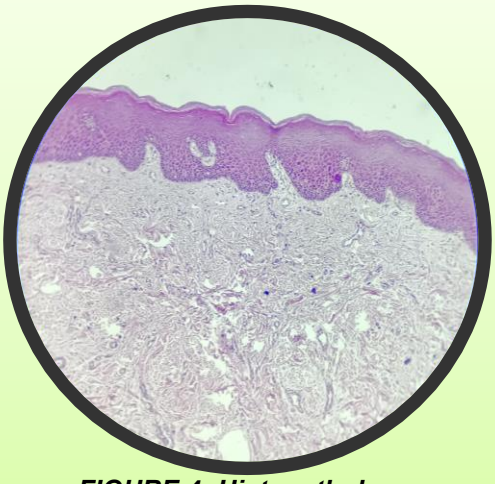

FIGURE 4: Histopathology

Follow-up after 15 days revealed uneventful postoperative healing with no evidence of scarring (Figure 5). At the one-month follow-up, no evidence of recurrence was observed.

FIGURE 5: Follow-up examination after fifteen days revealed complete wound healing of the lesion.

2.2 Case 2

A 45-year-old male patient reported to the oral medicine and radiology department with a chief complaint of soft tissue growth over the right buccal mucosa near retromolar area of the mouth. The lesion had been present in the oral cavity for nine months. The patient had a history of traumatic biting due to root pieces of right maxillary third molar. Intraoral examination revealed a smooth, painless sessile mass approximately 1.0 X 1.0 cm in size, soft to firm in consistency, the overlying mucosa shows slight brownish pigmentation, with no evidence of ulceration, as shown in Figure 6.

FIGURE 6: Pre-operative view of traumatic fibroma associated with right buccal mucosa near retromolar region.

Based on the clinical presentation and patient history, a provisional diagnosis of traumatic fibroma was established. The patient was advised for the surgical removal of the lesion and extraction of root pieces. After explaining the surgical procedure, written consent was obtained from the patient. Under local anesthesia and following appropriate laser safety protocols, the lesion was excised using an 880-nm diode laser. As shown in Figure 7, the procedure resulted in excellent hemostasis with no bleeding, and the patient experienced neither discomfort nor pain during surgery.

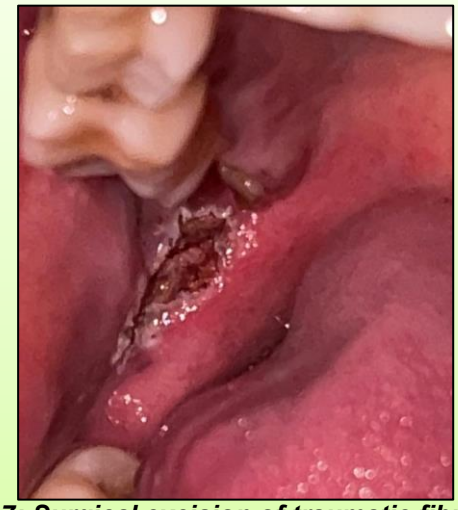

FIGURE 7: Surgical excision of traumatic fibroma was done by using a diode laser.

The diagnosis was confirmed by histopathological examination of the excised specimen.At the seven-day postoperative follow-up, the patient showed satisfactory wound healing with no evidence of scarring, as illustrated in Figure 8.

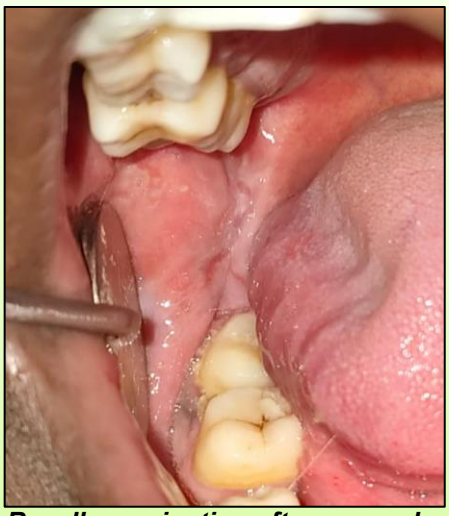

FIGURE 8: Recall examination after seven days revealed satisfactory wound healing.

3. DISCUSSION

Traumatic fibroma is a common reactive lesion caused by chronic irritation of the oral mucosa. Persistent trauma stimulates fibroblast proliferation, resulting in localized fibrous overgrowth[1,2]. Both reported cases demonstrated typical clinical features: smooth-surfaced nodules arising on trauma-prone mucosal sites. Histopathological findings in both cases were consistent with established descriptions in the literature, including dense collagenous stroma and stratified squamous epithelial covering [3,5].

Scalpel excision has long been the conventional approach to treating traumatic fibroma. It is reliable, cost-effective, and provides adequate tissue for histopathological examination. However, limitations include intraoperative bleeding, the need for sutures, and relatively longer healing time. In Case 1, although healing was satisfactory, suturing and mild postoperative discomfort were unavoidable, consistent with findings reported by Bagan et al.[4].

Diode lasers have emerged as an advantageous alternative for excising benign soft-tissue lesions. Their benefits include excellent haemostasis, reduced operative time, decreased postoperative inflammation, and minimal scarring due to precise tissue ablation and limited thermal damage[7]. In Case 2, diode laser excision resulted in bloodless surgery, improved visibility, reduced pain, and faster healing, which aligns with the findings of Diwan et al.[8].

Furthermore, Sharma et al.[5] emphasize that traumatic fibromas exhibit consistent morphology, making complete excision curative when performed properly. The absence of recurrence in both cases supports prior evidence indicating that recurrence is rare unless the causative trauma persists[6]. Overall, diode laser excision offers several advantages over conventional scalpel surgery, particularly in terms of patient comfort, intraoperative control, and healing outcomes. For benign lesions such as traumatic fibroma, lasers may be considered a superior modality, especially in sensitive or highly vascular areas.

4. CONCLUSION

Both scalpel and diode laser excision are effective treatment modalities for traumatic fibroma. However, diode laser surgery provides significant advantages, including minimal bleeding, reduced discomfort, and faster postoperative healing. Incorporating laser

technology can enhance clinical outcomes and patient satisfaction in the management of soft-tissue oral lesions.

CONSENT

Written informed consent was obtained from the patient for publication of this case series and accompanying images.

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