

Management of oral mucosal irritational fibroma with laser therapy: A case report

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Abstract

Traumatic or irritational fibroma is a general benign exophytic tumor or neoplasm of fibrous connective tissue origin that can be considered a reactionary connective tissue hyperplasia in response to trauma and irritation. They are clinically marked by solid well-demarcated rounded, sessile, or pedunculated growths covered by normal mucosa and are a relatively uncommon lesion. Local trauma can generate ulceration of these lesions. They are usually seen on the buccal mucosa but can also occur at any intra-oral site. These lesions are more common in adults and can befall at any age. Simple, complete excision and removal of the cause of irritation are the preferred treatment. The use of lasers in different dental procedures has become very common. Lasers have obvious benefits for all the patients without administering anesthetic shots and that means less time spent in the dental chair. Procedures were performed more conservatively, with less trauma for patients. The excision of the fibroma with the diode laser is a safe, quick procedure, with minimum postoperative discomfort and complications. This paper reports the management of a fibroma in a 25-year-old male with a mass in the inner surface of left cheek with a 940 nm diode laser.

Keywords: Irritational fibroma, Fibroepithelial hyperplasia, Diode LASER, Minimal bleeding, Improved healing.

Introduction

Gingival and buccal growths are one of the most frequently encountered lesions in the oral cavity. Most of these lesions, such as irritational fibroma, pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell granuloma are innocuous and rarely present with aggressive features. In the majority of cases, these lesions are the result of trauma or chronic irritation.¹ Traumatic fibroma, also known as irritation fibroma, is a common benign exophytic oral lesion that develops secondary to tissue injury. The traumatic fibroma is among the most common benign reactive lesions.^{2,3} Fibroma is a result of a chronic repair process that includes granulation tissue and scar formation resulting in a fibrous submucosal mass.⁴ Recurrences are rare and may be caused by repetitive trauma at the same site. This lesion does not have a risk for malignancy.⁵ The most common sites of traumatic fibroma are the tongue, buccal mucosa, and lower labial mucosa.⁶ Clinically, they appear as broad-based lesions, lighter in color than the surrounding normal tissue, with the surface often appearing white because of hyperkeratosis or with surface ulceration caused by secondary trauma. The growth potential of fibroma does not exceed 10-20 mm in diameter.⁷ Irritation fibroma is treated by surgical excision, but the source of irritation and trauma must also be eliminated. Conservative excisional biopsy is curative and its findings are diagnostic; however, recurrence is possible if the exposure to the offending irritant persists.⁸ The role of lasers in dentistry is well-established in conservative management of oral diseases and also in effectively eliminating it.^{9,10} The diode laser system has found wide recognition in the areas of lasers as a result of its practical characteristics and is considered as an

important tool for a large number of application.¹¹ Diode laser has shown satisfactory results when used as an

adjunct to conservative methods in the management of inflamed periodontal tissues and peri-implant tissue as well.¹² According to a Deppe and Horch, the use of diode laser systems for the treatment of oral and maxillofacial diseases has shown efficient removal of premalignant lesion of oral mucosa.¹³ The diode laser which was introduced in dentistry since 1999 is a solid-state semiconductor laser that typically uses a combination of gallium (Ga), arsenide (Ar), and other elements such as aluminium (Al) and indium (In). It has a wavelength ranging from

810 to 980 nm. This energy level is absorbed by pigments in the soft tissues and makes the diode laser an excellent hemostatic agent. Thereby, it is a tool for soft tissue surgeries as well.¹⁴ The laser surgery can be used for ablation of lesions, incisional and excisional biopsies, gingivectomies, gingivoplasties, soft tissue tuberosity reductions, and certain crown lengthening procedure.¹⁵ This case report shows patient with a fibroma on buccal mucosa of the oral cavity and followed by diode laser application for the fibroma excision with infiltrated local anesthesia.

Case Report

A 25-year-old male patient reported to the department of oral medicine and radiology complaining of a small, painless swelling seen in relation to the left buccal mucosa since 2 years. On clinical examination, the lesion revealed a single, pink, pedunculated and smooth surfaced nodule of size 1x1 cm approximately on left buccal mucosa (Fig. 1). By history and clinical findings, a provisional diagnosis of irritational fibroma was given. The list of differential diagnosis includes

chronic fibrous epulis, peripheral giant cell granuloma, osteosarcoma, chondrosarcoma, pyogenic granuloma and peripheral odontogenic fibroma.

Complete hemogram revealed all blood cell counts within normal limits. As the patient reported discomfort during eating and while speaking, it was decided to go for an excisional biopsy performed under LA using a LASER. (Fig. 2)

Surgical Procedure

The treatment plan was explained, an informed consent was obtained from patient. Local anesthesia infiltration done and complete excision of the fibrous buccal overgrowth was done utilizing a diode laser unit (wavelength 940nm).

The procedure was done in contact mode. Surgical assistant grasped the buccal growth with tissue pliers and retracted with minimum tension. The fiberoptic tip was placed at the periphery and gradually moving around the lesion, continuously firing the laser to dissect out the fibroma completely. (Fig 3).

The excised tissue was immersed in 10% formalin solution and sent for histopathological examination. (Fig 4). The immediate postoperative view of the case is shown in Fig.5. There was no bleeding. The patient was comfortable and no sutures were necessary. Antibiotics were not given postoperatively. Patient was instructed to take analgesics if needed. Patient was recalled after one week to evaluate the healing which was uneventful. (Fig.6)

Histological Examination

Haematoxylin and Eosin stained section show parakeratinized stratified squamous epithelium. The connective tissue shows increased cellularity with numerous small and large endothelial cell lined blood vessels, diffuse chronic inflammatory infiltrate chiefly comprising of lymphocytes and plasma cells and dense collagen fibre bundles arranged haphazardly. (Fig 7). Based on this, a diagnosis of "irritational fibroma" was made.



Fig.1: Preoperative view

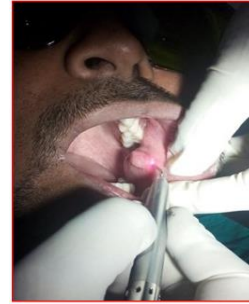


Fig.2: Biopsy using LASER



Fig.3: Intraoperative view



Fig. 4: Biopsy specimen



Fig.5: Postoperative view



Fig. 6: Follow up after 1 week

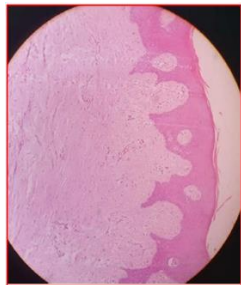


Fig.7: Histopathological view

Discussion

Fibro-epithelial Hyperplasia (fibrous Polyp) also known as Irritation fibroma or Traumatic fibroma is a common benign nodular mass that histologically represents hyperplastic parakeratinized stratified squamous epithelium and fibrous connective tissue.¹⁶ It may or may not be symptomless. It is mainly due to chronic irritation such as cheek or lip biting, irritation from a sharp tooth, dentures or other dental prostheses.¹⁷ If painful, there might be presence of chronic biting, foreign bodies, sharp cusp, overhanging margins of restorations. They are benign and recurrences are mostly due to chronic irritation. Here in this case report, the occurrence of traumatic fibroma was due to sharp cusp present in relation to posterior teeth (25, 26, 35, and 36). Hence Enameloplasty was advised before the Laser surgery in order to avoid any further recurrence.

In such cases where the slow growing mass is solitary, conventional surgical excision or Laser surgery are choices of treatment. Conventional surgery can cause pain, bleeding complications and scarring. Laser ablation, being a non-invasive method can be indicated for most of the soft tissue lesions of small sizes and preserves the adjacent vital structures.¹⁸ Here in this case, after Laser therapy, the patient did not report any bleeding or pain.

Wound healing takes place by epithelialisation from the borders of the wound which takes around 3-4 weeks.¹⁸ Vitamin E capsule is a powerful antioxidant that plays an important role in re-epithelialization as well as protects the body from harmful free radicals.¹⁹ Alpha-tocopherol is the active component of vitamin E. In this case, patient was prescribed Vitamin E Capsule Evion for topical application, to accelerate the epithelialisation process and to boost the immune system. Its antioxidant properties remove free radicals (dissolved in saliva) that damage the structure of cells and reduces cancer risk.¹⁹

Conclusion

Lasers has proved to be a better treatment option for treating huge oral fibrotic lesions, with a bloodless operative field and without any postoperative complication. No recurrence was observed on follow up visits and patient was well satisfied with the treatment outcomes.

Case reports described here showed that diode laser treatment was highly effective. Diode laser is used

according to the protocol, is a relatively simple and safe method. Easy handling of the fiberoptic tip combined with the properties of diode laser helped in obtaining a clean, thin, and fast cut; often without bleeding or scarring. Because of the sterilizing and tissue growth stimulating properties of the laser, we were able to obtain excellent healing in a few days, even without surgical suturing.

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