

Management of Inflammatory Gingival Hyperplasia with Laser Therapy-Report of a Case

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Abstract

Inflammatory Gingival Hyperplasia 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 be fall at any age. Simple, complete excision and removal of the cause of hyperplasia 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 gingival hyperplasia with the diode laser is a safe, quick procedure, with minimum postoperative discomfort and complications. This paper reports the management of a gingival hyperplasia in a 22- year-old female with a mass in right maxillary anterior region 890nm nm diode laser.

Keywords: Hyperplasia, Diode Laser, Minimal Bleeding, Improved Healing.

Introduction

Inflammatory hyperplastic lesion may be defined as an increase in the size of an organ or tissue due to a local response of tissue to injury or an increase in the number of constituent cells.¹

Gingival hyperplasia produces conditions favorable for the accumulation of plaque and *Materia alba* by accentuating the depth of gingival sulcus and by interfering with effective hygiene measures. The secondary inflammatory changes further increase the size of the preexisting gingival hyperplasia.²

These traumatic irritants include calculi, foreign bodies, overhanging margins, restorations, margins of caries, chronic biting, sharp spicules of bones, and overextended borders of appliances.³ The causative etiology for this lesion can be attributed to the local irritants like plaque, calculus, overhanging margins, trauma and dental appliances.⁴

The role of lasers in dentistry is well-established in conservative management of oral diseases and also in effectively eliminating it.⁵ 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 applications: 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.⁶

The action mechanism of the laser on the tissue depends on different factors like laser parameters and the tissue properties. Different types of lasers have been used in the periodontal surgery like Nd: YAG laser, diode, CO₂ and Erbium laser family. Diode lasers have several advantages in soft tissue surgery with benefit of less bleeding, pain, infection and scar formation. Diode laser was effective in the reduction of microbial population

and it is safe to use near the hard tissue as it is absorbed by pigments in soft tissue only.⁷ After diode laser surgery, the wound heals without the need to cover the surgical site with surgical pack.⁸

This paper reports a case of inflammatory gingival hyperplasia in a 22-year-old female in relation to the upper right front teeth.

Case Report

A 22yr female patient reported to the department of periodontology Rama Dental College Hospital and Research Centre, with a chief complaint of pain, swelling, trauma from occlusion and bleeding from gums in right maxillary anterior region since 6-7 months. However, correlation was found between enlargement and trauma from occlusion. Medical history was noncontributory in this case. Upon intra-oral clinical examination, the patient was found to have a well circumscribed, single, pink, pedunculated, soft to firm in consistency and well-defined smooth surface nodule in relation to 21 on the buccal side, measuring approximately 1×1 cm in diameter, extending from mesial surface to cervical third of 21. The diffuse type of enlargement involved marginal, interdental, and attached gingiva. The periodontal probing revealed deep pockets in relation to the involved teeth.

A complete hematological investigation, radiograph (IOPA) and excisional biopsy were included. Preoperative figures as shown in (Figure 1) with measurements. No positive findings were found related to alveolar bone loss were seen. under local anesthesia excisional biopsy was performed and analyzed under microscope.

Surgical procedure

After phase I therapy, the treatment plan was explained, an informed consent was obtained from patient. Phase II therapy Local anesthesia infiltration was done and

complete excision of the smooth surface nodule was done utilizing a diode laser unit of (wavelength 890nm) with 1-watt, continuous mode (Figure 2). 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 growth completely shows in (Figure 3). The excised tissue (Figure 6) was sent for histopathological examination. The immediate postoperative view of the case was shown in (Figure 4). There was no bleeding. The patient was comfortable and no sutures were necessary. Periodontal dressing (Coe-pack) was placed as shown in (figure 5). Patient was instructed to take antibiotic and analgesic were prescribed for one week. Periodontal dressing was removed after one week. The surgical area was generously irrigated with betadine and normal saline. Postoperative instructions were reinforced and patient was recalled after one month as shown in (Figure 8) and then three months as shown in (Figure 9) for postsurgical evaluation.⁷

Diagnosis

On the basis of histological evaluation and clinical symptoms provisional diagnosis made was inflammatory gingival hyperplasia. differential diagnosis was given irritational fibroma.

Histological examination

Hematoxylin and Eosin-stained section show hyperplastic para keratinized stratified squamous epithelium with underlying connective tissue stroma. The connective tissue shows increased cellularity with numerous small and large endothelial cell lined blood vessels, fibroblasts, collagen fibers was shown as in (Figure 7). Presence of chronic inflammatory cells, predominantly being lymphocytes are evident. Based on

this, a diagnosis of “inflammatory gingival hyperplasia” was made.

Follow up

Healing was uneventful after one month. Long-term post-operative follow-up is very important because of the high growth potential of an incompletely removed lesion. Recurrences are rare and may be caused by repetitive trauma at the same site. The lesion does not have a risk for malignancy.

Discussion

The “inflammatory hyperplasia” is nonspecific term used to appreciate nodular growths of the oral mucosa that histologically shows inflamed granulation tissue. The term “inflammatory hyperplasia” is used to describe a large range of commonly occurring nodular growths of the oral mucosa that histologically represent inflamed fibrous and granulation tissue. The size of these reactive hyperplastic masses may be greater or lesser, depending on the degree to which one or more of the components of the inflammatory reaction and healing response are exaggerated in the particular lesion.⁹

The high female predilection and a peak occurrence in the second decade of life suggested hormonal influences.¹⁰

Clinical features comprise sessile or pedunculated masses with smooth or injured surfaces and are seen in different colors ranging from pale to bright pink to red. The size of these reactive hyperplastic masses can be greater or lesser, depending on the components of the inflammatory reaction and healing response exaggerated in the particular lesion.¹¹

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 is

indicated for most of the soft tissue lesions of small sizes and preserves the adjacent vital structures. Here in this case, after Laser therapy, the patient did not report any bleeding or pain.¹² As the oral mucosa is constantly under the influence of various internal and external stimuli, it exhibits a variety of developmental disorders, irritation, inflammation, and neoplastic conditions.¹³

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. 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.⁴

Wound healing takes place by epithelialization from the borders of the wound which takes around 3-4 weeks.

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Legends Figures



Figure 1: Preoperative View and Measurement View.



Figure 4: Immediate Postoperative View.



Figure 2: Tissue Excised with Laser (wavelength 890nm).



Figure 5: Coe-Pack Placed.



Figure 3: Prepare the Excised Site.



Figure 6: Excised Tissue.

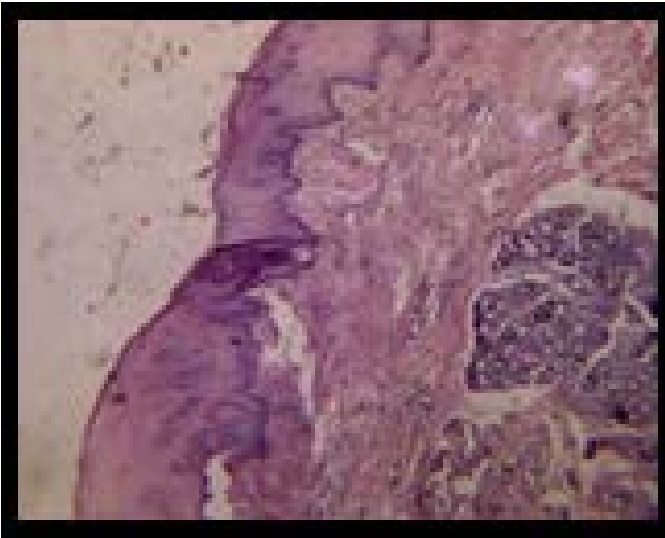


Figure 7: Histologic Picture of Excised Tissue.



Figure 8: Follow-up After 1 Month.



Figure 9: Follow-up After 3 Months