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AESTHETIC GINGIVAL DEPIGMENTATION FOLLOWING LASER EXCISION OF IRRITATIONAL FIBROMA: A CASE REPORT

Periodontology

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ABSTRACT

Irritational fibroma is one of the most commonly seen benign reactive lesion in the oral cavity. The present case report is on aesthetic gingival depigmentation following laser excision of an irritational fibroma in a 21 year old female patient.

KEYWORDS

Irritational fibroma, Gingival depigmentation, Diode laser.

INTRODUCTION

Gingival overgrowths are most commonly observed lesions in the oral cavity. Among these most frequently seen lesions are irritational fibroma, pyogenic granuloma, peripheral ossifying fibroma, and peripheral giant cell granuloma etc. Irritational fibroma is a benign exophytic oral lesion that develops secondary to tissue injury and is one among the most commonly seen benign reactive lesions[1,2]. It is also known as inflammatory hyperplasia or traumatic fibroma .It presents as a painless, round or ovoid, sessile or pedunculated (in some cases), smooth surface, pinkish in colour similar to surrounding mucosa, and rubbery to firm in consistency due to its collagen content.[3,4] Recurrences are rare and may be caused by repetitive trauma at the same site. This lesion does not have a risk for malignancy.[5] Surgical excision is the treatment of choice and prognosis of these lesions are overall good.

Gingival pigmentation is presented as a diffuse deep purplish discoloration or as irregularly shaped brown and light brown or black patches, striae or strands. It results from melanin granules, which are produced by melanoblasts.[6] It may be due to physiologic or pathologic factors.[7] The gingival colour depends primarily upon the number and size of vasculature, epithelial thickness, degree of keratinization and pigments within the gingival epithelium. Gingival hyperpigmentation is a common aesthetical concern in patients with gummy smile or excessive gingival display. Gingival depigmentation is a treatment to remove melanin hyperpigmentation of the gingiva. Various methods have been used for this procedure .[8]

Currently, lasers are commonly used for soft tissue applications in dentistry. The main advantages of lasers include good hemostasis with minimum inflammation and scarring. Because coagulation and cutting happens together there is no need for suturing. This reduce the operating time and the procedure is painless. The laser surgery can be used for ablation of lesions, incisional and excisional biopsies, gingivectomies, gingivoplasties, soft tissue tubersosity reductions, and certain crown lengthening procedure.[9]

CASE REPORT

A 21 years old female reported to the Department of periodontics with the chief complaint of swelling in the upper front tooth region. History revealed a swelling in the upper front tooth region which was gradually increased to the present size in over an year. Clinical examination revealed a sessile ovoid mass which was firm in consistency, pinkish in colour and smooth surface on the labial aspect of the left maxillary central incisor measuring 10 mm x 10 mm inch which was non-tender on palpation (Figure 1)

Figure-1 : Preoperative view showing irritational fibroma

After the treatment plan was explained, an informed consent was obtained. After topical anesthetic agent was applied, complete excision of the fibroma was done utilizing a diode laser unit (Doctor smile dental diode laser, wavelength 980 nm). Laser parameters were 1W at continuous mode. The excised tissue was immersed in a 10% formalin solution and sent for histopathological examination. The immediate postoperative picture is shown in Figure 2.

Histological examination showed stratified squamous parakeratinised epithelium overlying a fibrous connective tissue. The connective tissue shows fibrous bundles that are irregularly arranged.

Figure-2 : Immediate post operative view showing site and excised mass

There was no bleeding, the patient was comfortable, and no sutures were necessary. The patient was recalled after 1 week to evaluate the healing which was found to be uneventful. One week postoperative picture is shown in figure 3.

Figure-3 : 1 week post operative view

After 6 months, the patient reported back to the department complaining of unaesthetic appearance of gingiva. On examination, the gingiva appeared pink in colour where excision of the fibroma was done and other areas showed black patches of melanin pigmentation. (figure-4).

Figure-4 : 6 months after fibroma excised site showing areas of depigmentation

Figure-5 : Depigmentation done using 980 nm diode laser

Gingival depigmentation was done using 980 nm diode laser. Entire surface of the maxillary gingiva that required treatment was irradiated in a single session. After application of topical anesthesia (lignocaine hydrochloride), laser ablation was started from the mucogingival junction working toward the free gingival margin, including the papillae in a continuous contact mode with overlapping circles and the fiber tip was continuously moved across the site to avoid heat accumulation at any site(Figure-5). No periodontal dressing was placed and no antibiotics were prescribed. The procedure was completed within 20 to 25 minutes. The patient was recalled after one week for evaluation and healing was uneventful. One week post operative picture is shown in figure 6.

Figure-6 : Post-operative view after 1 week

DISCUSSION

Sixty-six percent of irritation fibromas are found in females[10]. The mass may be sessile or pedunculated and usually reaches its maximum size within a few months. Seldom does it exceed 1.5 cm in size. Usually it is an asymptomatic, moderately firm, immovable mass with a surface colouration that is most often normal, but may show pallor due to decreased vascularity, thickened surface keratin, or ulceration from recurring trauma. [11] Numerous treatment modalities have been employed for the treatment of gingival fibroma consisting of surgical excision, electrocautery, etc., depending upon the clinical and anatomic considerations.[12] Diode laser is already evaluated for the treatment of facial pigmentation and vascular lesions, gingival depigmentation, fibroma, excision of epulis fissuratum, and gingival hyperplasia.[13]

Melanin-pigmented gingiva is often a demand for depigmentation mainly for aesthetic reasons. In this case patient noticed unaesthetic appearance of gingiva after fibroma excision .The excised site appeared pink in colour compared to the adjacent gingiva which was black in colour . During laser assisted excision of fibroma melanocytes, located in gingival epithelium, might also get eliminated. Different techniques have been used for this procedure such as scalpel technique, cauterization, cryotherapy, diamond burs, and lasers, the latter being the most recent and reliable one.[14,15]

Diode laser radiation is an excellent, simple, and safe form of treatment of oral lesions. This procedure is virtually bloodless, postoperative edema, and discomforts are minimal. With laser irradiation, there is less damage to adjacent tissues and better visibility. Compared to conventional methods, laser surgery is less time consuming, less painful, more precise in the treatment of soft tissue lesions, produces less scar-tissue contraction, and maintains the elastic tissue properties.[16]

Dental lasers offer a number of clinical advantages (especially for soft tissues), including hemostasis (the sealing of local vasculature), the ability to seal nerve endings and lymphatic vessels, reduced postoperative pain and swelling (thus reducing the need for postoperative analgesics/narcotics), reduced bacterial counts, and a minimized need for sutures in most surgical procedures.[17] In the above mentioned case, patient was satisfied with laser surgery since it was a painless procedure both intra-.and post operatively.

CONCLUSION

Case report described here showed that diode laser treatment was highly effective in treatment of both irritational fibroma and gingival depigmentation. Diode laser is used according to the protocol, is a relatively simple and safe method. Proper handling of the fibre optic tip along with properties of diode laser helped in obtaining a clean and thin cut; often without bleeding or scarring. Sterilizing and tissue growth stimulating properties of the laser resulted in uneventful healing in both situations.

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