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Original Research Paper

Periodontology

# DIODE LASER HAS A GREAT POWERFUL TOOL FOR THE TREATMENT OF PYOGENIC GRANULOMA

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**ABSTRACT**

The concept of using dental lasers for the treatment of periodontal disease elicits very strong reactions from all sides of spectrum. The diode Laser is powerful tool for treatment of various types of soft tissue lesion. Laser has profound effect on the patient acceptability taking the functional and aesthetic factor into consideration. Very few cases have been reported in literature regarding treatment of mucosal growth by soft tissue lasers. I present a case of pyogenic granuloma in a patient treated with a diode laser, without the use of anesthesia, sutures, anti inflammatory drugs, or analgesics. Treatment planning is totally depending upon the correct diagnosis of lesion.

**KEYWORDS** : Diode Laser, Pyogenic Granuloma, Periodontal Disease.

## INTRODUCTION

Diode lasers are very effective for soft tissue applications including incision, hemostasis and coagulation.[1]These include a bloodless operating field, minimal swelling and scarring, and much less or no postsurgical pain[2,3]. When laser surgical procedures are carried out, the surface produced heals favorably as an open wound, without the need for sutures or surgical dressings [4] pyogenic granuloma is a relatively common benign mucocutaneous lesion. The term is a misnomer as the lesion does not contain pus nor it is granulomatous. It was originally described in 1897 by two French surgeons, Poncet and Dor. [5] it is considered as a capillary haemangioma of lobular Sub type as suggested by Mills, Cooper, and Fechner, which is the reason they are often quite prone to bleeding. [6] The most common intraoral site is marginal gingiva, But lesions have been reported on palate, buccal mucosa, tongue, and lips. Extra oral sites commonly involve the skin of face, neck, upper and lower extremities, and mucous membrane of nose and eyelids. The increased incidence of these lesions during pregnancy may be related to the increasing levels of estrogen & progesterone. [7, 8]

## CASE REPORT:

A 35 year old female patient reported with complains of localized gingival growth for 5 months. The out growing mass was not painful but often bleed while eating, rinsing or sometimes spontaneously. Patient reported similar growth in the about 1 year ago which was treated by the surgical excision. Intraoral examination revealed an oval, shaped, pedunculated mass like growth seen in relation to the buccal aspect of gingiva with respect to 12, 13 region.This discrete nodular, erythematous enlargement was present. [Figure 1]. On palpation, the mass was soft to firm in consistency and readily bleed on probing. Oral hygiene was well maintained, and no exacerbating factos were identified. The previous biopsy specimen turned out to be 'pyogenic granuloma. Based on the clinical finding and previous biopsy report ,the case was provisionally diagnosed as recurrent pyogenic granuloma.[Figure 1]No bony abnormalities were seen on intraoral periapical radiographic examination.The lesion was treated by Soft tissue Diode Laser[figure2] manufactured by Picasso (Kavo, USA), with following specificatios: wavelength 810nm (± 10), output energy 0.17.0 W, and inputpower 300 VA. We used 810nm wavelength and 7 W powers, keeping it in continuous/interrupted pulse mode.

Local anaesthesia was not used. The tip was kept at a distance of about1 mm from the soft tissue throughout the procedure, and it took 2 to 3 min to completely excise the mass[figure3,4]. The diode laser provided an optimum combination of clean cutting of the tissue and haemostasis[ Figure 5]. Patient was discharged with all necessary postoperative instructions. She was not prescribed any antibiotics, analgesics, or antiinflammatory medication and was subjected to routine scaling and curettage. She revisited after 7 days for followup [Figure 6]The excised mass [Figure 4] was sent for histopathologic evaluation which showed hyperplastic stratified squamous parakeratotic epithelium with an underlying fibro vascular stroma.The stroma consisted of a large number of budding and dilated capillaries, plump fibroblasts and areas of extravasated blood, and a dense chronic inflammatory cell infiltrate. The above histopathology features were suggestive of pyogenic granuloma [Figure 7].

## DISCUSSION:

The time has come to embrace the routine use of lasers for the treatment of periodontal disease. The diode laser has been shown to be effective and safe. Laser Assisted Periodontal Therapy is non - invasive. With the diode laser there is a reduced need for systemic or locally applied antimicrobials. This leads to fewer allergic reactions and antibiotic resistance.Although the conventional treatment for pyogenic granuloma is surgical excision, a recurrence rate of 16% has been reported. [9]There are also reports of the lesion being eliminated with electric scalpel or cryosurgery[10]Other methods used by various workers include cauterization with silver nitrate, sclerotherapy with sodium tetra decyl sulfate and monoethanolamineoleate [11] ligation, absolute ethanol injection dye, [12] Nd:YAG and CO 2 laser, [13] shave excision, and laser photocoagulation. [14]

Laser therapy using continuous and pulsed CO 2 and Nd:YAG systems have been used for a variety of intraoral soft tissue lesions such as haemangioma, lymphangioma, squamous papilloma, lichen planus, focal melanosis, and pyogenic granuloma, because they carry the advantage of being less invasive and sutureless procedures that produce only minimalpostoperative pain. Rapid healing can be observed within a few days of treatment, and as blood vessels are sealed, there are both a reduced need for post-surgical dressing's and improved haemostasis and coagulation. It also depolarizes nerves, thus reducing postoperative pain, and also destroys many bacteria and viral colonies that may potentially cause infection. Reduced postoperative discomfort, oedema, scarring, and shrinkage have all been associated with its use. [15]White et al proposed that laser excision is well tolerated by patients with no adverse effects. They also stated that CO 2 and Nd:YAG Laser irradiation is successful in surgicaltreatment. Meffert et al used the flash lamp pulsed dye laser on a mass of granulation tissue and concluded that previously resolute tissue responded well to the series of treatments with pulsed dye laser.

Diode laser has shown excellent results in cutaneous pyogenic granulomas with only minimal pigmentary and textural complications. Gonzales etal[14] demonstrated both symptomatic and clinical clearing of the lesions with excellent cosmetic results in 16 of 18 treated patients. However, there is minimal convincing proof of itsefficacy in intraoral pyogenic granuloma. We achieved complete resolution of this lesion located on the upper gingiva with diode laser without producing any complications. There was no scarring or recurrence. Hence, diode

laser may be a good therapeutic option for intraoral pyogenic granulomas.

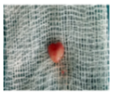
## CONCLUSION:

The use of laser offers a new tool that can change the way in which existing treatments are performed, or serve to compliment them. Modern medicine needs to exploreand take advantage of current trends to derive maximum benefit in terms of technology, patient's acceptance and, postoperative management.

Preoperative view

Diode Laser unit

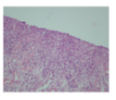
Position of Laser tip for exicision



Exicised Mass

Post opertaive view

Post operative after 6 months



Histological view

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