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Management of Distomolar Pocket With Diode Laser: A Case Report

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Abstract: Use of diode laser for the management of soft tissue procedure make both periodontists and patients more comfortable during treatment, due to minimally invasive, ease of use, relatively lack of pain and provide blood less field during surgical procedure because diode laser have hemostatic properties, when compared with conventional technique.

Keywords: Laser, diode laser, operculectomy, soft tissue procedure.

INTRODUCTION

The term laser is an acronym for "Light Amplification by Stimulated Emission of Radiation." A laser is a device consisting of solid, liquid or gas substances which produce a light beam when stimulated by a source of energy. Several studies reported that laser have ability to ablate hard tissues with minimal anesthesia [1, 2] reduce bacterial counts in root canals [3, 4] and provide coagulation of soft tissues [5].

Based on Albert Einstein's theory of spontaneous and stimulated emission of radiation, Maiman was first introduced laser in 1960 [6].

An operculum is a flap of gingival tissue that present typically distal to a molar area which hinder the eruption of third molar, lead to pocket formation distal to third molar area due to accumulation of plaque and food debris between the tooth surface and the gingival flap. However, there are various lasers available that can be used in periodontics such as Ruby, Nd:YAG, CO₂, Ho:YAG, Er:YAG, Er,Cr:YSGG, Nd:YAP, Argon, and Diode. Although, Diode lasers are most commonly used for soft tissue procedures include operculectomy, Frenectomy, gingivectomy, gingival depigmentation, periodontal pocket elimination, peri-implantitis and crown lengthening procedure etc. This case report present effect of Diode lasers (wave length 980nm) in the management of pericoronitis.

CASE REPORT

A 22-year old male reported to Outpatient Department of Periodontology at Career P.G. Institute of Dental Sciences & Hospital, Lucknow, Uttar Pradesh with chief complaint of pain in left back tooth region of lower jaw since 6 months and had difficulty during mastication. On his intra oral examination revealed that there was partially erupted mandibular third molar with inflamed pericoronal flap and pocket formation distal to third molar area was found. On the basis of clinical and radiographical findings, diagnosis of pericoronitis was made and to remove the pericoronal flap, operculectomy procedure was planned and Patient was informed about the procedure but patient was apprehensive of conventional surgical operculectomy procedure. So, to release the patient stress, Diode lasers are selected for the management of pericoronitis and give patient a painless treatment.

Surgical procedure

Excision of inflamed pericoronal flap was done under topical anesthesia with diode laser (980nm) and exposed the crown of tooth which clear the path of eruption of third molar and eliminate the pocket present distal to third molar.

No post-operative complications were created and the healing was satisfactory and uneventful. There were no signs of recurrence at the end of 6 months. Patient was satisfied with functional movement such as mastication.



Fig-1: Preoperative



Fig-3: After removal of pericoronal flap



Fig-2: During Incision



Fig-4: Postoperative; After two week

DISCUSSION

The laser is a less invasive method compared with the conventional techniques because it produces little cell destruction and less bleeding due to its haemostatic properties and requires the patient a reduced number of sessions, and less chairside time for the most applications.

The laser has a strong power against bacteria thus encouraging decontamination and anti-inflammatory action while using it. It is a versatile tool for several applications due to its fibre providing better access, clean and clear operating field.

Goldman et al. was introduced the first application of a laser to dental tissue in 1964, (ruby laser) [7, 8]. However, the current relationship of dentistry with the laser inspired from an article published in 1985 by Myers and Myers which introduced the removal of dental caries in vivo using a modified ophthalmic Nd:YAG laser [9]

However, Lasers used in dentistry having different type of wavelengths which are delivered as either a continuous, pulsed (gated), or running pulse waveform, for example - CO₂, Nd:YAG, Ho:YAG, Er:YAG, Er, Cr:YSGG, Nd:YAP, GaAs (diode), and

argon. So, the effect of laser light on target tissue is dependent on its wavelength, which is determined by the lasing medium inside the laser device [10].

A wide variety of techniques like scalpal, caustic agents, radiofrequency surgery, electrosurgery, cautery, CO₂ laser, or hot-tip diode surgery have been available for removal of the painful and infected operculum. Several studies have been shown that the diode laser (wavelength between 800-980 nm) is beneficial for several soft tissue procedures due to its high absorption properties in haemoglobin, this lead to coagulate, ablate or vaporize the target tissue [11]. Another advantage of laser when performed surgical procedures is the sealing of small blood and lymphatic vessels, resulting reduced post-operative edema, disinfection of target tissue due to local heating. However, in orthodontics, operculectomy is performed to clear the pathway for molar eruption (even in the absence of pain) and gain access to the tooth for banding or bonding purposes. Convissar et al and Chmuraboth reported that, due to its hemostatic properties, removal of gingiva with a laser allows for immediate banding or bonding.

CONCLUSION

Diode lasers are effective measures to reducing conventional surgical problems such as bleeding, pain, suturing, scarring, transient bacteremia and long healing time but due to lack of evidence-based studies about therapeutic effects and efficiencies of diode lasers are the main drawbacks of laser treatment. More longitudinal studies are required before lasers can become a routine armamentarium during periodontal procedures.

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