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Labial Frenectomy using Diode Laser- A Case Report

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Abstract

Abnormal frenum is very common and causes various problems in function and aesthetics. It is managed by procedures such as frenotomy and frenectomy. Lasers are currently becoming popular in various fields of dentistry and provide alternative to conventional scalpel procedures. In recent years, lasers such as Co2, Neodymium-doped yttrium aluminum garnet, Erbium-doped yttrium aluminum garnet, and diode have been used for frenectomy. In this paper, we present a case of diode laser frenectomy

Keywords: Laser, Frenum, Frenectomy.

Introduction

Laser technology is developing very quickly. The diode laser is a minimally invasive treatment option. New Lasers with a wide range of features are available today and are being used in the various fields of medicine and dentistry[1].

The wavelength of diode laser is 940nm. The diode laser does not affect the inflammatory function of monocytes or endothelial cells, or the adhesion of endothelial cells. It helps in stimulating the proliferation of fibroblasts.[2]

Frenectomy is the procedure of obliterating the frenum and its attachment onto the underlying bone. Using laser

for this procedure helps in less pain and bleeding with better healing results.[3]

Classification

Depending upon the extension of attachment of fibres, frena have been classified as[4]:

1) Mucosal - when the frenal fibres are attached up to mucogingival junction.

2) Gingival - when fibres are inserted within attached gingiva.

3) Papillary - when fibres are extending into inter dental papilla.

4) Papilla penetrating - when the frenal fibres cross the alveolar process and extend up to palatine papilla.

Other variations of normal frenal attachment include[5]:

- Simple frenum with anodule
- Simple frenum with nichum
- Bifid labial frenum
- Persistent tectolabial frenum
- Double frenum
- Wider frenum

Case report

A 21-year-old female patient undergoing orthodontic treatment for the closure of the midline diastema was referred to the department of periodontics of Desh Bhagat Dental College and Hospital, for the excision of the frenum. Intra oral examination was done and it observed that the midline diastema was due the high frenal attachment. The frenal attachment was papillary penetrating type. The procedure details were explained to the patient and the patient consent was taken prior to the procedure.

The area was anaesthetized with a local infiltration by using 2% lignocaine with 1:80000 adrenaline. Twenty minutes after patient confirmed lack of sensation in that area. Frenum removal surgery was performed. Then the laser was brought to the power. Special eyeglasses were worn by the patient and the staff to fulfil the Food and Drug Administration laser safety rules.

For the good accessibility patient's lip was retracted by the assistant carefully by the retractor. Diode laser fibre tip was then used to remove the frenum tissue through a gentle touching motion from the base to the top without applying any pressure.

The movement was done so that all fibrous adhesions and hyperactive and hyper trophic tissues were completely removed. Sutures were not given the wound was left open. Post-surgical instructions were given to the patient and instructed to rinse their mouths with normal saline to promote more desirable healing. No antibiotic was prescribed for the patients; patient was advised to take over-the-counter analgesics if needed.

Figure 1: Pre-operative

Figure 2: Post-operative

Discussion

Post-operatively, it is seen that on healing, a continuous collagenous band of gingiva across the midline, that gives a bracing effect than the "scar" tissue, thus preventing an orthodontic relapse. Thus, Obtaining an orthodontic stability without an aesthetic sacrifice. The patient had less pain and discomfort during speech and chewing on the first and the seventh days after the surgery as well as lower average surgery time in the laser surgery in comparison to the scalpel[6]. Performing frenectomy with no infiltrated anaesthesia in a 9-year-old patient has also been reported Pie-Sánchez et al[7].

Conclusion

the use of diode laser was shown to be a safe and effective treatment modality that provides optimal aesthetics with minimal discomfort in patients with gingival hyperpigmentation.

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