

MAXILLARY LABIAL FRENECTOMY WITH DIODE LASER THERAPY: A CASE REPORT**¹Dr. Md. Waseullah, ²*Dr. Sumit Narang, ³Dr. Anu Narang, ⁴Dr. Anuj Parihar, ⁵Dr. Upendra Singh Rathore**

Peoples Dental Academy, Bhanpur, Bhopal, M.P. 46203.

***Corresponding Author: Dr. Sumit Narang**

Peoples Dental Academy, Bhanpur, Bhopal, M.P. 46203.

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ABSTRACT

The labial frenum is a band of fibroelastic tissue that originates in the lip and inserts in the attached gingiva at the midline of the maxilla. Labial thick and high attached maxillary frenum is commonly regarded as contributing etiology for maintaining midline diastema and delayed upper jaw development. The management of such an aberrant frenum is treated by performing a frenectomy. The present case report is on maxillary labial frenectomy using the diode laser technique with 1 months of follow up.

KEYWORDS: Mucogingival Surgery, Frenectomy, Diode laser frenectomy, Labial frenum.**INTRODUCTION**

In our modern competitive society, esthetics play a vital role in one's life in boosting self-confidence and this led to an increasing importance in seeking dental treatment.^[1] The labial frenum is a band of fibroelastic tissue that originates in the lip and inserts in the attached gingiva at the midline of the maxilla. Labial thick and high attached maxillary frenum is commonly regarded as contributing etiology for maintaining midline diastema and delayed upper jaw development. The frena may also jeopardize the gingival health by causing a gingival recession when they are attached too closely to the gingival margin, either because of an interference with the proper placement of a toothbrush or through the opening of the gingival crevice because of a muscle pull.^[2]

The management of such an aberrant frenum is accomplished by performing a labial frenectomy, which is a common surgical procedure in the field of periodontics. Frenectomy is the complete removal of the frenum, including its attachment to the underlying bone, while frenotomy is the incision and the relocation of the frenal attachment. Frenectomy can be accomplished either by the routine scalpel technique, electrosurgery or by using lasers.^[3]

The role of laser in dentistry is well-established in conservative management of oral diseases.^[4] The diode LASER causes minimal damage to the periosteum and bone under the gingiva being on treated, and it has the unique property of being able to remove a thin layer of epithelium cleanly and a sterile inflammatory reaction occurs after lasing. The laser is very safe and useful for

esthetic periodontal soft tissue management because this laser is capable of precisely ablating soft tissues using various fine contact tips, and the wound healing is fast and favorable owing to the minimal thermal alteration of the treated surface.^[5]

Here we present a case report of frenectomy done with diode -K laser (DIODE LASER-assisted frenectomy).

CASE REPORT

A 24-year-old female patient reported to the department of periodontics and oral implantology complaining of recession and sensitivity with maxillary anterior teeth. On intraoral examination high frenal attachment was observed causing tension and pull-on marginal gingiva of 11 and 21. Also the labial frenum was thick and wide. Patient was advised frenectomy so that frenal tension gets eliminated and progression of recession stops. After detailed explanation of procedure, written consent was obtained from the patient.

Procedure and laser parameters

Frenectomy was performed using diode laser of 980nm at intermittent mode. The labial frenum was initially sprayed with topical spray and infiltration anesthesia was given to the frenum. The laser was activated before performing the procedure. Surgical tip at 400 µm was used with a power of 3.0 W and was applied in contact mode. The incision was started with the frenum from the attached gingiva and interdental papilla on the labial surface between the central incisors extending upward from inner side of upper lip to the depth of vestibule ending in a rhomboidal area causing separation of the fibers. Hemostasis was optimal and no sutures were

given [Figure 4]. Safety measures were taken for the dentist, assistance, and the patient by wearing the protective goggles.

The patient was given verbal instructions to avoid taking hot and spicy food for a few days and to maintain meticulous oral hygiene. Postoperative analgesics were given to the patient. After 2 weeks of follow-up, significant healing was noted and after 1 month, complete of the surgical site with normal mucosal type of frenal attachment was reported.

DISCUSSION

Frenum is a fold of tissue or muscle connecting the lips, cheek, or tongue to the jawbone. It is also known as frenulum, frenula, or frena. The presence of an aberrant frenum being one of the etiological factors for the persistence of a midline diastema, the focus on the frenum has become essential. The aberrant frenum can be treated by frenectomy or by frenotomy procedures.^[6] An aberrant frenum can be removed by any of the modification techniques that have been proposed, however, a functional and an aesthetic outcome can be achieved by a proper technique selection, based on the type of the frenal attachment.^[7]

Periodontal situation is influenced by certain forms of maxillary frenum. In case scenarios of gingival, papillary, and papillary penetrating types of maxillary frenum attachment, the periodontal resistance was substantially lower in individuals with pathological changes in the papilla compared to individuals with the same form of attachment but with stable papilla.^[8]

Recently lasers have been employed for the various dental surgical procedures. Laser treatment can be added as an alternative to conventional technique. Laser is a relatively new and modern technology which has many benefits. There are several types of lasers used in dentistry: Nd: YAG laser, diode laser, Er: YAG, carbon dioxide lasers. Diode lasers have been increasingly utilized for intraoral soft tissue applications like gingivectomy, gingivoplasty, frenectomy, depigmentation and pocket eradication etc. The healing of laser occurs by granulation tissue formation. Post-operatively there is a raw open wound left which is filled with blood clot. The wound is infiltrated by inflammatory cells and mediators similar to healing by primary intention. Post-operatively, there is no scar formation at the treated site. Lasers also allow the clinician to reduce the amount of bacteria and other pathogens in the surgical field and in the case of soft-tissue procedures, achieve good hemostasis with the reduced need for sutures. The diode laser causes minimal damage to the periosteum and bone under the gingiva being treated. The diode laser exhibits thermal effects using the "hot-tip" effect caused by heat accumulation at the end of the fiber, and produces a relatively thick coagulation layer on the treated surface (Pick, 1993).

In this present study, the use of 980 nm diode laser allowed increased surgical precision and accuracy, thereby reducing unnecessary damage to underlying tissues. The procedure use of laser also took care of bleeding during procedure, resulting in improved visualization of the surgical field, eliminating the need for postoperative sutures, and shortening the operation time.

The case report discussed in this article showed better healing and less postoperative discomfort by laser technique to the patient.



Figure 1: Thick and wide papillary frenal attachment along with recession is seen in the region of 11 and 21.

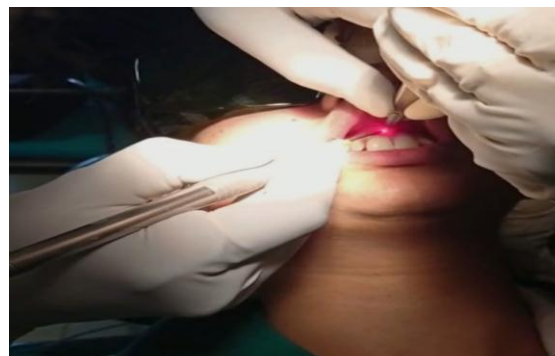


Figure 2: Frenectomy of maxillary labial frenum using diode laser.



Figure 3: Immediate postoperative picture showing laser cut with adequate hemostasis.



Figure 4: One-month postoperative picture showing complete healing and frenal attachment relocated to mucosal area from papillary thereby resulting in resolution of recession in the 11 and 12 region.

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CONCLUSION

The rapid growth of laser technology and for better understanding the different laser system have expanded the use of laser in dentistry. This provides an excellent alternative to conventional scalpel surgery because of patient comfort, bloodless field and reduced pain and healing time. owing to the small size fiber optic delivery, and ease of use for minor surgery of oral soft tissue, diode laser has become an excellent choice for frenectomy.

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