

MAXILLARY LABIAL FRENECTOMY USING 810nm DIODE LASER- A CASE REPORT

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ABSTRACT: Frenectomy is one of the common oral surgical procedures performed in Pediatric dentistry. This case report presents the management of a maxillary high labial frenum attachment in a child patient using 810nm Diode laser.

KEYWORDS: Diode Lasers, Frenectomy, Frenum, Laser Surgery.

INTRODUCTION

Labial frenectomy is a common surgical procedure performed routinely in the field of pediatric dentistry. The advent of lasers has undoubtedly made this procedure more comfortable for the patients with less postoperative complications^{1,2}. Currently, painless procedures are secured by using local or general anaesthesia. The diode light equipment may be considered a modern laser technology in the field of dentistry. The diode laser has high absorbance by pigmented tissues with hemoglobin, melanin and collagen chromophores^{3,4}. Advantages of laser treatment over conventional methods include minimal cellular destruction and tissue swelling, hemostasis and reduced postoperative pain. Additionally, it is possible to perform many procedures without the need of anesthesia⁵. This case report describes laser frenectomy carried out in a pediatric patient.

Case Report

A 12 year-old girl accompanied by her parents reported to the department with the chief complaint of midline spacing between the upper central incisors and medical history was non-contributory. Intraoral examination revealed the presence of a high frenum attachment extending to the incisive papilla, this feature commonly leads to diastema formation between the maxillary permanent incisors. Labial frenectomy with 810nm diode laser under topical anesthesia was planned and informed consent was taken from the parents. Routine blood investigation were advised and were found to be within normal range. After anesthetizing the labial frenum with lidocaine spray, the diode laser beam was applied labially both vertically and laterally to the frenum to disrupt the mucosal continuity, which enabled deeper horizontal cutting of the frenum. Further the beam was passed

between the central incisors, from the labial to the palatal area to complete the procedure. The procedure was painless and optimum hemostasis was achieved almost immediately. The total time taken was 10 minutes. Postoperative healing was uneventful. Within ten days the mucosa healed and the new frenum attachment was 6mm higher than the preoperative one.

Discussion

Laser-assisted labial frenectomy is relatively easy to perform with excellent precision, less discomfort and shorter healing time as compared to the conventional technique^{6,7}. Lasers emit a precise beam of concentrated light energy⁸. This light is unique in that it is comprised of a single wavelength, expressed in nanometers. The wavelength generated is based on the active medium present in the laser device and can be a solid (diode) or gas (CO₂ or Argon). The diode laser is considered a solid, with a semiconductor chip embedded with crystals, making the device smaller and lighter. The active medium determines the wavelength, varying by the makeup of the crystals. The diode wavelengths are in the near infrared spectrum, typically from 800 nm to 980 nm⁹.

In addition the advantages of lasers include a relatively bloodless surgical field with precise cutting and no suturing involved. The surgical time is found to be significantly reduced also. There is no post surgical pain, swelling and scarring seen. Another benefit of a laser frenectomy is the possible avoidance of needle-infiltrated anesthesia which gives rise to fear in many of the pediatric patients⁹. There is abundant evidence confirming markedly less bleeding particularly of highly vascular oral tissues, with laser surgery¹⁰. Diode laser surgery may be considered a useful tool for the clinician in performing paediatric labial frenectomy¹¹.

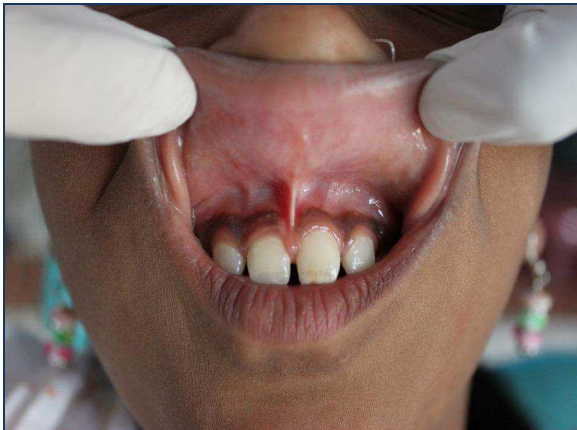


Fig. 1. Preoperative view

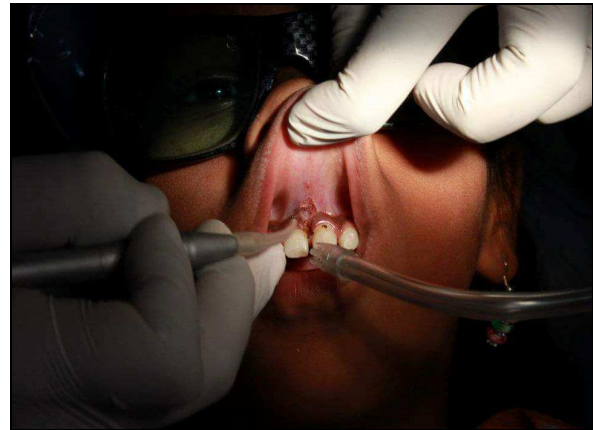


Fig. 2. Frenectomy with diode laser



Fig. 3. Post-operative picture after immediately after frenectomy



Fig. 4. Post-operative picture 10 days after surgery showing healing of the frenum

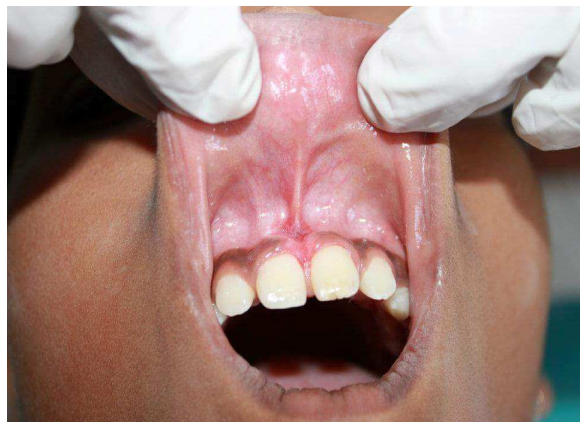


Fig. 5. Post-operative picture after 2 months



Fig. 6. Post-operative picture after 6 months

CONCLUSION

In conclusion, this minimally invasive laser-assisted frenectomy was accomplished with Minimal anesthesia, minimal discomfort, no sutures and, no antibiotics and great patient satisfaction.

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