

USING THE DIODE LASER IN THE LOWER LABIAL FRENUM REMOVAL

M. GARGARI^{1,2}, N. AUTILI², A. PETRONE³, V. PRETE²,

¹ Department of Odontostomatological Sciences, University of Rome "Tor Vergata", Rome, Italy

² Department of Dentistry "Fra G.B. Orsenigo, Ospedale San Pietro F.B.F.", Rome, Italy

³ Private practice in Rome, Italy

Summary

Using the diode laser in the lower labial frenum removal.

Objective. The aim of this study is to assess the advantages of the use of diode laser to removal inferior labial frenum.

Methods. The treatment with the diode laser was proposed to a female patient of 32 years old in good general health having an abnormal inferior labial frenum that causes retracting of the gingival margin. The incision was carried out with diode laser at a wavelength of 940 nm and was removed the frenum mucosa and the deep tissue constitute of connective fiber and muscle fiber. Before the surgery wasn't used the local anesthetic and after the cutting wasn't necessary the use of suture.

Results. The wound had a good healing without scar. The patient didn't have pain and bleeding during the healing and she didn't report complications. It wasn't necessary the use of antibiotic and anti-inflammatory.

Conclusions. The use of lasers has proved effective in the removal of labial frenum because it offers several advantages for the patient than traditional surgery.

Key words: diode laser, frenectomy, labial frenum, gingival retraction.

Introduction

Laser technology is developing very quickly. It is an instrument that achieves maximum oral health in a minimally invasive fashion. New Lasers with a wide range of characteristics are available today and are being used in the various fields of medicine and dentistry (1).

The diode laser operates at a wavelength of 940 nm and uses a pulsed or continuous waveform. The diode laser has proven to be successful with soft-tissue incision and ablation. This laser can be used for the following:

- gingival troughing;
- esthetic contouring of gingiva;
- treatment of oral ulcers;
- frenectomy and gingivectomy.

We should point out that the diode laser does not affect the inflammatory function of monocytes or en-

dothelial cells, or the adhesion of endothelial cells. In addition, it can kill some microbes in the presence of a photosensitizer, as well as some fungi in the presence of some dye photosensitizers. Finally, within certain low-energy ranges, the diode laser can stimulate the proliferation of fibroblasts (2).

This paper describe a case of labial frenectomy using the diode laser.

Methods

The treatment with the 940 nm diode laser was proposed to a female patient of 32 years old having an abnormal inferior labial frenum that causes retracting of the gingival margin (Fig.1). The patient is in good general health, she doesn't have allergies to medications, she's not pregnant, she doesn't smoke and she has a weight of 65 kg and a height of 1.65 cm.



Figure 1
Lower frenum retracting gingival margin.

Before the surgery the patient was informed about clinic course of the healing and about complication and risk of surgery and she signed the informed consent.

Oral tissues were treated without local intra-tissue anaesthesia (3). To make the incision painless and to reduce bleeding was used the 10% lidocaine spray carried on the tissue with a small roll of cotton.

The incision was carried out with diode laser at a wavelength of 940 nm and was removed the frenum mucosa and the deep tissue constitute of connective fiber and muscle fiber (Fig. 2). The aspiration wasn't utilized except for the vapor produced by diode laser during the cutting.

The patient didn't relate pain and during the surgery and she didn't have bleeding. It wasn't necessary the use of the suture on the wound. The patient was informed about the rules of conduct to have during the clinic course (the following days): don't make mouthwash during the first 24h, keep the wound clean, make mouthwash with clorexidine after 24 h apply clorexidine gel on the wound three time at the day.



Figure 2
Incision and removal of lower frenum with diode laser.

The patient doesn't use antibiotic or anti-inflammatory because she didn't have pain after the surgery.

A check-up has been made after 7 days and after 21 days (Figs. 3, 4). The wound had a good healing without scar. The patient didn't have pain and bleeding during the healing and she didn't report complications. At the following check-up the patient didn't have relapse (Figs. 3, 4).



Figure 3
Healing after 7 days.



Figure 4
Healing after 21 days.

Results

The frenum is a fine strip of soft tissue, on the maxillary or mandibular gingival midline, constituted of oral mucosa, connective fiber and muscle fiber. The removal of labial frenum can be indicated for prosthetic, ortodontic or parodontal treatment (4, 5). An abnormal labial frenum is capable of retracting the gingival margin, creating a diastema, limiting lip movement, and in cases of a high smile line, affecting esthetics also (6).

The diode laser is efficacy to removal labial frenum with some advantages:

1. Possibility of surgery without use of local anesthetic
2. The patient don't have pain and bleeding during the surgery
3. Healing of wound without scar
4. Good clinic course without use of antibiotic and painkiller.

The results for the use of the 980 nm diode laser in oral and facial surgery appear to be justified on the grounds of efficacy and safety of the device, and the good level of acceptance by the patients, without compromising their health and function (1).

Conclusions

The use of lasers has proved effective in treating various diseases of the oral mucosa. This technique provides better patient perception in terms of postoperative pain and function than that obtained by the scalpel technique. Considering the above advantages, when used correctly, the diode laser offers a safe, effective, acceptable, and impressive alternative for frenectomy operations (7-10).

The diode light equipment may be considered a modern laser technology in the field of dentistry. Beyond showed good results as an extra adjunct to the classical methods in the management of inflamed periodontal tissues and other oral disease (7-10).

The dental laser offers revolutionary advantages over traditional cosmetic dental treatment for our patients. These advantages include precision, hemostasis, sterility, and minimal postoperative pain and swelling (11).

References

1. Desiate A, Cantore S, Tullo D, Profeta G, FR, Ballini A. 980 nm diode lasers in oral and facial practice: current state of the science and art. *Int J Med Sci* 2009; 6:358-364.
2. Douglas N, Dederich, Ronald D, Bushick. American Dental Association Lasers in dentistry Separating science from hype *J Am Dent Assoc*, 2004. Vol 135, No 2, 204-212.
3. Kafas P, Angouridakis N, Dabarakis N, Jerjes W. Diode laser lingual frenectomy may be performed without local anaesthesia. *Int J Orofac Sci* 2008;1:1.
4. Chiapasco M. *Manuale illustrato di Chirurgia Orale*. 2006 - Seconda Edizione. Masson.
5. Mittal M, Murray AM, Sandler PJ. Maxillary labial frenectomy: indications and technique. *Dent Update* 2011 Apr;38(3):159-62.
6. Bagga S, Bhat KM, Bhat GS, Thomas BS. Esthetic management of the upper labial frenum: a novel frenectomy technique. *Quintessence Int* 2006 Nov-Dec;37(10):819-23.
7. Kafas P, Stavrianos C, Jerjes W, Upile T, Vourvachis M, Theodoridis M, Stavrianou I. Upper-lip laser frenectomy

- without infiltrated anaesthesia in a paediatric patient: a case report. *Cases J* 2009; 2: 7138. Published online 2009 May 20. doi: 10.1186/1757-1626-2-7138.
8. Ishikawa I, Aoki A, Takasaki AA. Clinical application of erbium: YAG laser in periodontology. *J Int Acad Periodontol* 2008;10:22-30.
 9. Capodiferro S, Maiorano E, Scarpelli F, Favia G. Fibrolipoma of the lip treated by diode laser surgery: a case report. *J Med Case Reports* 2008;2:301. doi: 10.1186/1752-1947-2-301.
 10. Kafas P, Kalfas S. Carbonization of a radicular cyst using fiber-optic diode laser: a case report. *Cases J* 2008;1:113. doi: 10.1186/1757-1626-1-113.
 11. Passes H, Furman M, Rosenfeld D, Jurim A. A case study of lasers in cosmetic dentistry. Source Jamaica Hospital, New York 11030, USA.

Correspondence to:

Marco Gargari
University of Rome "Tor Vergata"
Department of Dentistry "Fra G.B. Orsenigo - Ospedale
San Pietro F.B.F."
Via Cassia 600
00189 Rome, Italy
E-mail: marco.gargari@gmail.com



© CIC Edizioni Internazionali