Case Report

Diode Laser for Frenectomy in Pediatric Patient- A New Frontier Shine- A Case Report

Kohli A, Katiyar A, Katyayan R, Srivastava S

Abstract: New technologies such as diode laser surgery enable simpler treatments to be carried out than with conventional techniques in pediatric patients. The laser is a good tool for soft tissue management like frenectomy in children and is well accepted by patients and their relatives. Laser treatment involves a reduction in the use of medication (anaesthetics, analgesics and antibiotics) and in intra-operative and post-operative bleeding. It produces faster wound healing and less scarring. The role of laser in dentistry is well-established in conservative management of oral diseases. In pediatric dentistry and oral surgery it is an expertized

Keywords: Diode Laser; Labial Frenum; Interdental Papilla.

INTRODUCTION

The diode light equipment can be considered a modern laser technology in the field of dentistry. Diode laser showed good results as an extra adjunct to the classical methods in the management of inflamed periodontal tissues and endodontics.[1] Frenectomy is a common procedure in the field of pediatric dentistry. The advantage of laser surgery includes higher precision which results in less pain, bleeding, swelling and scarring. The procedure is no time consuming, easy to perform in an outpatient set, which decreases the risk of post-operative infection, no bleeding and psychological well being of patient when compared to surgical tools.[2]

This case report described the advantages of diode laser surgery purposely omitting routine procedure as laser transmits energy to the cells causing warming, welding, coagulation, protein denaturization, drying, vaporization and carbonization.[3] Currently, painless procedures are secured by using local or general anaesthesia. This case report describes the parameters of performing upper labial frenectomy in pediatrics without infiltrated local anaesthesia. Moreover, the reassurance of the patient about the painless procedure is one of the most important criteria.

CASE REPORT

A female child patient aged 7 years reported to the Department of Pediatric and Preventive Dentistry of Rama dental college hospital and research centre, Kanpur for assessment of the upper anterior labial frenum. The medical and dental history was nothing of significance. On intraoral examination it was found that the labial frenal attachment was papillary and was attached to interdental papilla with led to difficulty in tooth brushing and formation of midline diastema (Fig 1).

Figure 1: Showing papillary frenal attachment causing midline diastema.

It was decided to perform laser frenectomy without infiltrated anaesthesia using specific laser parameters. The laser equipment was defined by the manufacturer AMD LASERS, Picasso Lite, registered trademarks of AMD GROUP LLC. Wavelength 810nm . Output energy 0.5 to 2.5W. The labial frenum was sprayed with topical anesthesia twice. The laser fiber was applied vertically and laterally to the frenum initially causing disruption of the mucosa continuity (Fig 2).

This easily allowed performing a deeper cut of the frenum in a horizontal dimension. The design of the frenectomy was rhomboidal allowing easy pass of the fiber-optic[optical fibers] between the central incisors and from the buccal to interdental papilla along with fenestration of periosteum at the base so as to form a scar and to prevent re-occurrence (Fig 3).

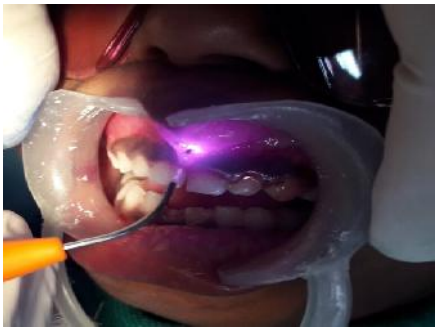

Figure 2: Showing laser fiber causing disruption of mucosa continuity.

Figure 3: Showing design of frenectomy from buccal to interdental papilla.

The time taken for completion of whole procedure was about 5 mins and without pain.. Haemostasis was optimum immediately after the procedure (Fig 4).

Figure 4: Showing haemostasis which was optimum after the procedure.

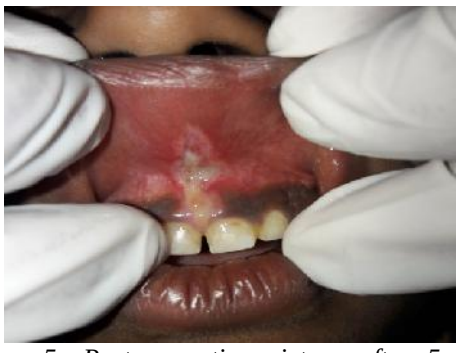

Figure 5: Post operative picture after 5 days showing healing of frenectomy.

The patient was comfortable with no pain, either intra-operatively or post-operatively. The patient described the procedure as totally painless. Ten days later the healing was found to be uneventful (Fig 5). Pre-operatively, the parents of the patient had been informed verbally about the procedure finally signing a written consent form.

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DISCUSSION

It is important for the professional to understand the physical characteristics of the different laser wavelengths and their interaction with biological tissues to assure that they are used in a safe way, and that the benefits of this technology can be provided to infant patients.[5] The use of lasers, especially diode lasers, in general dentistry is now an accepted treatment aid, with a wide range of applications in oral soft tissue surgery. We also see that the use of the 810-nm diode laser as the treatment of choice for oral soft tissue therapy is reliable because we obtained acceptable healing of the lesions with minimal adverse effect. Thus, in oral soft tissue surgery, the use of 810-nm diode lasers may be the best choice.[6] While most dental lasers are relatively simple to use, certain precautions should be taken to ensure their safe and effective operation. First and foremost is protective eyewear by anyone in the vicinity of the laser, while it is in use. This includes the doctor, chairside assistants, patient, and any observers such as family or friends.[7]

Limitation: The limitations is that in severe cases of highly attached frenum the need of anaesthesia is essential. A critical thinking is required to explain which procedure is medically superior to others. We suggest the use of diode laser, even if the clinician needs more time to complete the procedure. In our opinion, it is more important to avoid any painful needle injection in mild and moderate frenum attachment.

CONCLUSION: The great advantage of diode laser frenectomy in paediatrics should be the

avoidance of needle-infiltrated anaesthesia. Considering that children are more pain sensitive, this case report discussed a case of a child that had no external stimulus (laser) to react, which means that diode laser may be used under specific parameters safely in all age groups without infiltrated anaesthesia.

Author affiliations: 1. Dr. Anil Kohli, MDS, Prof. and Head, 2. Dr. Ashish Katiyar, MDS, Reader, 3. Dr. Rahul Katyayan, PG Student, 4. Dr. Shipra Srivastava, PG Student, Department of Pediatric and Preventive Dentistry, Rama Dental College Hospital and Research Centre, Kanpur-208024, Uttar Pradesh, India.

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Corresponding Author
Dr, Rahul Katyayan
PG student, Dept of Pediatric and Preventive Dentistry
Rama dental college hospital and research centre, Kanpur
Contact no:7309646855
Email:drrahulkatyayan@gmail.com

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