ABSTRACT

OBJECTIVES

Lasers are used in almost every aspect of dentistry, be it surgeries, restorations, periodontal procedures, and even aesthetic dentistry. One certain area that requires extra emphasis and importance is the laser-assisted frenectomy. Frenectomy, as the name suggests, is the excision of frenum attachment to the underlying bone. Frenectomy is carried out in the mandible as well as the maxilla. This is a case of a patient undergoing orthodontic treatment who also required a frenectomy, and to minimize the postoperative pain and swelling, the procedure was carried out using a diode laser rather than the conventional surgical procedure.

KEYWORDS: Diode Lasers, Frenectomy, Maxilla

INTRODUCTION

With recent advancements and research in almost every field, many new techniques and methods have been introduced in dentistry too. Lasers are the most famous among new techniques, which have replaced invasive scalpels and blade surgeries. Lasers are used in almost every aspect of dentistry, be it surgeries, restorations, periodontal procedures and even aesthetic dentistry. One certain area that requires extra emphasis and importance is the laser-assisted frenectomy. Frenectomy, as the name suggests, is the excision of frenum attachment to the underlying bone. Frenectomy is carried out in the mandible as well as maxilla. Lasers are not only used in frenectomy but also in gingivectomy, incisional and excisional biopsies etc. In many cases, a frenectomy is mandatory, especially when an abnormal frenum interferes with function. The most common finding is a maxillary labial frenum, especially in children. Previously frenectomy was carried out using scalpels and blades. However, many disadvantages have been observed with the use of scalpels. For example, delayed healing, excessive blood loss and postoperative pain and swelling. With the conventional technique and use of sutures, it was seen that the discomfort caused by plaque and calculus after the treatment was immense. Secondly, among almost all studies and research, it has been observed that patients treated with the scalpel technique faced problems such as scarring, postoperative swelling, delayed wound healing and even intraoperative pain. Conventional treatment involves a surgical procedure which naturally makes use of anaesthesia. Dental phobia among children is a difficult situation to deal with. Hence, lasers without anaesthetic needles have made such procedures both dentist and patient-friendly.

CASE REPORT

A 17-year-old patient at the end of her orthodontic treatment was concerned about her gummy smile. She also had a gingival swelling in the lower anterior segment. Furthermore, she had a high labial frenum attachment. It was decided to go for a gingivectomy and frenectomy with the help of a laser (Diode Lasotronix 980nm). The pre-operative intraoral picture of the patient is shown in Figure 1.
As the local anaesthetic, half a cartridge of lidocaine 2% (epinephrine 1: 80,000) was infiltrated in the base of the frenum and partly in the vestibule. After the patient confirmed the complete lack of sensation, the treatment was initiated. First, the laser tip was initiated. To allow optimal access, the patient’s upper lip was retracted upwards by an assistant using a retractor. Diode laser fibre tip at power 3W, energy 90J, pulse time 100 microseconds, aiming beam 10% and duration 30 seconds was then used to remove the frenum tissue through a gentle touching motion from the base to the top without applying any pressure as shown in figure 2.

The patient was then recalled for postoperative evaluation on days 3, 9 and 10. The patient reported having minimal pain and swelling post-op, and clinical examination revealed healed tissue, as shown in Figures 3,4 and 5.

**DISCUSSION**

Diode lasers also help in controlling bleeding, pain and swelling. According to several types of research on diode laser and its postoperative effects, it was observed that patients had a positive response as only topical anaesthesia was used. They are also used widely because of their smaller size and cost effectiveness. Laser surgery is a widespread surgeon’s favourite these days. Labial frenectomy is a common procedure as it provides better results during and postoperative than blade surgery. Diode lasers have found their way even in the field of orthodontics, where abnormal frenal attachments are a hindrance to tooth movement. Hence, diode lasers are a good method for frenectomy, providing a better postoperative response and minimizing the use of sutures, anaesthesia and, therefore, patient discomfort even during treatment. Using a scalpel left behind a scar at the incision site, which interfered with periodontal health and esthetics; however, with a diode laser, the healing mechanism is clean and faster. Patients treated with Nd: YAG laser showed better chewing and speech post operatively. Also, research has shown better results regarding pain, discomfort, chewing and speech after a laser surgery. Another study on Er, Cr: YSGG laser showed better healing results. Although Er: YAG is specifically used for removing hard tissues, it is effective even for soft tissue surgery. Hence it has been observed and documented that Er: YAG laser frenectomy is also preferred over scalpel and blade surgery as it is less time-consuming and involves less bleeding.

**CONCLUSIONS**

Diode laser provides a bloodless and clear intra-operative field. Diode laser frenectomy is a safe approach for orthodontic patients as it minimizes postoperative pain, swelling and discomfort.

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**REFERENCES**


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