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Correcting an Aberrant Frenum using Electrosurgery - A Case Report

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Abstract: ***The frenum is a mucous membrane fold that connects the alveolar mucosa, gingiva, and underlying periosteum to the lip and cheek. "Aberrant frenum" describes a kind of frenum that is not conventional in terms of size, shape, or attachment site. The integrity of the gingiva may be jeopardised when aberrant frena are too near to the gingival margin, either because of a muscle pull or an obstacle in the action of removing plaque. Frenectomy is the procedure used to control such an abnormal frenum. This case report sheds light on aberrant frenum and its management by using electrosurgery technique.***

Keywords: Aberrant frenum, mucous membrane, alveolar mucosa, frenectomy, labial frenum

1. Introduction

The frenum is a mucous membrane fold that attaches the lip and the cheek to the alveolar mucosa, the gingiva, and the underlying periosteum.1 There are several frena that are usually present in a normal oral cavity, most notably the maxillary labial frenum, the mandibular labial frenum, and the lingual frenum.2 Labial frenal attachments are thin folds of mucous membrane with enclosed muscle fibres originating from orbicularis oris muscle of upper lip that attach at the lips to the alveolar mucosa and underlying periosteum.1 The primary function of frena is to provide stability to the upper and lower lips and the tongue.3 Frenectomy is carried out to remove the whole frenum along with its attachment to the alveolar bone.

When frena are attached too close to the gingival margin, they can cause a gingival recession and jeopardise the health of the gingiva either by interfering with toothbrush placement or by causing the gingival crevice to open due to a muscle pull.1 The mandibular frenum is considered aberrant when it is associated with decreased vestibular depth and inadequate width of the attached gingiva. It is one of the aetiological factors that cause diastema between the maxillary central incisors in adults, which is regarded as an aesthetic issue.

Frenectomy can be accomplished either by the routine scalpel technique, electrosurgery, or by using lasers. Electrosurgery has been identified as a continuously evolving field with active research into various new applications. This case report presents a case of frenectomy done by electro surgical technique.

2. Case History

A 26 - year - old male patient reported in the Department of Periodontology, Rama Dental College Hospital and Research Centre Kanpur with a chief complaint of receding gums in anterior front tooth region since last 1 year. His medical and family History Was Non - Contributary.

Clinical Evaluation
On intraoral examination, clinical diagnosis in the mandibular arch is done by pulling the lips outwards and downwards, aberrant frenal attachment was observed along with Miller's Class 3 recession in relation to mandibular right central incisor measuring about 7mm vertically (Figure 1). The patient had thin gingival biotype.

Treatment Planning
The treatment consisted of Phase 1 therapy (Etiotropic phase) which includes scaling and root planing followed by maintenance phase for 1 week followed by Phase 2 (surgical phase) which consisted of frenectomy by electrosurgical procedure.

Surgical Procedure
Measurements of the amount of clinical attachment loss (CAL) was taken from the gingival sulcus to the cemento - enamel junction using a UNC - 15 periodontal probe was 7mm (Figure 2). CAL was measured as the distance from CEJ to the base of the sulcus. After a thorough Phase 1 therapy, an informed consent was taken from the patient in written. On the surgical day, the surgical area was adequately anesthetized using Lignocaine hydrochloride 2% containing 1: 2, 00, 000 adrenaline (Xylocaine). The lower lip was pulled downward and outward and thereafter the frenum was excised by electrocautery using a straight electrode (Figure 3). Any underlying adhesions to the periosteum was removed and the remnants of the remaining tissue were removed using sterile gauze dampened with the saline. Thereafter haemostasis was achieved (Figure 4). Non eugenol periodontal pack Coe - pack placed (Figure 5). Post operative medication was prescribed along with necessary oral hygiene instructions were given. Patient was advised for removal of periodontal pack after 1 week (Figure 6).

3. Discussion

Frenectomy can be performed using various techniques like conventional scalpel technique, with electrocautery or with lasers. In the era of periodontal plastic surgery, more conservative and precise techniques are being adopted to create more functional and aesthetic results. Though lasers

have marked the beginning of their use in soft tissue management, electrosurgery units are "far less expensive" and hence it can be questioned whether "the advantages of the diode laser are significant enough to compensate for the additional cost"[5]. Also, when David et al[6] in 1997 compared mucosal incisions made by scalpel, CO2 Laser, electrocautery, they concluded that, on subjective evaluation of ease of operation, constant - voltage electrosurgery scored highest ($p < 0.05$) on a scale of 0 to 4, followed by the CO2 laser. The speed of incisions and excisions, measured in seconds, was also faster for electrosurgery unit as compared to other techniques. The collateral tissue damage was also less in electrocautery group as compared to laser. Other advantages of it over lasers, are that they require no safety glasses and can remove large amounts of tissue quickly.5 Hence, till certain extent, we can justify the use of electrocautery over the novel technique of laser in routine practice. There are two basic types of electrosurgical units that can be purchased in dentistry: Monopolar is one in which a single electrode exists and the current travels from the unit down in a single wire to the surgical site. The patient must be grounded with a pad placed behind the patient's back. Heat is produced when the electrode contacts the tissue and due to pain, that is produced, anesthetic must be used. Bipolar is one in which two electrodes are placed in very close proximity to each other. Bipolar units are more expensive than diode lasers and the electrical current flows from one electrode to the other, thus eliminating the need for grounding pad. Bipolar units, because of the two wires, create less of a precise cut than the monopolar or diode laser. The electrocautery procedure offered the advantage of minimal time consumption and a bloodless field during the surgical procedure, with no requirement of sutures. The present result was in accordance with Sneha Shah et al.7 in the year 2013 reported no delay in the healing process. This was not in accordance with the literature suggesting delay in healing, when electrocautery was used[6, 8]. Need to do suturing was eliminated while treating the patient with electrocautery, which also reduced the risk of post - operative infection. Also, the patient treated with electrocautery did not experience any post operative pain, nor did he have any collateral tissue damage, which otherwise was claimed while opting for electrocautery.

4. Conclusion

Mandibular labial frenectomy can prevent further gingival recession or other mucogingival deformities which aid in maintaining adequate plaque control and aesthetics. Present case report indicates electrosurgical technique has enhanced wound healing properties.

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Figure 1: Pre - Operative View

Figure 2: Recession width and depth

Figure 3: Frenectomy by electrocautery

Figure 4: Immediate Post Operative view

Figure 5: Periodontal dressing placement

Figure 6: One week post operative view

Author Profile

Dr. Koushik Mukherjee passed his BDS from Rama Dental College Hospital and Research Centre, Kanpur in the year 2019. He worked as a Junior Resident at IPGMER and SSKM Hospital from 2020 - 2021. Presently, he is perusing MDS in the dept. of Periodontology and Implantology. He has several National and International publications to his name. He has presented several scientific papers in various national conventions and conferences.