



Case Report

Management of inappropriate frenal attachment with conventional scalpel approach: A case report

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ABSTRACT

The term "frenum" refers to a small fold or band of tissue that connects two structures within the body. These frenum can vary in size, shape and attachment points among individuals. In some cases, an oral frenum may cause issues such as restricted movement, speech difficulties, diastema (gap between teeth) or interference with orthodontic treatment. The frenum may jeopardize the gingival health when they are attached too closely to the gingival margin, either due to an interference in the plaque control or due to a muscle pull. The aim of this case report is to manage the inappropriate frenal attachment in single visit by conventional scalpel technique.

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1. Introduction

Smile aesthetics indeed plays a major role in today's population especially among youth. Smile is often considered an essential aspect of a person's appearance and can significantly impact their self-confidence and overall image. People may have various concerns about their smile aesthetics, such as the colour, alignment, shape, size, and overall appearance of their teeth. Midline diastema or a gap between the upper front teeth can indeed have an impact on smile esthetics. The presence of a noticeable gap in the front teeth can affect the overall symmetry and balance of the smile, leading to concerns about appearance and self-confidence.¹ The perceived impact of midline diastema on smile esthetics can vary from person to person. Some individuals may feel self-conscious or unhappy with the appearance of their smile due to the gap, while others may embrace it as a unique characteristic. It's a personal preference, and if the gap is causing concern

or affecting one's confidence, there are several treatment options available to address it. The treatment options such as orthodontic treatment, dental veneers, frenectomy, can help in the midline diastema and improve the overall esthetics of the smile.² These treatments can help achieve a more harmonious and balanced smile addressing the specific concerns related to the gap between the front teeth. Aberrant frena may also put gingival health at risk by causing a gingival recession when they are attached too closely to the gingival margin, either because of an interference with the proper placement of a toothbrush or through the opening of the gingival crevice because of a muscle pull.³ A frenectomy involves completely removing the frenulum, while during a frenotomy, the frenulum is snipped and slightly relocated.

Frenulum was studied by Knox and Young histologically, and they reported both elastic and muscle fibres. On the other side, Henry, Levin and Tsaknis have found considerably dense collagenous tissue and elastic fibres but no muscle fibres. Abnormal frenum attachment can be checked by two methods which are *Tension test* in which lip

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is moved outward, upwards for the upper, and downwards for the lower and moved sideways. If the marginal and oblique or interdental papilla moves away from the tooth surface, then the tension test is said to be positive and *Blanch test* which is done by pulling the upper Lip outwards. Presence of thick and fleshy frenum is confirmed by the blanching of the incisive papilla region.¹ Placek et al. in 1974 classified the labial frenal attachments as follows:⁴

1. Mucosal – when the frenal fibres are attached up to the mucogingival junction.
2. Gingival – when the fibres are inserted within the attached gingiva.
3. Papillary – when the fibres are extending into the interdental papilla.
4. Papilla penetrating – when the frenal fibres cross the alveolar process extending up to the palatine papilla.

Conventional procedure of frenectomy was first proposed and performed using scalpel. Various modifications have been proposed in the literature like the Miller's technique, V-Y plasty and Z-plasty to solve the problems which are caused by an abnormal labial frenum. The present case report focuses to manage a clinical case of an aberrant frenum with the help of conventional scalpel technique.

2. Case Report

A patient aged 21 years was referred from the department of orthodontics and had chief complaint of unesthetic appearance and muscle pull upper front tooth region for one year. On clinical examination pull test revealed a papillary penetrating type of maxillary labial frenum attachment. Medical history was insignificant. After obtaining informed consent, frenectomy was planned using the scalpel technique. Prior to surgery, Phase-1 therapy (Scaling and root planning), oral hygiene instructions, motivation and education was done.

3. Surgical Procedure

2% xylocaine HCl with adrenaline 1:80,000 was administered and adequate anaesthesia was achieved. Pre-operative frontal and lateral view with papillary type frenum can be seen (Figures 1 and 2). Frenum was held with Haemostat (Figure 3). With the help of No.15 Bard Parker blade, Bulk dissection of frenum was done (Figure 4). Triangular resected frenum was removed and underlying tissue was exposed. Undermining of epithelium was done (Figure 5). Rhomboid area after complete removal of frenum was seen (Figure 6). 5-0 vicryl sutures were placed (Figure 7) Brushing was contraindicated in that region and patient was advised not to consume any hot & spicy food for at least 10 days postoperatively. Antibiotics and anti-inflammatory drugs were recommended. 10 days postoperatively patient was recalled for follow up and



Fig. 1: Pre-operative frontal view



Fig. 2: Lateral view



Fig. 3: Frenum engaged with hemostat



Fig. 4: Bulk dissection of frenum using #15 blade



Fig. 7: 5-0 sutures placed



Fig. 5: Undermining of flap



Fig. 8: Three months follow up



Fig. 6: Rhomboid area after complete frenum removal

sutures were removed. No postoperative complications were seen & healing was proceeded uneventfully and satisfactory after 3 months (Figure 8). The overall appearance of the patient's soft tissues, gingiva and superior lip were found to be healthy and esthetic, and the patient was referred to the department of Orthodontics for further treatment.

4. Discussion

A proper balance between the pink and white component of oral cavity accounts for a harmonious smile. It mainly hampers the confidence, self-esteem, and esthetics of an individual, which can also have a psychological impact on them.⁵ Aesthetic concerns have led to an increasing importance in seeking dental treatment, with the purpose

of achieving perfect smile. The continuing presence of a diastema between the maxillary central incisors in adults has often been considered as an aesthetic problem. High attached maxillary frenum is commonly regarded as contributing etiology for maintaining midline diastema, so the focus on the frenum has become essential.⁶ The classical technique was introduced by Archer (1961) and Kruger (1964).⁷ This approach was advocated in the midline diastema cases with an aberrant frenum to ensure the removal of the muscle fibres.⁸ A frenum is evaluated in relation to vestibular depth, zone of attached gingiva, interdental papilla, and diastema. If there is an adequate zone of attached gingiva, coronal to the frenum, it is of no clinical significance. A zone of attached gingiva is considered to prevent recession and it also gives an aesthetically pleasant appearance.⁹

In the present case report, frenum was excised by conventional scalpel technique at the visible region (frenal attachment from interdental papilla until the mucogingival junction). Scalpel technique was followed in the deeper vestibule to prevent greater tissue damage in the interior aspect and for faster healing. Patient was recalled after 10 days for suture removal. Uneventful healing was observed during the healing phase. Patient was followed up for three months. There was no relapse of the outcome.

5. Conclusion

Frenectomy should be considered for the esthetics and functional disharmony associated with it. Lasers are becoming increasingly popular in the field of dentistry providing alternative to conventional scalpel procedures and can be employed for frenectomy procedures but selection of it according to the type of attachment is important for the achievement of proper functional and aesthetic result.¹⁰ In the present case reports, the papillary frenum was present which was surgically excised using classical conventional technique. This was simple to perform, and desirable results were obtained with complete patient satisfaction.

6. Source of Funding

None.

7. Conflict of Interest

None.

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