Management of Aberrant Frenum: Series of Cases

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ABSTRACT

The frenum is a mucous membrane fold that attaches the lip and the cheek to the alveolar mucosa, the gingiva, and the underlying periosteum. A frenum that encroaches on the margin of the gingiva may interfere with plaque removal and cause tension. Frenectomy is the complete removal of the frenum that can be made by scalpels or with soft tissue lasers. This article describes 3 case reports of different frenectomy techniques used for management of aberrant frenum.

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Introduction
A freum may be described as a triangular fold of mucous membrane that attaches the lip and the cheek to the alveolar mucosa, the gingiva and the underlying periosteum. Sometimes it creates problem and hamper the plaque control by interfering in tooth brushing. Midline diastema may be caused by maxillary frenum thereby compromising the orthodontic result leading to aesthetic problems.

These aberrant frena may be removed either by frenectomy or frenotomy. Various techniques like simple excision with the help of scalpel or electrosurgery, even LASERs may be advocated for frenectomy or frenotomy.

The procedure of complete removal of the frenum, including its attachment to the underlying bone is known as **frenectomy** while the incision and the relocation of the frenal attachment is known as **frenotomy**.

The conventional technique involves excision of the frenum using a scalpel. Depending upon the type of frenum various modifications of this conventional procedure have been recommended like Miller’s technique, V-Y plasty and Z-plasty.

This article presents three different surgical techniques to treat aberrant labial frenum.

Case Report(S)

CASE 1:- A female patient aged about 40 years reported to the department of periodontia of Dr.R.Ahmed Dental College & Hospital with gingival recession in lower anterior tooth region for last 2-3 yrs. She was otherwise healthy with a negative drug history.

Intraoral examination revealed high attachment of lower labial frenum, extended into the marginal gingiva. The classical frenectomy procedure was planned to remove the frenum.

Frenum was engaged with a haemostat which was inserted into the depth of the vestibule and incisions were placed on the upper and undersurface of the haemostat until the tissue became free. The triangular resected portion of the frenum was removed along with the haemostat. A blunt dissection was done to relieve the fibrous attachments. Interrupted sutures were applied at the edges of diamond shaped wound with 4-0 black silk. The area was covered with a periodontal pack (Coe-pack). The sutures were removed 1 week postoperatively.

CASE 2 :- A female patient of 25yrs reported in the department of Periodontics of Dr R. Ahmed Dental College & Hospital with a midline diastema. The patient was systemically healthy with a negative drug history.
On intra oral examination it was found that there was aberrant upper labial frenum extending into the interdental papilla between upper central incisors. Case was operated with Z-plasty technique.

Scalpel incision was given along the whole length of the frenum. At each end of the incision another two incisions of equal length was made with angulation between 60° and 90°. The submucosal tissues were dissected beyond the base of each flap into the loose non-attached tissue planes. Care should be taken not to damage the apices of the flaps. These flaps were then mobilised and moved through 90° to close the previous vertical incisions [Fig-2(d)]. Stabilisation of the flaps was done by placing black silk (4-0) sutures beginning from the apices of the flaps to ascertain the adequacy of the flap repositioning. Then sutures were evenly spaced along the edges of the flaps to close the wound along the cut edges [Fig-2(e)]. A periodontal dressing was placed. After 1 week the dressing and sutures were removed.
CASE 3 :- A female patient of 25yrs was referred from the department of orthodontics of Dr R. Ahmed Dental College & Hospital for removal of frenum. The patient was systemically healthy with a negative drug history.

On intra oral examination it was found that there was aberrant upper labial frenum extending into the interdental papilla between upper central incisors. Frenectomy by V-Y plasty was done in this case. This technique was employed in a case of a papilla type frenal attachment. The frenum was held with the haemostat and an incision was made in the form of V on the undersurface of the frenal attachment. The frenum was relocated at an apical position and V shaped incision was converted into a Y, after suturing. The sutures were removed at 1 week of follow-up. After 1 month the frenal attachment was found to be relocated at an apical position with uneventful healing.
Discussion
Knox & Young histologically studied the frenulum, and reported presence of both elastic and muscle fibres (Orbicularis oris – horizontal bands and oblique fibres). However, Henry, Levin and Tsakins have found considerably dense collagenous tissue and elastic fibres without any muscle fibres.

The labial frenum attachments have been classified by Placek et al in 1974 into

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 and extend up to the palatine papilla.

The abnormal frenum are detected visually by applying tension over the frenum to see the movement of papillary tip or the blanch which is produced due to ischaemia in the region.

The frenum is characterised as pathogenic and is indicated for removal when

1) An aberrant frenal attachment is present, which causes a midline diastema.
2) A flattened papilla with the frenum closely attached to the gingival margin is present, which causes a gingival recession and a hindrance in maintaining the oral hygiene.
3) An aberrant frenum with an inadequately attached gingiva and a shallow vestibule is seen.

Resection of aberrant frenum was initially included under the term mucogingival surgery given by Friedman in 1957. Later it was included under the broad heading of periodontal plastic surgery. As mentioned earlier scalpel method, electrosurgery as well as LASERs may be used to treat these aberrant frena. The classical scalpel technique was introduced by Archer (1961) and Kruger (1964). After introduction of this technique various modifications were proposed, like Z-plasty, V-Y-plasty and Miller’s technique. Till date the classical technique remains the most widely used method. But the classical technique may leave a longitudinal surgical scar which may lead to periodontal problems and an unaesthetic appearance.

The Z-plasty technique was found to be ideal for broad, thick hypertrophic frenum associated with midline diastema.
and a short vestibule. This procedure enables us to remove the fibrous band and also helps in vertical lengthening of the vestibule. Overall the Z-plasty procedure is considered to be safe. Cost effective and results in better functional and aesthetic appearance. This procedure allows for soft tissue healing by primary intentions; increasing recovery and reducing the risk of tissue contractures.

V-Y plasty can be used in case of broad frena in the premolar molar region. It allows the lengthening of that area.

The Miller’s technique was advocated by Miller PD in 1985. This technique was proposed for the post-orthodontic diastema cases. The ideal time for performing this surgery is after the orthodontic movement is complete and about 6 months before the appliances are removed. In this technique after excision of frenum a laterally positioned split thickness pedicle graft is obtained and is sutured across the midline. The advantage of this technique are

1) Post operatively there is a continuous collagenous band of gingival across the midline. This gives bracing effect and chances of relapse is less.

2) The transseptal fibres are not disrupted surgically and so there is no loss of interdental papilla.

In this orthodontic stability is achieved without compromising aesthetics.

**Conclusion**

An aberrant frenum can be removed by any of the modification techniques but a functional and aesthetic result can be achieved by proper technique selection based on the type of frenal attachment.

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**Reference**


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