



MANAGEMENT OF ABERRANT FRENAL ATTACHMENT: A CASE REPORT

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ABSTRACT

Frenum or frenulum is a small ridge or fold of mucous membrane, usually with enclosed muscle fibers, that attaches the lips to the underlying gingiva and the periosteum. Different types of frenum have been observed and classified. At times during intraoral examination the normal location, morphology and the attachment level of the frenum are given very little importance. Many a times improper frenum attachment or morphology can be the cause of mucogingival problems, plaque accumulation and periodontal problems.

Methodology: The article was prepared by reviewing previously published articles and the textbooks on the topic providing a deep insight on the proper diagnosis and management of the abnormality.

Result: This review highlights the different morphology, classification and management of aberrant frenal attachments.

Conclusion: An aberrant frenum can be removed by any of the techniques that have been proposed, a functional and an aesthetic outcome can be achieved by a proper technique selection for proper balance between the oral tissues, based on the type of the frenal attachment. Though the approaches to the problem of using the traditional scalpel can be overcome by electro surgery and lasers which have merits, further improvements can still be attempted for better healing of the site.

KEYWORDS : Frenectomy, Frenal Attachment, Classical Technique, Z-Plasty.**INTRODUCTION**

A frenulum is a small frenum.¹ They can be single or multiple in number. They can be long and thin or broad and thick. Labial frenal attachments are thin folds of mucous membrane with enclosed muscle fibers originating from orbicularis oris muscle of upper lip that attach at the lips to the alveolar mucosa and underlying periosteum.² The primary function is to provide stability to the lips and the tongue.

Different types of frenal attachments have been observed and classified.

Mirko et al classified it as²:-

- mucosal attachment of the frenum, inserted in mucosa, means an attachment of the frenum to the muco-gingival junction.
- gingival attachment, inserted in mucosa for an attachment of the frenum to the attached gingiva.
- papillary attachment, inserted in papilla, means an attachment of the frenum to the papilla.
- papillary penetrating attachment is in those cases when the attachment of the frenum passes right up to the papilla, while inserting in attached gingiva.

Management**Indications:-**

According to Olivi et al, clinical indications for frenum removal include the following.^{3,7}

- Anomalous frenum associated with inflamed gingiva, resulting from poor oral hygiene.
- Anomalous frenum associated with gingival recession.
- Maxillary frenum associated with a diastema after complete eruption of the permanent canines.
- Abnormal and/or anomalous maxillary frenum (class III or IV), resulting in the presence of a diastema during mixed dentition.
- Anomalous mandibular frenum with apical insertion, causing the onset of gingival recession.

Diagnosis

Aberrant frenal attachments can be assessed by the tension and blanch test methods. The frenum is characterized as pathogenic when it is unusually wide or when there is no apparent zone of the attached gingiva along the midline or the interdental papilla shifts when the frenum is extended.⁴

Treatment

The techniques employed for the correction of aberrant frenal attachments are –

- Surgical techniques using scalpel

- Frenectomy using electrocautery
- Frenectomy using LASER

Electrosurgery and LASER techniques have been reported as effective and safe procedures with advantages such as mild bleeding and little or no post operative complications. However, it is associated with certain complications which include burns, the risk of an explosion if combustible gases are used, interference with pacemakers and the production of surgical smoke. These complications have not been reported with the new improved electro surgical techniques, like the Argon Beam Coagulation (ABC).^{5,6}

The scalpel techniques that are employed for the treatment of aberrant frenal attachment are –

- Classical Frenectomy
- Miller's technique
- V-Y Plasty
- Z Plasty

Classical Frenectomy

According to Friedman in 1957, Frenectomy refers to the complete removal of frenum, including its attachment to the underlying bone. Classical frenectomy technique was introduced by Archer et al 1961 and Kruger et al 1964. This approach was advocated in the midline diastema cases with an aberrant frenum to ensure the removal of the muscle fibres which were supposedly connecting the orbicularis oris with the palatine papilla.⁷

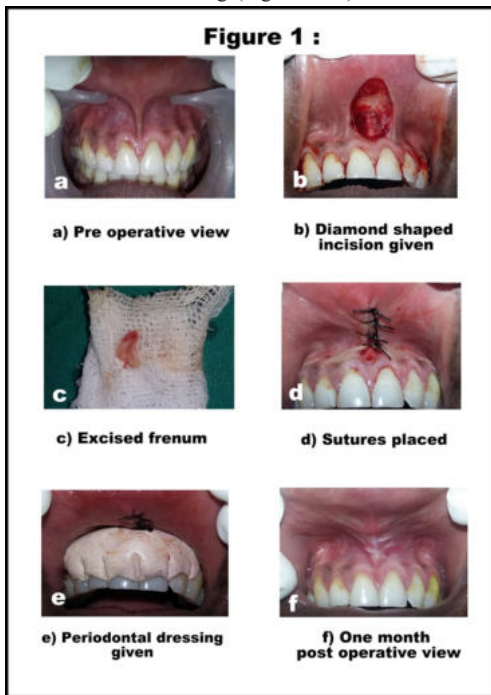
Armamentarium –

Haemostat, scalpel blade no.15, gauze sponges, 3-0 mersilk sutures, suture pliers, scissors, and a periodontal dressing (Coe-pak).

Case Report:-

- The present case was a gingival type of frenal attachment.
- The area was anaesthetized with a local infiltration by using 2% lignocaine with 1:80000 adrenaline.
- The frenum was engaged with a haemostat which was inserted into the depth of the vestibule and incisions were placed on the upper and under the surface of the haemostat until the haemostat was free.
- The triangular resected portion of the frenum with the haemostat was removed. A blunt dissection was done on the bone to relieve the fibrous attachment.
- The edges of the diamond shaped wound were sutured by using 3-0 mersilk with interrupted sutures.
- The area was covered with a periodontal pack. The pack and the sutures were removed 1 week post-operatively.

The post-operative sequelae at 1 month of follow-up included un-aesthetic or labial tissue scarring. (Figure 1a-f)



Miller's Technique⁴

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 weeks before the appliances are removed. This not only allows healing and tissue maturation, but it also permits the surgeon to use orthodontic appliances as a means of retaining a periodontal dressing.

In this technique the anesthetised frenum is excised and the alveolar bone is exposed in midline followed by a horizontal incision to separate the frenum from the interdental papilla.

A laterally positioned pedicle graft (split thickness) can be obtained and it is sutured across the midline followed by placement of the periodontal dressing.

After 1 week, the periodontal dressing was removed.

Z Plasty⁴

This technique is indicated when there is hypertrophy of the frenum with a low insertion, which is associated with an inter-incisor diastema, and when the lateral incisors have appeared without causing the diastema to disappear and also in cases of a short vestibule.

In this technique the length of the frenum was incised with the scalpel and at each end, limbs at between 60° and 90° angulation, incisions were made in equal length to that of the band the resultant flaps which created can be mobilized and transposed through 90° to close the vertical incisions horizontally and they are sutured.

DISCUSSION

Abrerrant frenal attachments have been seen as etiological factors for several periodontal diseases. High frenal attachment are also associated with region of persistent gingival inflammation due to plaque accumulation. It has also been a factor of concern for orthodontist as it interferes in the closure of midline diastemas and relapse for orthodontic therapy for the same. In case of mandibular lingual frenal attachments, short and broad frenum are associated with interference in the child's ability for speech.

Frenectomy is defined as the surgical procedure for complete removal of frenum, including its attachment to the underlying bone. It can be achieved by several techniques, most commonly employed are convectional/classical method. This leads to complete excision of the frenulum, palatine and labial papillae and exposure of the underlying

bone. It also results into scarring which appears to be unesthetic and may act as a nidus for periodontal problems. However, this method is employed for the treatment of diastemas as it prevents its reopening. So as to overcome the drawbacks due to scarring, Miller in 1985 introduced the procedure of frenectomy with a laterally positioned pedicle graft.⁴ It resulted in less scare formation, providing better aesthetic results and less plaque accumulation thereby less periodontal pathogenesis. In case of receding gums and papillary frenal attachment V-Y plasty technique can be used by excising the frenum on the under surface and a Y shaped suture line is created for better aesthetic.

In cases of hypertrophy of the frenulum with a low insertion associated with diastema and a short vestibule, Z-Plasty technique is employed and flaps can be approximated along the edges of mucoperiosteum and labial mucosa.

CONCLUSION

An aberrant frenum can be removed by any of the techniques that have been proposed, a functional and an aesthetic outcome can be achieved by a proper technique selection for proper balance between the oral tissues, based on the type of the frenal attachment. Though the approaches to the problem of using the traditional scalpel can be overcome by electro surgery and lasers which have merits, further improvements can still be attempted for better healing of the site.

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