



ORIGINAL RESEARCH PAPER

Dental Science

USE OF ELECTROCAUTERY IN MANAGEMENT OF ABNORMAL FRENAL ATTACHMENT.

KEY WORDS:

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The frenum is a dynamic and changeable structure, which tends to have variations in size, shape, and position of attachment during the different stages of growth and development. It is found to be smaller in length, thicker and more inferiorly attached in children.

The frenum is a part of the normal anatomy of the oral cavity. It is triangular shaped and is seen in the maxillary midline region of the oral cavity. It extends from the midline of the gingiva entering the vestibule and the middle region of the upper lip.

It is composed of epithelium, collagen fibers, blood vessels, nerves. At times minor salivary glands may also be seen along with stratified muscle fibers.

The frenum originates from the remnant of central cells of vestibular lamina which comprises mostly of connective tissue and some small amount of muscle fibers. It is hypothesized that the maxillary labial frenum is a post eruptive remnant of tectolabial bands.

Placek et al. classified different types of frenal attachments based on the anatomical location of the frenum in mucogingival junction, attached gingiva, interdental papilla and papilla extending to palate. Papillary and papillary penetrating type of frenal attachments are considered pathological beyond mixed dentition.

Depending upon the extension of attachment of fibres, frena have been classified as: Mucosal – when the frenal fibres are attached up to mucogingival junction Gingival – when fibers are inserted within attached gingiva. Papillary – when fibers are extending into inter dental papilla.

Papilla penetrating – when the frenal fibers cross the alveolar process and extend up to palatine papilla. Other different forms of normal frenal attachment include: simple frenum with anodule, simple frenum with appendix, simple frenum with nichum, bifid labial frenum, persistent tectolabial frenum, double frenum, wider frenum.

Pathological or abnormal frenal attachments cause functional as well as aesthetic issues like maxillary midline diastemas.

The pathology of midline diastema is said to be due to either the majority of frenal fibers retain their embryological connection with incisive papilla and this causes the spacing between the central incisors, or that these fibers ward off the periodontal ligament between central incisors and there by construct a weak link in the fibers that join teeth from one end point of the maxillary arch to the other end point.

In the 1939, Hirschfield advocated frenectomy as a mucogingival procedure to eliminate the aforementioned pathologic situations caused by an abnormal frenum attachment. However, there is still talk amongst many investigators about the requirement as well as the opportune

moment for frenectomy.

Commonly used methods for frenectomy include conventional technique with scalpels or periodontal knives and the technique with the use of soft tissue laser or use of electrocautery.

According to Archer, the classic frenectomy technique involves complete excision of the frenum, interdental tissues and palatine papilla, leaving bone and periosteum exposed.

Modifications of this method include addition of horizontal releasing incisions and the mucogingival junction, and the lateral underlying of the labial attached gingiva adjacent to the excision area.

However, difference of opinion has been noted because of the high possibility of hematoma and delayed healing with the need of constant wound dressing.

“The Z-plasty technique” is another method used. In this the frenum is not removed but it is intended to relax the pull of the frenum on the interdental soft tissue.

Periodontists have also described a frenectomy technique which requires no excision of the marginal papilla, and “the curtain type” of gingivectomy of the palatal tissue behind 4 incisors.

Some clinicians also use a combination of the classic frenectomy with a lateral pedicle graft, free papilla graft and free gingival graft which are taken from the papilla. However, a lateral pedicle graft doesn't completely cover the wound and also creates aesthetic issues owing to undesirable colour match.

A new frenectomy technique has been proposed by Bagga et al, which is seen to provide a good aesthetic result. In this technique, an “Archer Incision”, which is a V shaped full-thickness incision, is placed at the gingival base of the frenum attachment. After the excision of a frenum, a V-shaped defect on the gingiva side is present. An oblique partial thickness incision is placed on adjacent attached gingiva extending beyond the mucogingival junction.

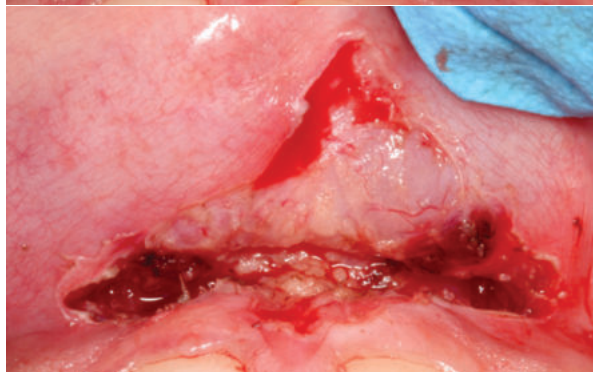
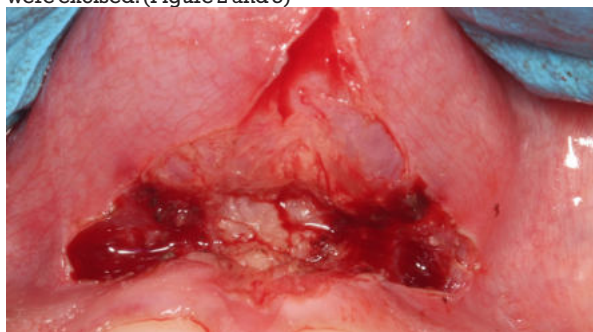
A partial-thickness dissection of the attached gingiva is formed in an apicocoronal direction. This gives a triangular pedicle of the attached gingiva with free apex and the base continuous with the alveolar mucosa. This bilateral triangular pedicle is sutured at the center to cover the underlying defect.

A 23-year-old female was referred to the dental office by the orthodontist for management of abnormal frenal attachment.

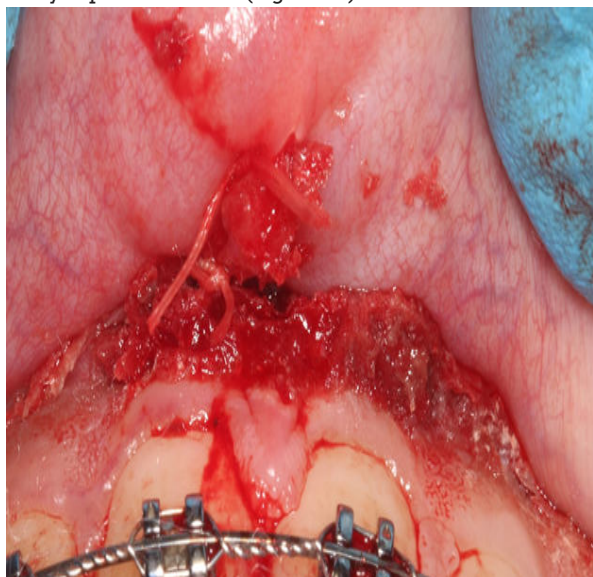
On examination it was observed that she had a papillary penetrating maxillary labial frenum which was fibrous. (Figure 1)



After administration of local anesthesia (2% lidocaine with 1:80,000 epinephrine), using electrocautery, V shaped incision was made extending from upper right lateral incisor to upper left incisor (12 to 22). Excess tissue and muscle fibers were excised. (Figure 2 and 3)

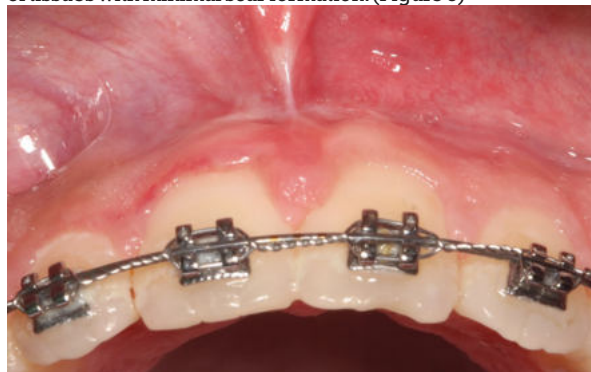


Tissue adhesive (N-Butyl2-cyanoacrylate) was used to close the site of surgery. (Figure 4) The labial area was closed using Vicryl rapide 3-0 sutures (Figure 4 b)



7th and 10th day post operative follow up showed adequate wound healing.

3 months post operative follow up showed excellent healing of tissues with minimal scar formation. (Figure 5)



CONCLUSION

Advantages of using electrocautery over using surgical blades are that, it provides a clear view of the surgical site with minimal amount of bleeding as it provides precision along with haemostasias. Scar formation is minimal.

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