

FRENECTOMY FROM PERIODONTIST PERSPECTIVE – A REVIEW

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ABSTRACT

Frenum is a fold of mucus membrane enclosing the muscle fibres. It attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying periosteum. The aberrancy in the frenal attachments pose problems with esthetics and periodontal health. Frenectomy is the procedure done to correct such aberrancies in frenal attachments. Various techniques have been proposed to do frenectomy. Yet the correct time to do frenectomy has not been clearly defined. This review will help to enlighten its readers with few opinions about the time of performing frenectomy surgeries

INTRODUCTION

The word “frenum” is classically referred to a fold of mucous membrane enclosing muscle fibres. This fold attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying periosteum.(1)

The region where the frenum attaches the lips and cheeks to the periosteum is crucial. Because when this region is close to the marginal gingiva, it might affect the effectiveness in plaque removal and might tend to open the gingival sulcus(1) whenever there is a tension in the frenal fold. This is otherwise called as aberrant frenal attachment. Such an attachment will also pose problems in midline diastema closures or in case of gingival recessions.(2) Such attachments are also known to cause loss of interdental papillae.

The frenal aberrancy and its related problems were frequently noticed with maxillary and mandibular labial surfaces and rarely noticed with mandibular lingual surfaces.(3)

When this aberrant frenal attachment occurs in the lingual region, it is called as ankyloglossia or tongue-tie. Ankyloglossia is the term that originated from greek words, agkilos- curved; glossa-tongue. It is considered as a congenital anomaly in which a child is born with a short and/or thick lingual frenulum that limits the tongue movement. This term was first used in the medical literature by Wallace and he also defined tongue-tie as “ a condition in which the tip of the tongue cannot be protruded beyond the lower

incisor teeth because of a short frenulum liguae, often containing scar tissue”.(4) Ankyloglossia is often found to be associated with difficulty in feeding(5) and demands immediate management.

DEVELOPMENT OF FRENUM:

The maxillary labial frenum originates as a post eruptive remnant of the ectolabial bands which connects the tubercle of the upper lip into the palatine papilla. It extends over the alveolar process and will soon form a raphe upto the palatine papilla. As the alveolar process grows and as the teeth erupt, this will change to normal adult frenal architecture.

CLASSIFICATION

Placek et al in 1974, classified frenal attachments into four different types based on the extent of fibrous attachment. They are,

- Mucosal – the fibrous attachment is at the Mucosal Gingival Junction.
- Gingival – the fibrous attachment is at the attached gingiva.
- Papillary- the fibrous attachment is at the interdental papilla.
- Papillary penetrating- the fibrous attachment runs across the alveolar process and extend upto the palatine papilla.

DIAGNOSIS OF ABERRANT FRENAL ATTACHMENT::

An aberrant frenal attachment can be diagnosed with a tension test or blanch test. By applying tension on the frenum, the papillary movement or the blanching around the alveolar attachment of the frenum due to ischemia can be noticed in case of aberrancy. This aberrancy has to be confirmed before initiating the treatment. MILLER ET AL (1985) gave few characteristics like a wide frenum, or a frenum with

no apparent attached gingiva along the midline or interdental papillary shift during frenal extension as diagnostic criteria for frenal aberrancy.

CLASSIFICATION

The frenal aberrancy can be corrected through frenectomy or by frenotomy. Frenectomy is the complete removal of the frenum, including its attachment to the underlying bone, while frenotomy is the incision and relocation of the frenal attachment(6).

Technique name	Origin/introduction	Specific indication
Classic technique	Archer (1961) Kruger (1964)	For papilla or papillary penetrating; for midline diastema
Millers technique	Miller PD in 1985	For post orthodontic diastema cases
Z Plasty	Puig in 1977	Frenal hypertrophy with low insertion Attached type frenal attachment
V-Y Plasty		For papilla type , in case if lengthening is needed as in broad frenum in premolar-molar region.

frenectomies. They are before, during or after completion of orthodontic treatment.

BEFORE ORTHODONTIC REATMENT:

Electrosurgery technique of frenal attachment is indicated in patients with bleeding disorders. Lasers are nowadays utilised widely for frenectomies. CO₂, Diode, Nd: YAG, Er: YAG are the commonly used lasers.

WHEN TO DO FRENECTOMY?:

It is a long lasting debate, as to when to do frenectomy? Frenectomy is a procedure done to manage cases of midline diastema. So, orthodontists and periodontists together will be managing such cases. Both of them have their own opinion regarding managing such cases. In precise there are three different time periods to do

A “stand alone” frenectomy is effective for space closure, only when it is done before the maxillary incisors erupt essentially as a preventive measure. But this is not the case for teeth already erupted. Performing frenectomy prophylactically before starting an orthodontic treatment is neither widely practiced nor condemned openly by everyone. The issue is with the scar tissue that is going to be formed which is believed to hinder the tooth movement. However, the spontaneous diastema closure seems to have no difference with or without frenectomy(7). So, a question arises as, whether a forceful intentional tooth movement bringing the teeth together might be affected by the frenectomy performed. So, cosmetically doing frenectomy in some cases might not pose a hindrance to the future diastema closure. Moreover, Herremens et al, 1971, stated the ease of surgical access and ability to cut all the fibres is only available before orthodontic treatment.(8) In consideration of the merits and demerits, it is totally not unadvisable to do frenectomy procedures before orthodontic treatments. However frenectomies immediately before orthodontic treatments is a separates issue and have to be discussed further.



Frenectomy before orthodontic treatment [During](#)

ORTHODONTIC TREATMENT

Some orthodontists themselves recommend frenectomies in mid-orthodontic time frames, when there is a need to remove the aberrant frenal fibres that hinder the diastema closures. Bobby Ghaheri in 2015, stated that the scar tissue formed after frenectomies will become firm by 21 days after surgery and will start to loosen after 21 days and will ultimately soften and mature after months.(10) so, sooner or later the firmness of the scar tissue will yield to the tooth movement giving way for the diastema closure. This might be the reason for doing frenectomies in mid orthodontic treatments in clinical case scenerios.



Frenectomy during orthodontic treatment [After](#)

ORTHODONTIC TREATMENTS

Various authors advocate doing frenectomy procedures at the time of completion of orthodontic treatment or after the completion of orthodontic treatment. Jorgenson et al in 2019, also advocate that this is the best time to do frenectomy considering the scar tissue and fibers that will be formed after the surgery.



Frenectomy after orthodontic treatment

SUMMARY AND CONCLUSION

From orthodontist perspective, the best time for frenectomy is after diastema closure. From periodontist perspective, to avoid the aberrant frenal attachment (which may cause worsening of gingival recession, esthetic problems and hindrance to oral hygiene maintenance.) a quicker and earlier treatment option as and when such a frenum is found, is preferred. So, the time frame of performing periodontist and orthodontist for each and every case individually.

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