

Successful Management of Labial and Lingual High Frenal Attachment by Conventional Technique: A Case Report

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ABSTRACT

Background: Frenal attachments are thin folds of mucous membrane with enclosed muscle fibers that attach the lips to the alveolar mucosa and underlying periosteum. Usually very little importance is given to frenum during oral examination by general dentist. The adverse effect of aberrant maxillary labial frenum is that it may cause diastema and recession, affecting aesthetics. Ankyloglossia or tongue-tie is another developmental anomaly which results of a short, tight, lingual frenulum causing difficulty in speech articulation due to limitation in tongue movement. In this case series, we have highlighted the two cases one is a 20 year old male patient with aberrant maxillary labial frenum causing midline diastema and in another case we reported a 24-year-old male with ankyloglossia who complained of difficulty in speech. Both the cases underwent frenectomy procedure one is maxillary labial frenectomy with Archer's conventional approach for correction of diastema and another patient treated with lingual frenectomy with one haemostat technique under local anesthesia without any complications.

Keywords: Aberrant frenum, diastema, ankyloglossia, frenectomy.

INTRODUCTION

Frenal attachments are thin folds of mucous membrane with enclosed muscle fibers that attach the lips to the alveolar mucosa and underlying periosteum. Now a days aesthetic concern is greatly increasing consideration of general population having a diastema between the maxillary central incisors in adults is considered as an aesthetic problem. An aberrant frenum is one of the aetiological factors for the persistence of a midline diastema, the focus on the frenum has become essential. 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.^[1]

The frena may also jeopardize the gingival health 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.^[2,3]

Classification:

The labial frenal attachments have been classified as mucosal, gingival, papillary and papilla penetrating, by Placek et al (1974).^[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.

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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 frena are detected visually by applying tension over the frenum to see the movement of the papillary tip or the blanch which is produced due to ischemia in the region.^[5] 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.



Fig 1.1: Frenum Held With Hemostat.



Fig 1.2: Diamond shaped wound after excision of frenum.

Ankyloglossia or tongue-tie is the result of a short, tight, lingual frenulum causing difficulty in speech articulation due to limitation in tongue movement.

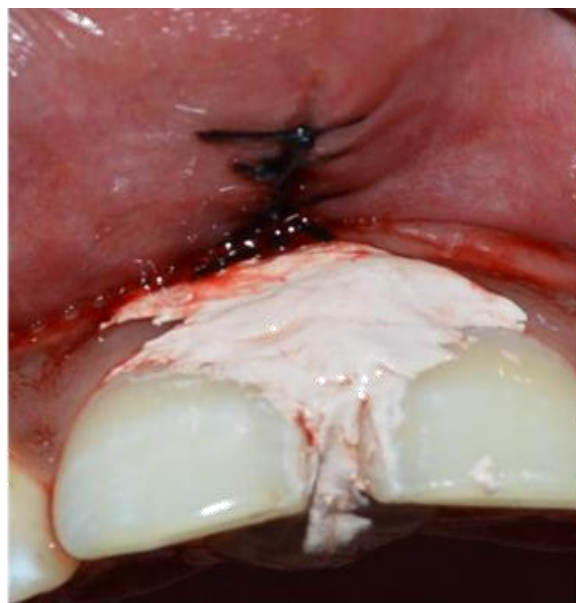


Fig 1.3: Suturing and Periodontal Pack.



Fig 1.4: Post operative.

LINGUAL FRENECTOMY



Fig 2.1: Operative W Shaped Tounge.



Fig 2.2: Pre – Operative Abberent Lingual Frenum.



Fig 2.3: Traction of Tongue with 4-0 suture.



Fig 2.4: Holding frenum with hemostat.



Fig 2.5: Removal of triangular portion.



Fig 2.6: After removal of triangular portion.



Fig 2.7: Cutting of fibers.

Etymologically, “ankyloglossia” originates from the Greek words “agkilos” (curved) and “glossa” (tongue). The same term is used for very different clinical situations: When the tongue is fused to the floor of the mouth, but also if the lingual frenulum is only short and thick with slight impairment of tongue mobility. The first use of the term

ankyloglossia in the medical literature dates back to the 1960s, when Wallace 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 linguae, often containing scar tissue."^[6]



Fig 2.8: After suturing.



Fig 2.9: Post operative.

Kotlow's classification of ankyloglossia

Free tongue is defined as the length of the tongue from the insertion of lingual frenum into base of the tongue to the tip of the tongue. Clinically acceptable normal range of free tongue is greater than 16 mm.

According to Kotlow's observation, ankyloglossia can be of four types depending on clinically available free tongue (protrusion of tongue).^[7]

- Class I: Mild ankyloglossia (12-16 mm)

- Class II: Moderate ankyloglossia (8-11 mm)
- Class III: Severe ankyloglossia (3-7 mm)
- Class IV: Complete ankyloglossia (<3 mm).

CASE REPORT

The present case was a papilla penetrating 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 [Fig.1.1] and incisions were placed on the upper and the under 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 [Fig. 1.2] were sutured by using 4-0 black silk with interrupted sutures [Fig1.3]. The area was covered with a periodontal pack. The pack and the sutures were removed 1 week post-operatively. After one week follow up patient had good healing and no scar formation.

A 24-year-old male was reported in the department of Periodontics with difficulty in speech since birth. On intraoral examination, it was found that the individual had ankyloglossia (tongue-tie) and was classified as Class II by utilizing Kotlow's assessment and was able to protrude the tongue up to the lower lip [Fig 2.1 and 2.2]. There were no malocclusion and recession present lingual to mandibular incisors. The patient was undertaken for a frenectomy procedure under local anesthesia with 2% lignocaine hydrochloride and 1:80,000 adrenaline by using a scalpel method. A 4-0 suture is used for traction of tongue [Fig 2.3]. First a curved hemostat was inserted to the bottom of the lingual frenum at the depth of the vestibule and clamped into position followed by giving two incisions at the superior and the inferior aspect of the hemostat [Fig.2.4].

This way, we removed the intervening frenum [Fig.2.5] and got a diamond shaped wound [Fig.2.6 and 2.7] Then with the help of the same hemostat, we released the muscle fibers so as to achieve a good tension free closure of the wound edges after which the wound edges were approximated with (4-0) black braided silk sutures [Figure 2.8] for the tissues to heal by primary intention thereby minimizing the scar tissue formation, antibiotic Cap.

Amoxicillin (500 mg) thrice a day for 3 days and non-steroidal anti-inflammatory drug Tab. Ketorolac DT (10 mg) once a day only on day of surgery was prescribed to prevent post-operative infection and pain. The post-operative period was uneventful with no delayed haemorrhage. Sutures were removed after 1 week [Fig2.9] which showed no scar tissue formation. Patient had normal tongue protrusion and change in shape of tongue.

DISCUSSION

Nevertheless, in spite of the various modifications which have been proposed for frenectomy, the widely followed procedure which remains is the classical technique. The management of aberrant frenum has travelled a long journey from Archer's and Kruger's "classical techniques" of total frenectomy to Edward's more conservative approach.^[8]

In our study patient with aberrant frenum patient had high frenal attachment which was anaesthetic and creating diastema so we decided to do in conventional approach technique. Furthermore, surgical procedures in the ventral aspect of the tongue like lingual frenectomy can lead to mucocele of the Blandin-Nuhn gland.

Some individuals, however, benefit from surgical intervention frenotomy, frenectomy or frenuloplasty for their tongue-tie. Patients should be educated about the possible long-term effects of tongue-tie so that they may make an informed choice regarding possible therapy.^[9]

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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