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ABSTRACT

A frenum is a fold of mucous membrane, usually with enclosed muscle fibers, that attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying periosteum. Ankyloglossia, commonly known as tongue tie, is a congenital oral anomaly which limits the tongue's range of motion. Ankyloglossia management should be considered at any age considering the risk-benefit evaluation and because of the highest vascularization and mobility of tongue; lingual frenectomy should be performed with less traumatic events to avoid post-operative complications. In this article we report a case of 17 years old female with ankyloglossia, complaining of difficulty in speech. It was surgically treated with proper healing and good patient satisfaction.

Key words: Frenum, Ankyloglossia, Tongue tie, Lingual frenectomy.

INTRODUCTION:

A frenum is a fold of mucous membrane, usually with enclosed muscle fibers, that attaches the lips and cheeks to the alveolar mucosa and/or gingiva and underlying periosteum. Ankyloglossia, commonly known as tongue tie, is a congenital oral anomaly which may decrease mobility of the tongue tip and is caused by an unusually short, thick lingual frenulum, a membrane connecting the underside of the tongue to the floor of the mouth.[1] The first use of the term ankyloglossia in the medical literature dates back to the 1960s, when Wallace[2] 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." A lingual frenum attachment limits the tongue's range of motion. The term free-tongue is defined as the length of tongue from the insertion of the lingual frenum into the base of the tongue to the tip of the tongue. Clinically acceptable, normal range of free tongue is greater than 16 mm.[3]

✿ **Kotlow Classification of ankyloglossia**

- 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)

Frenectomy is the usual procedure to release the lingual frenulum done traditionally using scalpel, electrocautery & now with soft or hard tissue lasers.[4] Ankyloglossia management should be considered at any age considering the risk-benefit evaluation and because of the highest vascularization and mobility of tongue; lingual frenectomy should be performed with less traumatic events to avoid post-operative complications.

CASE REPORT:

A 17 years old female reported to the Department of Periodontics, with complaint of difficulty in speech. General examination of the patient was normal. No relevant Medical history was present. On intraoral examination the individual was diagnosed with ankyloglossia (tongue tie) and was classified as Class II ankyloglossia by utilizing Kotlow assessment. There was neither any gingival recession in relation to mandibular incisors lingually nor any malocclusion present. Surgical frenectomy of the lingual frenum was planned. The patient was informed about the treatment procedure and informed consent was obtained.

PROCEDURE:

Frenectomy was performed with scalpel using blade no. 15. The procedure was carried under local anesthesia with 2% lignocaine hydrochloride. A retraction suture (3-0 silk) was

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placed at the tip of the tongue to facilitate retraction and to facilitate the visibility in the area of the operating field. The incision was started from the base of the tongue with simultaneous suturing for the approximation of the tissues and reduce the bleeding in the working field. The wound edges were then approximated with 3-0 black silk sutures. Analgesics and antibiotics were prescribed. Swelling and pain was present on the 1st postoperative day, which subsided with the continuation of medication. One week post-operative image showed the formation of slough over the operated site (extending along base of the tongue and floor of the mouth) indicating the process of healing. Patient was advised tongue exercises after 1 week. One month post-operative image shows complete healing.

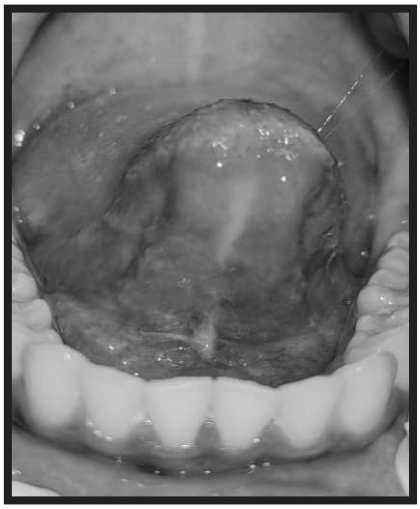
Pre- operative

Pre-operative showing class- II ankyloglossia

Placement of sutures

Extention of tongue

1 week follow up showing healing process



1 month follow up

DISCUSSION:

Ankyloglossia isa Greek term which means "agkilos" for curved and "glossa" for tongue and is more commonly called "tongue-tie". It is a congenital anatomical variation characterized by a short lingual frenulum, which may result in the restriction of tongue movement and can thus impact oral functions.[5,6]

During the 4th week of gestation, the tongue's origin is from the 1st, 2nd and 3rd pharyngeal arches. In this period, grooves are formed laterally to the structure and it can move freely, except for the region adhered by the lingual frenulum, initially at the apex of the tongue. As the development occurs, the frenulum cells undergo apoptosis and they tend to migrate distally to the medial region of the lingual dorsum, which explains the possible interferences in cell control and the incomplete migration, or even its non-occurrence resulting in an ankyloglossia.[7]

Diagnosis is based on a clinical examination. Tongue mobility and appearance associated with the insertion, as well as the attachment and the shortness of the lingual frenulum, should be evaluated. Furthermore, instances of speech difficulty resulting from the limited tongue movements can be checked by vocalizing some letters and words (sounds such as "t", "d", "r", "n", and "l", and words like "ta", "te", time, water, cat, etc.).[5,8]

Several publications have investigated the influence of the tongue and lingual frenulum on maxillofacial anomalies such as mandibular prognathism, maxillary protrusion and anterior open bite. Yoon et al. showed in their recent cross-sectional cohort study that the restriction of tongue mobility was associated with the narrowing of the maxillary arch and the elongation of the soft palate, which may affect maxillofacial development.[9]

Several management options exist for the treatment of tongue-tie. They include observation, speech therapy, otolaryngotherapy; frenotomy, frenectomy, Z-plasty, and laser frenectomy, and they have the capacity to deliver satisfactory results, often in a shorter time than expected. If the intervention of a speech therapist and otolaryngotherapist fails to resolve speech and tongue related problems, then it may be necessary to consider surgical protocol. Surgical interventions are absolutely safe at any age, including infants and adults, but strictly require postsurgical tongue reeducation and speech therapy to achieve satisfactory results.[8]

Surgical management of tongue-tie can be classified into 3 techniques:

– frenotomy defined as simple cutting of the frenulum;

– frenectomy defined as complete excision, i.e., removal of the whole frenulum;

– frenuloplasty that includes various methods to release the tongue-tie and correct the anatomic situation.

Late postoperative complications after ankyloglossia management are rare. Various complications include bleeding, blockage of Wharton's duct while suturing on the ventral surface of the tongue leading to retention cyst, and damage to the lingual nerve causing numbness of the tongue tip.[10] A recent systematic review conducted by Bin-Nun et al. mentioned that the yearly number of ankyloglossia-related articles has increased dramatically in the past few years without bringing interesting evidence.[11] If this trend continues, much more solid evidence (randomized controlled trials and systematic reviews) should accumulate about diagnosis and management of tongue-tie, as it relates to breastfeeding and other outcomes.

CONCLUSION:

Ankyloglossia or tongue-tie in most cases is a relatively harmless condition and the treatment is relatively simple effective and safe. In the present case report, lingual frenectomy was done by scalpel technique which provides practical benefit to the patients. There is no enough evidence in the literature to draw any sound conclusion about the timing of surgery for ankyloglossia. Furthermore, no specific surgical method can be favored over others or suggested as favor any one the modality of the choice.

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