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Breaking The Shackles!

Ankyloglossia And Its Management- A Case Report

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ABSTRACT:

Ankyloglossia or tongue-tie is a developmental anomaly characterized by a short, thick lingual frenulum which limits tongue movement. Limitation in tongue movement causes difficulty in speech articulation, affects the position of teeth, periodontal tissues, nutrition etc. Surgical correction usually helps overcome the difficulties associated with tongue-tie. This article is a case report of a 19-Year-old Male with ankyloglossia which was surgically treated with uneventful healing and good patient satisfaction.

Key words: *Ankyloglossia, frenectomy, tongue-tie*

INTRODUCTION:

“Ankyloglossia” originates from a Greek word “agkilos” (curved) and “glossa” (tongue)^[1]. It was first used in 1960s by Wallace^[2] who 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.”

It can be categorized into 2 types.

- TOTAL ANKYLOGLOSSIA is rare and occurs when the tongue is completely fused to the floor of the mouth.
- PARTIAL ANKYLOGLOSSIA is variable and encompasses the remainder of the cases^[3]

Various studies using different diagnostic criteria found a prevalence of ankyloglossia between 4 and 10%^[4,5]. It is more common in males, with male to female ratio of 2.5 : 1.0^[5]. Ankyloglossia in infants has an incidence rate from 25% to 60%, and its presence can lead to difficulty in breastfeeding ranging from failure to thrive to even refusing the breast^[4,5,6].

Ankyloglossia can affect feeding, speech, oral hygiene as well as have mechanical/social effects. When the tongue is retracted, it causes blanching of the soft tissue and also exerts excessive force on the mandibular anteriors. The lingual frenum may cause midline diastema in lower central incisors. Ankyloglossia can also prevent the tongue from contacting the anterior palate, leading to a retained infantile swallow, resulting in an open bite deformity^[7].

Kotlow classified ankyloglossia based on free tongue movement^[1]

Table 1: Kotlow’s Classification based on free tongue

CLASSIFICATION OF ANKYLOGLOSSIA		Range of free tongue movement*
Normal		>16mm
Class I	Mild ankyloglossia	12-16mm
Class II	Moderate ankyloglossia	8-11mm
Class III	Severe ankyloglossia	3-7mm
Class IV	Complete ankyloglossia	<3mm

**Free-tongue is measured from the insertion of the lingual frenum into the base of the tongue to the tip of the tongue*

This paper reports surgical management of ankyloglossia in a young male patient who had severe restriction of tongue movements.

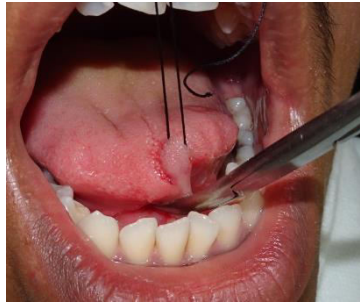
CASE REPORT:

A 19-year-old male reported to the department of Periodontics with a chief complaint of difficulty in speech articulation. Intraoral examination revealed a thick, short lingual frenum restricting the normal tongue movement, suggestive of ankyloglossia(tongue-tie). Based on Kotlow's criteria [Table 1], the ankyloglossia was classified as Class III [Figure 1]and the patient was able to protrude the tongue just beyond the incisors.



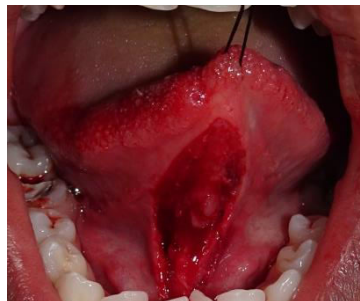
[Figure 1: Preoperative view showing class III Ankyloglossia]

The patient had a prognathic mandible with an edge-edge bite. The patient was undertaken for frenectomy procedure under local anesthesia with 2% lignocaine hydrochloride and 1:80,000 adrenaline by using a scalpel method. After anesthesia was found to be effective, a suture was used to stabilize the tongue. Following tongue stabilization, 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 inferior and superior aspect of the hemostat.[Figure 2]



[Figure 2: Tongue secured in position, followed by clamping of frenum using a curved hemostat]

A triangular tissue was thus removed, resulting in a diamond shaped wound. [Figure 3]



[Figure 3: Excision of frenum; note the diamond shaped wound]

A curved hemostat was used to release the muscle fibers so as to achieve a good tension free closure of the wound edges. 3-0 black braided silk was used as a suture material for tissue approximation to allow healing by primary intention, thus minimizing scar formation. [Figure 4]



[Figure 4: Sutures]

Antibiotics and analgesics (Cap. Amoxicillin 500mg TDS for 3 days and Tab. Diclofenac 10mg TDS for 3 days) were prescribed for post-operative comfort. The post-operative period was uneventful with no delayed hemorrhage. Sutures were removed after 1 week which showed no scar tissue formation following which the patient was sent for speech therapy sessions. [Figure 5]



[Figure 5: Post-operative view 6 months]

DISCUSSION:

Before birth, a strong cord of tissue guides the development of oral frenulum which is positioned in the centre of the mouth. After birth, this lingual frenulum continues to guide the position of erupting teeth. As the child grows, it recedes and becomes thin. This frenulum is visible when we look at the mirror under the tongue. In some children, however, the frenulum is tight, or it fails to recede and may cause tongue immobility- a condition called as tongue-tie or Ankyloglossia^[8].

Tongue tie is the nonmedical term for a relatively common physical condition that limits the use of the tongue, which is actually called as ankyloglossia^[8].

In many individuals, ankyloglossia is asymptomatic; the affected individuals learn to compensate for their reduced lingual mobility, while others benefit from surgical intervention and speech therapy.^[9]

Speech problems can occur when there is limited mobility of the tongue due to ankyloglossia. The difficulties in articulation are evident for consonants and sounds like “s, z, t, d, l, j, zh, ch, th, dg”^[10] and it is especially difficult to roll an “r”. Localization of the frenum insertion on the gingiva seemed to be of importance for gingival sequelae because insertion of the lingual frenulum in the area of the papilla had the highest association with gingival recession.

Clinically acceptable, normal range of free tongue is greater than 16 mm. A normal range of motion of the tongue is indicated by the following criteria: The tip of the tongue should be able to protrude outside the mouth; without clefting, the tip of the tongue should be able to sweep the upper and lower lips easily; without straining, when the tongue is retracted, it should not blanch the tissues lingual to the anterior teeth; and the lingual frenum should not create a diastema between the mandibular central incisors.^[9]

Limited mobility of the tongue in patients with ankyloglossia, positions the tongue in a low position and causes forward and downward pressure favoring the development of mandibular prognathism with maxillary hypo development.

Since all the cases of ankyloglossia do not necessarily need a surgical intervention, a cautious monitoring of individuals is needed. After completion of growth and also during infancy, if the individuals have a history of speech, feeding, or mechanical/social difficulties surgical intervention should be carried out.^[9] Tongue exercises should be practiced. Pronunciation of linguo-alveolar and linguo-dental consonants (“s, z, t, d, l, j, zh, ch, th, dg”) should be promoted to improve speech articulation. If speech enhancement is not achieved, referral to a speech therapist becomes mandatory.

CONCLUSION:

Ankyloglossia or tongue-tie not only causes speech difficulties, but also leads to developmental abnormalities and difficulty in maintenance of oral hygiene. Optimal, timely and accurate management of ankyloglossia is needed to overcome all these issues. Surgical intervention with speech therapy usually provides satisfactory results, in a shorter span of time.

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