

SURGICAL MANAGEMENT OF ANKYLOGLOSSIA: A CASE REPORT

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ABSTRACT:

Ankyloglossia, or tongue-tie, is a congenital condition that results when the inferior lingual frenulum is too short and is attached to the tip of the tongue, limiting its normal movements. Ankyloglossia can lead to a range of problems, such as difficulties in breastfeeding in infants, speech impediments, being embarrassed by peers during childhood and adolescence, and poor oral hygiene.

Case description: This article reports the surgical management of a patient having ankyloglossia associated with restricted movement of tongue. The treatment involved surgical removal of the lingual frenum, which healed uneventfully.

Conclusion: A marked improvement in the movement of the tongue was observed at follow up visits in the treated case.

Key words: Ankyloglossia, Tongue-tie, Frenectomy



INTRODUCTION:

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.^[1] 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.”

Ankyloglossia (Tongue-tie) is defined as partial or complete fusion of the tongue with the floor of the mouth or the lingual

gingiva due to an abnormally short, mid-line lingual frenum, resulting in restricted tongue movement.^[2] Tongue-tie may lead to various functional abnormalities that includes abnormal speech, mal-occlusion, inability to swallow the food which could entail difficulty in normal life activity of an individual. Ankyloglossia may be partial or complete and may lead to the above mentioned problems. Although, both partial and complete ankyloglossia requires surgical correction, certain partial ankyloglossia, may not require treatment, which could be corrected by performing tongue movement exercises. Speech problems can occur as a major concern, when there is limited mobility of the tongue due to ankyloglossia. Therefore, a little correction or relieving of the highly attached lingual frenum can lead to improvement and correction of

the speech problems caused by tongue-tie.

This case report describes management of case with ankyloglossia, treated by means of surgical excision with scalpel and the potential outcome of the treatment showing enhanced tongue movement.

CASE DETAIL:

A 10 year old female patient reported to department of Pedodontics, SMBT dental college, Sangamner, Maharashtra, with the chief complaint of difficulty in moving his tongue freely which often causes speech difficulty in pronouncing certain words freely. On intra oral examination, the tongue exhibited limited movements due to high frenal attachment to the floor of the mouth [fig 1], leading to inability in movements like protrusion and lateral movements [fig 2]. It was diagnosed as partial ankyloglossia and so frenectomy was planned by means of scalpel. Under local anaesthesia, bilateral lingual nerve block, the tongue was sutured at its tip using 3-0 silk suture material [fig 3] in order to hold or retract the tongue conveniently. Excision of the high frenum muscle fibres was done by giving 2 incisions, with one on the upper and other on the lower border of the frenum attachments [fig 4].

Following the excision of the muscle fibres, simple interrupted sutures were placed to close the surgically open site [fig 5] along with prescription of antibiotic regimen (Amoxicillin 500mg & Metronidazole 400 mg) thrice a day and

analgesic (Acelofenac paracetamol) twice a day for five days. The sutures were removed 1 week following the day of surgery which showed excellent healing [fig 6] and the tongue movements were re-evaluated which showed better improvement in its movement in all the directions compared to the movements observed pre-operatively [fig 7].

Patient was advised to practice speech by reading and pronouncing consonants and sounds that includes “s, z, t, d, l, j, zh, ch, th, dg” to improve the pronunciations of difficult consonants

DISCUSSION:

The tongue is a vital organ of important functions including deglutition, mastication, and speech. It also exerts a major influence on occlusion of the dentition, growth of the jaws, and enhances to maintain the facial form. In the infant, the normally mobile tongue is unconfined by teeth and thus extends outward between the maxillary and mandibular arches. During deglutition, the infant keeps the jaws parted whereas the tongue is placed between the occlusal gum pads to produce a vacuum for sucking.

During teeth eruption, the tongue remains confined within the oral cavity. At approximately 2 and half years of age, when all deciduous teeth have erupted and are in occlusion, the “infantile swallow” is replaced by the “adult swallow”. In the adult swallow, the lips are closed, the teeth held in occlusion, and the tip of the tongue raised and pressed against the anterior portion of the

palate, sealing the anterior portion of the mouth.

For unknown reasons, few individuals do not outgrow their infantile swallow and continue to swallow with their jaws apart. Any band or condition restricting freedom of motion of the tip of the tongue and preventing it from touching the anterior palate may interfere with the development of an adult swallow and perpetuate the infantile swallow, resulting in an open bite deformity.^[3]

Ankyloglossia was also found associated in rare syndromes such as Van der Woude syndrome ^[4], X-linked cleft palate syndrome ^[5], Opitz syndrome ^[6] and Kindler syndrome.^[7] Nevertheless, most ankyloglossias are observed in persons without any other congenital anomalies or diseases.

The major problem associated with the tongue-tie includes speech difficulty. The difficulties in pronunciation of consonants and sounds includes "s, z, t, d, l, j, zh, ch, th, dg".^[8] Here, in this case also patient came with the chief complaint of inability in pronouncing the above mentioned words due to restricted tongue movement.

Ankyloglossia can be classified based on Kotlow's assessment: Based upon the locations of the frenum's attachment to the floor of the mouth and underside of the tongue.^[9]

Class I: Mild ankyloglossia: 12 to 16 mm,

Class II: Moderate ankyloglossia: 8 to 12 mm,

Class III: Severe ankyloglossia: 4 to 8 mm,
Class IV: Complete ankyloglossia: Less than 4 mm

Where, class III and IV cases requires definitive surgical correction because they the tongue's movements are severely restricted in this case. Hence, clinically acceptable, normal range of free tongue should be greater than 16 mm and a normal range of tongue movements exhibits as the tip of the tongue should be able to protrude outside the mouth; without clefting, and also the tip of the tongue should be able to sweep the upper and lower lips easily; without straining.

When in retruded position, the tongue should not blanch the tissues lingual to the anterior teeth; and the lingual frenum should not create a diastema between the mandibular central incisors. If severe/complete ankyloglossia is present in an adult, there is usually an obvious limitation of the tongue protrusion, elevation and speech problems which can be improved following surgical intervention.^[10]

There is continuing controversy over the diagnostic criteria and treatment of ankyloglossia.^[11] Literature reviews and various case reports in the past few decades have shown the benefits and clinical outcomes of various techniques like scalpel, laser, and electro-surgery for the treatment of tongue-tie. But all the techniques aimed at relieving the high muscle attachment to improve the movement of the tongue.

Here, for this case, surgical frenectomy using scalpel was planned, since surgical excision of the muscle fibres thus relieving the frenum was simple, easier as well as time consuming.

The most expedient factor of electing scalpel over the other techniques like Laser, electro-surgery was because of the fact that the complete excision of the lingual frenulum muscle fibres could be achieved by means of scalpel rather than any other techniques. But caution should be taken while preferring scalpel in order not to traumatize the adjacent vital structures including lingual nerve, vein and sub lingual duct.

The outcome of the frenectomy in the case using scalpel in one week post-operative review showed good healing without any post-operative complications. The tongue exhibited improved movements when compare to the movements observed pre-operatively. Thus the primary objective of relieving the

tongue-tie has been achieved by the surgical frenectomy.

CONCLUSION:

Ankyloglossia in adults causing obvious limitation of the tongue protrusion, elevation and especially speech problems could be improved by surgical intervention. The clinical outcome following the surgical frenectomy for the case presented here shown better healing with improvement in tongue movements. To conclude, it is important to agree upon one examination method, definition and classification of tongue-ties to enable comparisons between future observational and intervention studies. If severe/complete ankyloglossia is present in an adult, there is usually an obvious limitation of the tongue protrusion, elevation and speech problems which can be improved following surgical intervention.

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FIGURES:



Figure 1: Pre-operative view showing thick band of lingual frenulum.



Figure 2: Restricted tongue movement pre-operatively.



Figure 5: Surgical site closure using interrupted sutures.



Figure 3: Tip of the tongue sutured for grasping.



Figure 6: Healing after 1 week following frenulectomy.



Figure 4: Simple excision of thick band of muscle fibres using scalpel.



Figure 7: Improved tongue movement post-operatively.