



CASE REPORT - ANKYLOGLOSSIA (TONGUE TIE)

**Dr. Shweta
Deodurg**

MDS, Senior Dental Health Officer, Periodontist and Implantologist
Government General Hospital -TQ - Sedam, Kalburagi, Karnataka

ABSTRACT

Ankyloglossia or tongue-tie is the result of a short, tight, lingual frenulum causing difficulty in speech articulation due to limitation in tongue movement. In this article, we have reported a 22-year-old male with tongue-tie who complained of difficulty in speech following which he underwent frenectomy procedure under local anaesthesia without any complications. Finally, he was given speech therapy sessions.

KEYWORDS : Ankyloglossia, Frenectomy, Tongue-tie

INTRODUCTION

Lingual frenum is a mucosal fold that attaches tongue to the floor of the mouth. When it is short and fibrotic, it results in ankyloglossia or tongue tie.[1]

According to Kotlow's classification, ankyloglossia is classified as follows:[2]

- 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: >3mm

Different levels of gravity of the anomalies of the lingual frenum on the basis of the type of lingual insertion are as follows:[3]

- Level F0: The frenum is absent
- Level F1: The frenum goes from sublingual caruncle to the lower portion of the tongue, with an insertion at the lingual tip
- Level F2: The frenum goes from sublingual caruncle to half the distance between the plane of the lips and the plane of the tongue, i.e. not far from the lingual tip
- Level F3: The frenum has marginal alveolar insertion and lingual connection to the median raphe of the tongue away from the tip of the tongue itself.

The prevalence of ankyloglossia reported in the literature varies from 0.1% to 10.7%. The prevalence is also higher in studies investigating neonates (1.72%–10.7%) than in studies investigating children, adolescents, or adults (0.1%–2.08%). It can be speculated that some milder forms of ankyloglossia may resolve with growth, explaining this age-related difference.

There is some evidence that ankyloglossia can be a genetically transmissible pathology. It is unknown which genetic components regulate the phenotype and penetrance in the patients affected. More basic research is needed to clarify the exact etiopathogenesis of ankyloglossia. Ankyloglossia was also found associated in cases with some rare syndromes such as X-linked cleft palate syndrome, Kindler syndrome, Van der Woude syndrome, and Opitz syndrome.

Nevertheless, most ankyloglossias are observed in persons without any other congenital anomalies or diseases. 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 such as "s, z, t, d, l, j, zh, ch, th, d" and it is especially difficult to roll an "r." [4,5] Here, we report a case of mild ankyloglossia treated with frenectomy using scalpel.

Case Report

A 22-year-old male patient reported to the Dental Department, in Government General Hospital, Taluka – Sedam, District - Kalburagi with the chief complaint of difficulty in pronouncing word starting with letter "t," and "n" since childhood. Medical history and family history were non-contributory. On extraoral examination, there were no significant findings noted. On intraoral examination, gingiva was inflamed, soft, and edematous, loss of scalloping was observed with generalized bleeding on probing. Furthermore, stains and calculus were present in all the teeth. Careful intraoral examination was done, and it was found that the patient had short lingual frenum [Figure 1]. The patient had Kotlow's Class I ankyloglossia with tongue protrusion of 12 mm. Following an initial examination and treatment planning discussion, the patient underwent nonsurgical therapy including scaling and root planing with oral hygiene instruction followed by re-evaluation. Written informed consent was taken from patient's parents and a treatment plan of partial frenectomy with laser was made. A complete hemogram depicted values within normal limits.

The patient was advised to rinse the mouth with 10-ml 0.2% chlorhexidine mouthwash before the commencement of surgical procedure. Xylocaine with 1:80,000 adrenaline was used for local infiltration anesthesia. 0.5–1 ml of the solution was deposited bilaterally at the base of the tongue, floor of the mouth, and toward the glenoid tubercle on the lingual aspect of the mandible. A retraction suture 3-0 silk was placed at the tip of the tongue to facilitate retraction and visibility in the area of the operating field, and frenectomy was initiated using a scalpel [Figure 2].

Protrusive tongue movement was checked to access the complete elimination of frenum. Using a #15 scalpel blade, incisions were placed from the base of the tongue toward the floor of the mouth. Then, the intervening frenum was removed, and a diamond-shaped wound was obtained. Persisting muscle fibers were removed to achieve a good tension-free primary closure of the wound and minimize scar tissue formation. Wound edges were approximated with 3-0 silk suture. One-week postoperative 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 [Figure 3]. The patient was advised tongue exercises after 1 week. One month postoperative image shows complete healing.

Postoperative care

Amoxicillin (500 mg) twice daily for 5 days and nonsteroidal anti-inflammatory drug ketorolac dispersible tablet (DT) (10 mg) thrice a day for 5 days were prescribed. Pain and swelling were present for the first 3 postoperative days, but eventually subsided thereafter with the continuation of medications. Tongue exercises were started after 1 week. Complete healing

was noted at 1 month postoperatively. To achieve significant speech improvement, oral kinesthesia (ability to feel the part and how they are moving) and diadochokinesis (the ability to perform rapid, alternatively movements) were started without which no significant improvement of speech can be achieved.[6]

Other specific exercises to be done were as follows:[7]

1. Stretching of the tongue toward the nose and then downward
2. Open the mouth widely, and try to touch the upper front teeth with mouth still wide open
3. Licking of the upper lip from one side to other, and vice versa
4. Repeat the same on your lower lip
5. Close the mouth and poke both the cheeks as far as you can.

RESULTS

After surgery, the patient was reevaluated [Figure 3]. Changes were observed in the frenulum and in tongue mobility. Protrusion, lateralization, and elevation of the tongue were improved in different degrees. The best results were for tongue protrusion, whereas the worst were for tongue elevation. Shape of the tip of the tongue altered after the surgery. Speech was improved after the surgery. Speech became more efficient due to improvement in tongue mobility and wider mouth opening. The patient reported improvement in their oral communication.

DISCUSSION

Optimal management of tongue-tie including timely and appropriate surgical intervention, followed by speech therapy when indicated, has the capacity to deliver pleasing results, often in a shorter time than expected. It is being so increasingly accepted by disciplines associated with infants, children, and adults with tongue-tie that there is now no place for “wait and see” policies when the frenum has been identified and diagnosed as abnormal, and early intervention is the optimal management. The correction of ankyloglossia at an early age reduces the risk of latent complications. Therefore, surgery should be considered at any age depending on the patient's history of speech, feeding, or mechanical/social difficulties.

Surgical techniques for the therapy of tongue-ties can be classified into three procedures.[8]

- A. Frenotomy is a simple cutting of the frenulum
- B. Frenectomy is defined as complete excision, i.e., removal of the whole frenulum
- C. Frenuloplasty involves various methods to release the tongue-tie and correct the anatomic situation

There is no sufficient evidence in the literature concerning surgical treatment options for ankyloglossia to favour any one of the three main techniques.[6] Messner⁵ in his study found more than 75% of patients have demonstrable improvements in speech articulation as judged by speech pathologist postoperatively as compared to preoperatively.

The following structural guidelines are postulated by Kotlow to determine the need for the surgical management of lingual frenulum:[4]

1. If the tip of the tongue clefts during the act of protrusion
2. If the tip of the tongue cannot sweep the upper and lower lips easily, without straining
3. If retrusion of tongue blanches the tissue lingual to the anterior teeth
4. If the tongue places excessive forces on the mandibular anterior teeth
5. If the frenum interferes with normal deglutition process

6. If lingual frenum creates diastema between mandibular central incisors
7. If the child experiences speech difficulty due to limited tongue movements
8. If infants, it shows abrasion at the underside of the tongue, and
9. If the frenum prevents infant from attaching to the mother's nipple during nursing.

A frenectomy, as performed in this patient, is a more invasive and difficult procedure to be performed on younger children, although the results are more predictable and there is a lower recurrence rate.[7] Literature lacks conclusive parameters with regard to the timing of a frenectomy. However, ideal time for surgery to be performed is prior to the development of abnormal speech and swallowing patterns. When performed on older individuals, referral to a speech therapist is necessary to help establish normal tongue functions.

CONCLUSION

Ankyloglossia can cause oral complications (limitation of tongue protrusion, elevation, and speech problems) and can be a social stigma as well so it is important to diagnose and manage the condition as early as possible for general well-being of patient. It can be easily treated using frenotomy/frenuloplasty/frenectomy based on the severity of lingual attachment.



Figure 1: Preoperative

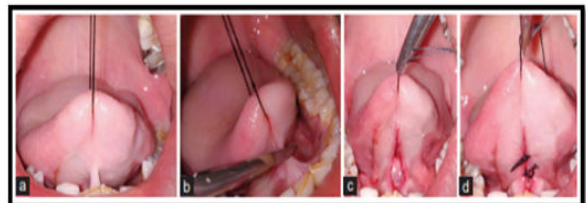


Figure 2: Surgical procedure (a) holding suture, (b) incision using #15 surgical blade, (c) diamond-shaped wound seen after lingual frenum excision (d) suturing



Figure 3: Follow-up after 3 months

REFERENCES

1. Wallace AF. Tongue tie. *Lancet* 1963;2:377-8.
2. Kotlow LA. Ankyloglossia (tongue-tie): A diagnostic and treatment quandary. *Quintessence Int* 1999;30:259-62.
3. Dezio M, Piras A, Gallottini L, Denotti G. Tongue-tie, from embryology to treatment: A literature review. *J Pediatr Neonatal Individualized Med* 2015;4:e040101.
4. Amir LH, James JP, Donath SM. Reliability of the hazelbaker assessment tool for lingual frenulum function. *Int Breastfeed J* 2006;1:3.
5. Messner AH, Lalakea ML. The effect of ankyloglossia on speech in children. *Otolaryngol Head Neck Surg* 2002;127:539-45.
6. Reddy NR, Marudhappan Y, Devi R, Narang S. Clipping the (tongue) tie. *J Indian Soc Periodontol* 2014;18:395-8.
7. Singh M. Management of ankyloglossia by frenectomy – A case report. *Br J Med Res* 2016;18:1-5.
8. Khairam M, Pawar B, Khairam D. A novel surgical pre-suturing technique for the management of Ankyloglossia. *J Surg Tech Case Rep* 2014;6:49-54.