

Unlocking the locked tongue (tie)**Kushal Jain, Vatsala Singh, Preeti Kambalyal, Ruchi Bhankhar**

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ABSTRACT:

Ankyloglossia or tongue-tie is a congenital condition, which is fusion between the tongue and floor of the mouth. Ankyloglossia can cause functional problems in feeding, speech and oral hygiene maintenance. It also results in recession and midline diastema of mandibular central incisors. This paper reports surgical management of ankyloglossia in a young male patient who had severe restriction of his tongue movements and who underwent frenectomy procedure by surgical intervention with conventional technique using scalpel. But there was reattachment of genioglossal muscle fibers after 1 month and so second surgical intervention with LASER was carried out. After one month, patient was satisfied with normal speech and improved tongue protrusion. According to the treatment modalities used by us, LASER treatment used for frenectomy operations provides better patient satisfaction in relation to postoperative pain and function than that obtained by the scalpel technique. Considering these advantages, LASER when used correctly, offer a safe, efficient, well-acceptable and impressive alternative for ankyloglossia management.

Keywords: Ankyloglossia, Frenectomy, LASER, Scalpel.**INTRODUCTION**

Tongue is a muscular organ that is responsible for phonetics, swallowing, positioning of the teeth. Ankyloglossia is a Greek term originating from the words agkylos (crooked) and glossa (tongue). A congenital condition, caused by fusion between the tongue and floor of the mouth is termed as ankyloglossia or tongue-tie.¹ Ankyloglossia can be classified into two types, total and partial. Total ankyloglossia occurs when the tongue is completely fused to the floor of the mouth. Partial ankyloglossia occurs due to partial fusion of tongue to the floor of the mouth.² Kotlaw has classified ankyloglossia based on free tongue. (Table 1) Incidence of ankyloglossia ranges from 0.2%-5%, with a male child predilection. It is associated with syndromes such as Beck with Weidman syndrome, Smith-Lemliopitz syndrome, Simpson-Golabi-Behmel syndrome, Orofacial digital syndrome and X-linked cleft palate.³ Ankyloglossia can cause functional problems in feeding, speech, oral hygiene maintenance

and recession of mandibular central incisors due to frenal pull. When the tongue is retruded it exerts excessive force on the mandibular anteriors which may result in midline diastema. Ankyloglossia can also prevent the tongue from contacting the anterior palate, leading to a retained infantile swallow, resulting in an open bite deformity.⁴

This paper reports surgical management of ankyloglossia in a young male patient who had severe restriction of his tongue movements and who underwent surgical intervention with conventional technique using scalpel. But there was reattachment of genioglossal muscle fibers after 1 month and so second surgical intervention with LASER was carried out.

CASE REPORT

A young male patient aged about 21 years reported to OPD of Department of Periodontics, Darshan Dental College and Hospital, Udaipur with complaint of difficulty in speech and protrusion of tongue. (Figure 1)



Figure 1: Pre-operative view-Showing restricted tongue protrusion

No relevant medical and family history. On intraoral examination patient was diagnosed as Class IV ankyloglossia (Figure 2) by Kotlow assessment. (Table 1) Both mandibular central incisors were missing. A complete hemogram

was done and all the values were within normal limits. Surgical frenectomy of the lingual frenum was planned using scalpel and explained to patient. Informed consent was taken from the patient.



Figure 2: Pre-operative view-Showing Class IV ankyloglossia

Table 1: Kotlow's Classification based on free tongue

CLASSIFICATION OF ANKYLOGLOSSIA		Range of free tongue*
Clinically acceptable, normal range of free tongue		> 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.
mm -millimeters

Frenectomy using scalpel

Frenectomy was performed with scalpel using blade no. 15. (Figure 3) Topical anesthesia was applied using LA spray to the underside of the tongue and local anesthetic infiltration with 2% lignocaine and 1:80000 adrenaline was administered into the frenum area. A hemostat was inserted at the depth of the vestibule and frenum was clamped which was followed by giving two incisions at both the sides of the haemostat (Figure 4) and the intervening frenum was removed. A diamond shaped wound was formed below tongue after excision of frenum. Postsurgical instructions were given along with a course of antibiotics and nonsteroidal anti-inflammatory drugs for five days. Patient reported pain and swelling

on 1st postoperative day, which consequently subsided with the continuation of medication.



Figure 3: Operative view- Frenectomy with conventional technique (Scalpel and Blade)

One week post-operative image showed the formation of slough over the operated site

indicating the process of healing. Tongue exercises advised to patient after 1 week: i) Stretch the tongue up and down towards the nose and the chin repeatedly, ii) Open the mouth widely and touch the maxillary anterior teeth with the tongue with mouth still open, iii) Shut the mouth and poke it into left and right cheek to make a lump for 3 to 5 minute bursts, once or twice daily for 3 or 4 weeks post-operatively. 4 weeks post-operative follow-up showed improved tongue protrusion (Figure 5) but reattachment of genioglossal muscle fibers. A second surgical frenectomy of lingual frenum with LASER was planned and explained to patient.



Figure 4: Immediate post-operative view- Excision of Frenum



Figure 5: One month post-operative view-Improved tongue protrusion

Frenectomy using LASER

Topical anesthetic was applied using LA spray. Tongue was raised and hemostat was inserted into depth and frenum was clamped into position, then frenectomy performed using diode LASER in a constant motion.(Figure 6)

No sign of hemorrhage was seen post operatively. Saline irrigation was given. One week post-operative follow-up showed partial healing. One month post-operative follow-up showed complete healing (Figure 7) and patient was satisfied with normal speech and improved tongue protrusion (Figure 8).



Figure 6: Operative view- Frenectomy with LASER



Figure 7: One month post-operative view-Showing complete healing



Figure 8: One month post-operative view-Normal tongue protrusion

DISCUSSION

Ankyloglossia results in specific speech disorders in few individuals. The onset of speech is not prevented or delayed, but interferes with speech articulation as seen with this case. A simple speech articulation test was performed which involves examination of proper pronunciation of sounds such as “s”, “t”, “d”, “l” and “th”. In patient with ankyloglossia, the articulation of 1 or more of these sounds will not be accurate.⁵ In this case also the patient found difficulty in pronouncing the words starting with these letters.

Choice of management for ankyloglossia includes timely and appropriate surgical intervention, followed by speech therapy which delivers pleasing results, often in a less time than expected. Increasing acceptance by disciplines associated with infants, children and adults with ankyloglossia that there is now no place for ‘wait and watch’ policies.³ When ankyloglossia is identified and diagnosed, early intervention is the optimal management. The correction of ankyloglossia at an early age reduces risk of hidden complications. Therefore, surgery should be considered at any age depending on the patient’s history of speech and feeding. Surgical techniques for ankyloglossia can be classified into three procedures: i) Simple cutting of the frenulum i.e. Frenotomy. ii) Complete excision of the whole frenulum i.e. frenectomy. iii) Frenuloplasty involves various methods to release the ankyloglossia and correct the anatomic situation. There is no adequate evidence in the literature relevant to surgical treatment options for ankyloglossia to support any one of these techniques.⁶

Surgical intervention for treating ankyloglossia includes conventional technique with scalpel, electrocautery⁶ and LASER. The case presented in this paper was treated with frenectomy by scalpel and later by LASER. The use of LASER is safe and minimally invasive procedure in the treatment of ankyloglossia. The manipulation of tissues was better in procedure with LASER. When

compared to conventional scalpel method, bleeding was less pronounced with LASER. Use of LASER is safe without significant post surgical complications.⁷ In this case also there was swelling and pain on first postoperative day with conventional scalpel and uneventful with LASER.

Without post-operative exercise for tongue, there will be no convincing improvement in speech. It improves ability for sensation of parts of tongue (kinaesthesia) and rapid alternating movements of tongue (diadochokinesis).^{8,9}

CONCLUSION

Tongue plays important role in articulation for speech. If an adult patient has severe/complete ankyloglossia there is usually a clear limitation of protrusion, elevation of tongue and speech problems. Restricted tongue’s sweeping action on the teeth and spreading of saliva can cause dental caries. Thrust created by ankyloglossia results in recession and spreading of lower incisors and malocclusion like open bite and tooth mobility due to long span of tongue thrust. Hence, choicest management of ankyloglossia includes timely and well-suited surgical intervention followed by speech therapy which ultimately delivers favorable results in a shorter time.

According to the treatment modalities used by us, LASER treatment used for frenectomy operations provides better patient satisfaction in relation to postoperative pain and function than that obtained by the scalpel technique. Considering these advantages, LASER when used correctly, offer a safe, efficient, well-acceptable and impressive alternative for ankyloglossia management.

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