

## Tongue Tie: A Case with Complete Ankyloglossia

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### Abstract

Ankyloglossia is a congenital condition due to short lingual frenulum limiting its normal mobility and functions especially swallowing, speech (poor articulation) and mechanical social issues. The incidence rate of ankyloglossia ranges between 0.2% to 5% with a male child domination. Surgical management of ankyloglossia that includes frenotomy and/or frenuloplasty gives good results but should be done as soon as possible. Here we present a five-year-old boy diagnosed as complete ankyloglossia.

**Keywords:** Ankyloglossia; Tongue Tie; Frenotomy; Frenuloplasty

### Background

Ankyloglossia or tongue tie is a congenital condition due to short lingual frenulum limiting its normal mobility and functions especially swallowing, speech (poor articulation) and mechanical social issues such as difficulty in playing a wind instrument, maintaining dental hygiene and diastasis between lower central incisors [1,2]. The incidence rate of ankyloglossia ranges between 0.2% to 5% with a male child domination. Diagnosis, classification and management of tongue tie is full of controversy in the literature. Different diagnostic criteria are based on length or insertion of frenulum (type I to IV), tongue range of motion and heart shaped or notch formation look on tongue protrusion [2-5]. According to the insertion site of the frenulum, ankyloglossia is characterized by insertion at the tip of the tongue (type I) or slightly behind the tip (type II), at the mid- to posterior undersurface of the tongue (type III) or a submucosal frenulum (a flat broad mound) that restricts movement at the base of the tongue (type IV) [2].

### Case Presentation

A five-year-old boy child accompanied by his parents presented at our otorhinolaryngology, head and neck clinic with the complaint of difficulty in moving his tongue freely and pronouncing certain words precisely and easily. His parents gave us no medical history or surgical interventions for their child. The patient was conscious, co-operative and his vital signs were within normal limits. No significant findings noted on extra-oral examinations while intra-oral examinations showed fibrosed, short, thick and smaller in length frenulum restricting tongue movements diagnosed with type I (insertion of the frenulum at the tip of tongue) ankyloglossia (Figure 1). When patient was asked to protrude his tongue, incomplete protrusion, reduced tongue movements and inability of the tongue to touch hard palate

was observed and due to tethering of tongue by the frenulum a notch or heart-shaped protrusion was seen (Figure 2). The child refused pronouncing the words containing letters which needed more movements of the tongue like “s” and “l”.



**Figure 1:** Ankyloglossia class IV (Kotlow).



**Figure 2:** Notch or heart-shaped tongue during protrusion.

## Treatment

Treatment was done under local anesthesia (2% lidocaine with 1:100,000 epinephrine, on tongue’s inferior surface) and a shallow sedation. After achieving good anesthesia, a midazolam-based sedation under complete vital signs monitoring was done too. Two hemostats

(one curved and the other straight) were placed against the superior and inferior aspects of the frenulum respectively (Figure 3), with their tips meeting in the deep aspect near the base of the tongue. The transverse incision (frenotomy) was made with an electro-cautery pen following the hemostatic pliers, cutting through the upper aspect of the frenulum (Figure 4) and finally vertical repair (frenuloplasty) with 4-0 vicryl suture was done over the wound. The patient was referred to a speech therapist for correcting his speech difficulties. After one month of follow up, the patient showed healing with no scar formation and much better lingual range of motions.



**Figure 3:** Two hemostats placed against upper and lower aspect of tongue frenulum.



**Figure 4:** Frenotomy by electro-cautery pen following the hemostats pliers.

### Discussion

Tongue-tie or ankyloglossia is characterized by short lingual frenulum caused by failure in cellular degeneration which leads to longer anchor present between tongue and floor of the mouth with a prevalence rate of about 5% [6]. Boys are affected more than girls with a

ratio of 2:1 [7]. Ankyloglossia affects speech, feeding and oral hygiene as well as social environment. It interferes in tooth brushing process, consequently, raising the risk of plaque accumulation, surrounding tissue inflammation and gingival regression [8,9]. Ankyloglossia is a diagnostic challenge for otorhinolaryngologists and for proper diagnosis, there should be a routine oral examination for children under the age of 3 years [10]. The patient was diagnosed with type I (According to Cummings otolaryngology 2021 classification) or type IV (Complete ankyloglossia according to Kotlow's classification showed in table 1). Patients and/or parents should be educated about tongue-tie and its long-term effects, so that they have enough compliance for further therapies [7,10]. Patients with ankyloglossia have difficulties in speaking with the letters that sound from the tongue tip like s, n, t, d, j, zh, ch, th, dg and l [11]. Surgical interventions including frenotomy and/or frenuloplasty are seen beneficial for ankyloglossia. The treatment can be done by classical scalpel technique but due to excess bleeding nowadays electro-cautery or diode laser are more preferred due to minimal bleeding (and better visibility) and bactericidal effects [12].

Class	Description	Length of the free tongue
I	Mild ankyloglossia	12 - 16 mm
II	Moderate ankyloglossia	8 - 11 mm
III	Severe ankyloglossia	3 - 7 mm
IV	Complete ankyloglossia	Less than 3 mm

**Table 1:** Kotlow's ankyloglossia classification.

### Conclusion

Surgical management of ankyloglossia gives good results if done at optimum time and followed by referral to a speech therapist and doing specific exercises to stimulate lingual muscles and hence establishing normal tongue functions. This could help the patient to avoid the long-term complications of ankyloglossia.

### Source of Support

None.

### Conflict of Interest

None.

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