

**Case Report****Surgical Management of Ankyloglossia**

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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. 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 frenulum, which healed uneventfully. 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**

Ankyloglossia, commonly known as tongue tie, is a congenital oral anomaly which may decrease mobility of the tongue tip [1] and is caused by an unusually short, thick lingual frenulum, a membrane connecting the underside of the tongue to the floor of the mouth. Ankyloglossia varies in degree of severity from mild cases characterized by mucous membrane bands to complete ankyloglossia whereby the tongue is tethered to the floor of the mouth.

Etymologically, "ankyloglossia" originates from the Greek words "agkilos" (curved) and "glossa" (tongue) [2]. Ankyloglossia, or tongue-tie, can be observed in neonates, children, or adults. Many affected children or adults do not complain about their anatomic particularity, although anatomic or functional problems can be associated with tongue tie in different stages of life.

Ankyloglossia can affect feeding, speech, and oral hygiene as well as have mechanical/social effects [3]. Ankyloglossia can also prevent the tongue from contacting the anterior palate. This can then promote an infantile swallow and hamper the progression to an adult-like swallow which can result in an open bite deformity [3]. It can also result in mandibular prognathism; this happens when the tongue contacts the anterior portion of the mandible with exaggerated anterior thrusts [4].

**CASE REPORT**

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

25 years old young male patient reported with a difficulty in protruding his tongue completely. Medical history was non-contributory. On oral examination, the patient was found to have short lingual frenum with restricted tongue movements. It was observed that when the mouth was open, it was impossible for the patient to touch the roof of his mouth with the tip of the tongue (Figure 1).

These features confirmed the patient to have ankyloglossia, and surgical Frenectomy of the lingual frenum was planned. After obtaining informed consent, topical anaesthetic was applied to the underside of the tongue and local anaesthetic infiltration was administered into the frenum area. After anaesthesia was found to be effective, a suture was used at the tip of the tongue to stabilize it. As the frenum became prominent, a haemostat was used to clamp it, and the frenum was surgically released along the sides of the haemostat (Figure 2).

After release of the lingual frenum, the margins of the incision were sutured. The favourable outcome of the procedure was apparent immediately and the extent of release could be assessed during the intervention itself (Figure 3).

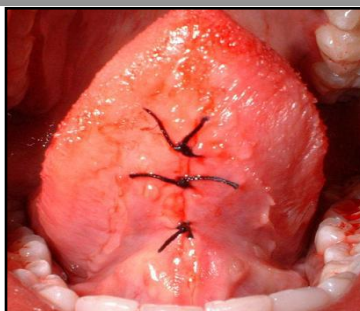
Figure 1: Pre-operative view showing limited tongue elevation



Figure 2: Tongue stabilized and Hemostant in position for surgical release of frenum



Figure 3: Margins of the incision sutured, showing marked release of the tongue from the floor of the mouth



Postsurgical instructions were given along with a course of nonsteroidal anti-inflammatory drugs for three days. The sutures were removed one week following the procedure. The post-operative period was uneventful. The following exercises were advised: i) Stretch the tongue up towards the nose, then down towards the chin and repeat, ii) Open the mouth widely and touch the big front 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. The routine follow up at 4 weeks showed an extremely happy patient with

improved tongue protrusion (Figure 4) and normal speech.

Figure 4: Weeks post-surgical healing showing marked improvement in tongue elevation.



## DISCUSSION

The cases presented in this paper were treated with transverse-vertical release Frenectomy. Ankyloglossia is a congenital anomaly characterized by an abnormally short lingual frenulum. This anomaly is characterized by the attachment of the tongue to the floor of the mouth. The condition is the result of a failure in cellular degeneration leading to a much longer anchor between the floor of the mouth and the tongue [5].

The pathogenesis of ankyloglossia is not known. Ankyloglossia can be a part of certain rare syndromes such as X-linked cleft palate [6] and van der Woude syndrome [7]. Most often ankyloglossia is seen as an isolated finding in an otherwise normal child. Maternal cocaine use is reported to increase the risk of ankyloglossia to more than threefold [8].

The incidence of ankyloglossia in various reports ranges from 0.02% to as high as 4.8% of term newborns [9]. Several classifications have been proposed, but none have been universally accepted [2]. A significant association between frenal involvement and gingival recession has been reported in the literature [10].

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

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

In addition to surgical intervention, revision of the frenum by Laser [11] without a general anesthetic

and revision by electrocautery [12] using a local anaesthetic have been described.

Post-operative exercises[12] following tongue-tie surgery were not intended to increase muscle-strength, but to: i) Develop new muscle movements, particularly those involving tongue-tip elevation and protrusion, inside and outside of the mouth, ii) Increase kinaesthetic awareness of the full range of movements the tongue and lips can perform, iii) Encourage tongue movements related to cleaning the oral cavity, including sweeping the insides of the cheeks, fronts and backs of the teeth, and licking right around both lips.

## CONCLUSION

The most important articulator for speech production is the tongue. During speech, the amazing ranges of movements the tongue can make include tip-elevation, grooving, and protrusion. Relatively short at birth, the tongue grows longer, and thinner at the tip, as we get older. As well as having a speech function, the tongue is needed for sucking, chewing, swallowing, eating, drinking, tooth and gum health, sweeping the mouth for food debris and other particles, warming the air during mouth-breathing.

At the end of 4 weeks follow up, the patient presented in this paper was very happy about the improvement in his tongue movement for his ability in easily swallowing the food, and especially pronouncing words containing letters such as T, D, and N.

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Date of Submission: 16/10/2013

Date of Acceptance: 22/11/2013

**How to cite this article:** Gohil M, Padhiyar N, Gohil A. Idiopathic gingival fibromatosis. *J Res Med Den Sci* 2013;1(2):77-79

**Source of Support:** None  
**Conflict of Interest:** None Declared