

### **Management of a case of Tongue tie: A Case Report**

#### **Abstract**

**Background:** 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 breast feeding, speech impediments, poor oral hygiene, malocclusion, inability in deglutition, thus being an undesired problem in normal life activity. Various techniques like scalpel, laser and electro-surgery have been performed in treating tongue tie. Though each technique has got its own advantages and disadvantages, all are aimed at relieving the high muscle attachment to improve the movement of the tongue.

**Result:** Uneventful healing was observed with minimal pain experienced by the participating subject. Free movement of the tongue upto the normal range was observed after suture removal.

**Conclusion:** Tongue tie becomes difficult for the patient due to limitation of tongue mobility and speech problem. So, it is necessary to treat it on correct time which can be improved by surgical interventions.

**Keywords:** *Ankyloglossia, Tongue Tie, Frenectomy, Lingual Frenulum, Laser.*

#### **INTRODUCTION**

The tongue is a muscular organ that affects, speech, position, of the teeth, periodontal tissue, nutrition, and swallowing. Ankyloglossia is derived from Greek terms skolios (curved) and glossa (tongue). Tongue tie is nonmedical term used to define the same condition that limits the use of the tongue. Ankyloglossia or tongue-tie is a congenital condition that results due to abnormal attachment between the tongue and floor of the mouth, leading to an abnormally short tongue.<sup>1,2</sup> Characteristically there is short and thick lingual frenum that limits the movement of tongue. The abnormal short and thick frenulum causes the tongue to become heart-shaped upon protrusion. Ankyloglossia is sometimes self- corrective, as child age advances, the frenum recedes to a more lower position thus increasing tongue mobility.<sup>3</sup> Prevalence of ankyloglossia is between 4.2% and 10.7% depending on the population examined. It is more common in males, with male to female ratio of 2.5:1.0.<sup>4</sup> Ankyloglossia can present as single entity or be a part of certain rare syndromes like i) Smith-Lemli-Opitz syndrome, ii) Orofacial digital syndrome, iii) Beckwith Weidman syndrome, iv) Simpson-golabi-behmel syndrome, v) X-linked cleft palate syndrome, vi) Kindler syndrome, vii) Van der woude syndrome viii) Opitz syndrome, ix) Ehlers Danlos syndrome, x) Beckwith Wiedemann syndrome, xii) Simosa syndrome etc .

It is also frequently seen in children of mothers with cocaine use.<sup>5</sup>

## CASE REPORT

A 10 year old patient reported to the department of Periodontology with a chief complaint of speech difficulty because of inability to move his tongue freely. The patient was conscious, co-operative with normal gait. All vital signs were within normal range. On extra oral examination there was no significant findings noted. Intraoral examination revealed the frenum extending from the ventral surface of the tongue to the lingual gingiva of the anterior mandible. It was also observed that the patient was unable to raise his tongue to touch the palate. There was no malocclusion and recession present lingual to the mandibular incisors. The restricted tongue movement due to the presence of fusion of lingual frenulum to the tongue with tongue protrusion measuring 3-7mm only. It was diagnosed as severe ankyloglossia (Figure 1&2: Class II Kotlow's classification).<sup>1</sup>

## TREATMENT PROCEDURE

After performing proper antisepsis, local anaesthesia, lignocaine (1:80000) was given to provide good pain control during procedure. Later tongue was stabilized while performing procedure. Incisions were marked with indelible pencil outlining the future areas of cuts. Important anatomical landmarks like submandibular & sublingual duct and lingual vessels were protected to prevent undue damage and postoperative complications. Dissection was carried out through submucosa and the muscle layer; later movement of the tongue is assessed for amount of freeing of the tongue (figure 4). Diode laser was used at a wavelength of 870 nm and power of 2 W in non-contact mode. Multilayer suturing with 4-0 silk sutures of muscles and submucosa was contemplated. The sutures were removed 1 week following the day of surgery which showed excellent healing and the tongue movements were re-evaluated (Figure 3-7) and achievement of haemostasis was checked before relieving the patient. Antibiotics and analgesics with information regarding oral hygiene were mentioned and several tongue exercises were taught to the patient.

Post operatively the patient was followed 15 days and 1 month after surgery. Post operatively there was improvement in movement of tongue (figure 6). Report from speech therapy indicated a betterment of syllables too.

## DISCUSSION

Ankyloglossia is a developmental anomaly characterized by an abnormally short lingual frenulum and 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.<sup>6</sup> The pathogenesis of ankyloglossia is unknown. Ankyloglossia can be a part of certain rare syndromes such as X-linked cleft palate (OMIM 303400)<sup>7</sup> and van der Woude syndrome (OMIM 119300),<sup>8</sup> Opitz syndrome<sup>9</sup> and Kindler syndrome.<sup>10</sup> Ankyloglossia is commonly seen as an isolated finding in an otherwise normal child. The incidence of ankyloglossia in various reports ranges from

0.02% to as high as 4.8% of term newborns.<sup>11</sup> Several classifications have been proposed, but none have been universally accepted.<sup>12</sup> Ankyloglossia can be classified based on Kotlow's assessment (Table I).<sup>13</sup> 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. 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. Surgical intervention for treating ankyloglossia includes conventional technique with scalpel, electrocautery<sup>14</sup> and 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).<sup>15,16</sup> In our case, frenectomy using scalpel was planned, since surgical excision of the muscle fibres thus relieving the frenulum was simple, easier as well as less time consuming. The most expedient factor of electing scalpel over the other techniques was because of the fact that the complete excision of the lingual frenulum muscle fibres could be achieved. But caution should be taken while preferring scalpel in order to minimize the trauma to the adjacent vital structures. The outcome of the frenectomy in this case showed good healing without any post-operative complications.

## CONCLUSION

Tongue tie limits the functional ability and social embarrassment due to speech problem of the individual. Due to this condition, correction like combined surgical intervention and speech therapy is needed at the earliest

KOTLOW'S CLASSIFICATION (1999)		
<b>Clinically acceptable</b>	<b>NORMAL RANGE OF FREE TONGUE MOVEMENT</b>	<b>&gt; than 16 mm</b>
<b>Class I:</b>	<b>MILD ANKYLOGLOSSIA</b>	<b>12-16 mm</b>
<b>Class II:</b>	<b>MODERATE ANKYLOGLOSSIA</b>	<b>8-11 mm</b>
<b>Class III:</b>	<b>SEVERE ANKYLOGLOSSIA</b>	<b>3-7 mm</b>
<b>Class IV:</b>	<b>COMPLETE ANKYLOGLOSSIA</b>	<b>&lt; than 3mm</b>

Table I. Kotlow's classification to distinguish severity of ankyloglossia



Fig 1- Presence of tongue tie



Fig 2- Presence of tongue tie



Fig 3- Excision of tongue tie with LASER



Fig 4- Removal of lingual frenum



Fig 5- Placement of 4-0 suture



Fig 6- 15 days postoperatively



Fig 7- 1 month post-operative view

UNDER PEER

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