

# Relieving the Tongue Tie - A Case Report

Dr. Sakshi Patel<sup>1</sup>, Dr. Sonal Gupta<sup>2</sup>, Dr. Simran Isha<sup>3</sup>, Dr. Poornima Tripathi<sup>4</sup>

<sup>1</sup>Post Graduate Student, K. D. Dental College, Mathura, Uttar Pradesh, India

<sup>2</sup>Professor and Head of the Department, K.D. Dental College, Mathura, Uttar Pradesh, India

<sup>3</sup>Post Graduate Student, K.D. Dental College, Mathura, Uttar Pradesh, India

<sup>4</sup>Post Graduate Student, K.D. Dental College, Mathura, Uttar Pradesh, India

**Abstract:** *Ankyloglossia, also known as tongue tie, is a condition in which the inferior lingual frenulum is too short and attached to the tip of the tongue, limiting the tongue's normal movement. The term ankyloglossia derives from the Greek words skolios (curved) and glossa (tongue). Ankyloglossia or Tongue-tie affects speech, feeding, oral hygiene as well as social environment also. This paper reports the case of a 5-year-old girl reported in the Department of Pediatric and Preventive Dentistry with the chief complaint of difficulty in speech.*

**Keywords:** ankyloglossia, frenectomy, lingual frenum

## 1. Introduction

As an important organ that affects speech, the position of the teeth, periodontal tissues, nutrition, and swallowing, the tongue plays a large role.<sup>1</sup> Ankyloglossia is defined as a developmental anomaly of the tongue characterized by an abnormally short, thick lingual frenulum resulting in limitation of tongue movement.<sup>2</sup> Total ankyloglossia is the other category of ankyloglossia, where the tongue is completely fused with the mouth floor. Tongue tie occurs in 0.2%-5% of children, with a male predilection with a male-to-female ratio of (2.5: 1.0).<sup>3</sup> The incidence of ankyloglossia in infants is about 25% to 60%, and it can cause problems with breastfeeding, including failure to thrive and even refusal of the breast.<sup>4, 5, 6, 7</sup> In addition to being a single entity, ankyloglossia may also be associated with other rare syndromes such as Smith-lemli-Opitz syndrome, Orofacial digital syndrome, Beckwith-Weidman syndrome, Simpson-golabi-behmel syndrome, x-linked cleft palate syndrome, Kindler syndrome, Van der Woude syndrome, Opitz syndrome, Ehlers-danlos syndrome, Simosa syndrome, and others.<sup>8</sup>

## 2. Case Report

A 5-year-old female patient reported to the Department of Pediatric and Preventive Dentistry K. D. Dental College Mathura, with a chief complaint of restricted tongue movement and difficulty in speaking. Extraoral examination revealed no pathological abnormalities. On intraoral examination all deciduous teeth were present and the restricted tongue movement was due to the presence of fusion of the lingual frenulum to the tongue with a thick, short frenulum, restricted tongue protrusion, and lifting of the tip of the tongue (figure 1). On taking a family history, there was no such case reported in the patient's family members and no relevant medical history. Based on Kotlow's classification (table 1), a diagnosis of class III ankyloglossia was made.

**Table 1:** Kotlow's classification

Type	Movement of the tongue
Clinically acceptable, normal range of free tongue movement	Greater than 16 mm
Class I: Mild ankyloglossia	2 to 16 mm
Class II: Moderate ankyloglossia	8 to 11 mm
Class III: Severe ankyloglossia	3 to 7 mm
Class IV: Complete ankyloglossia	less than 3 mm

As the child was uncooperative behaviour modification was done in the 1<sup>st</sup> appointment and the patient was advised for blood investigation. In the second appointment, a surgical lingual frenectomy was performed under conscious sedation (figure 2). Initially, a topical anesthetic gel was applied to the underside of the tongue, followed by an anesthetic block with 2% lignocaine and 1:80,000 adrenaline). There were no incidents of major or minor hemorrhage from the hyfrecreation site. The only sites of bleeding were those of the needle puncture resulting from the anesthetic needle. These were treated by local pressure. As soon as objective symptoms were achieved, a suture was passed at the middle of the tongue to control its movements, and two hemostats were used to clamp the frenum: one under the surface of the tongue and another at the floor of the mouth avoiding the salivary gland duct (figure 3). Electrocautery was used to release the complete frenum and, Suture was placed (figure 4, 5). After a week, the sutures were removed (figure 6). There were no reports of unexpected irritability after the procedure. The patient and her parents were satisfied with the results of the frenectomy.

Written consent was taken from parents for the child's photographs and other clinical information to be reported in the journal.



Figure 1: Pre-operative showing tongue tie



Figure 5: Shows healing after suture removal

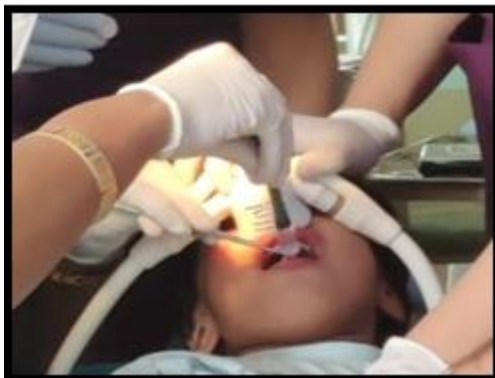


Figure 2: Shows the patient was treated under conscious sedation.



Figure 3: Shows relieving of tongue tie with electrocautery



Figure 4: Shows suture placed after the treatment

### 3. Discussion

Before birth, a strong cord of tissue guides the development of the oral frenulum which is positioned in the center of the mouth. After birth, this lingual frenulum continues to guide the position of erupting teeth. As the child grows, it recedes and becomes thin. This frenulum is visible when we look at the mirror under the tongue. In some children, the frenulum is especially tight, or it fails to recede and may cause tongue immobility.<sup>13</sup> Hence Ankyloglossia is a developmental anomaly characterized by an abnormally short lingual frenulum and attachment of the tongue to the floor of the mouth. The pathogenesis of ankyloglossia is unknown.

There is a positive relationship between tongue tie and speech disorders.<sup>10</sup> Ankyloglossia varies from 0.1 to 10.7%.<sup>11</sup> As we know the tongue is an accessory organ that helps us in deglutition, mastication, and speech. Tongue-tie patients get trouble speaking with words that sound from the tongue tip like s, n, t, d, j, Zh, ch, th, dg, and l.<sup>12</sup> It also causes more thrust of the tongue against the anterior mandible and produces a mandibular prognathism due to lack of free movement of the tongue.<sup>10</sup> Gingival recession has also been seen on the lingual surfaces.<sup>10</sup> Improper chewing and swallowing of food could increase gastric distress and bloat, and snoring and bed wetting at sleep are common among tongue-tied children. It also affects children who want to participate in routine play which involves tongue movements, gestures, and speech. Dental caries could occur due to food debris not being removed by the tongue's action of sweeping the teeth and spreading saliva. In infants, feeding problems may be experienced due to latching on to the nipple which may compress the nipple against the gum resulting in nipple pain in mothers, and due to this, the mothers may often try to shift the baby to a bottle.<sup>13</sup> In this case, the report child reported class III ankyloglossia and underwent surgical removal of the tongue tie under conscious sedation.<sup>14</sup> conscious sedation was helpful to reduce the anxiety of the patient and cooperation of the patient was gained easily with the help of this method.

The method of electrocautery, AA01 high-temperature fine tip electrocautery was used. The tip was slowly moved so as to delicately release the tissue fibers. The motion is a sculpting motion accompanied by the recommended 25% Duty Cycle. This represents the electrocautery being ON for

25% of the time and OFF for 75% of the time. Periodically we wiggle the frenum to exacerbate the frenum pull allowing us to completely visualize the extent of the frenum tension. We proceed as deep as necessary to remove the frenum attachment. The ideal depth is a clear connective tissue base without fibers or tenting. Any dark tissue visible is not charred tissue but coagulated blood since this is a vascular area. Care is taken to avoid the vascular structures and nerves under the tongue. There is another logistical benefit for the electrocautery for a busy clinic or clinical operatories in an open bay where isolation of a zone with required signs stating 'DANGER' is not necessary.<sup>15</sup>

- Minimal need for post-op analgesics
- Minimal bleeding
- Bloodless operating field/ideal visibility
- No sutures
- Less swelling and discomfort
- Minimal risk of infection
- Minimal procedure time
- No need for eye protection wear
- No need for clearance of the area around operatory

#### 4. Conclusion

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 form of management. The correction of ankyloglossia at an early age reduces the risk of latent complications.

#### References

- [1] Kotlow LA. Ankyloglossia (tongue-tie): A diagnostic and treatment quandary. *Quintessence Intl* 1999; 30: 259-62.
- [2] Darshan HE, Pavithra PM. Tongue tie: From confusion to clarity-A review. *Int J Dent Clin* 2011; 3 (1): 48-51.
- [3] M. Saeid, Y. Mobin, R. Reza, A. P. Ali, and G. Mohsen, "Familial ankyloglossia (tongue-tie): a case report," *Acta Medica Iranica*, vol.48, no.2, pp.123-124, 2010.
- [4] L. M. Segal, R. Stephenson, M. Dawes, and P. Feldman, "Prevalence, diagnosis, and treatment of ankyloglossia: methodologic review," *Canadian Family Physician*, vol.53, no.6, pp.1027-1033, 2007.
- [5] A. H. Messner, M. L. Lalakea, J. Macmahon, E. Bair, and A. Janelle, "Ankyloglossia: incidence and associated feeding difficulties," *Archives of Otolaryngology*, vol.126, no.1, pp.36-39, 2000.
- [6] J. L. Ballard, C. E. Auer, and J. C. Khoury, "Ankyloglossia: assessment, incidence, and effect of frenuloplasty on the breastfeeding dyad," *Pediatrics*, vol.110, no.5, p. E63, 2002.
- [7] P. Tait, "Nipple pain in breastfeeding women: causes, treatment, and prevention strategies," *Journal of*

- Midwifery and Women's Health, vol.45, no.3, pp.212-215, 2000
- [8] Wieker H, Sieg P. Ankyloglossia superior syndrome: case report and review of publications. *Br J Oral Maxillofac Surg* 2014; 52 (5): 464-6
  - [9] Ayer FJ, Hilton LM. Treatment of ankyloglossia: reported of a case. *ASDC J Dent Child* 1977; 44 (3): 69-71.
  - [10] Eddy NR, Marudhappan Y, Devi R, et al. Clipping the (tongue) tie. *J Indian Soc Periodontal* 2014; 18 (3): 395-398. DOI: 10.4103/0972-124X.134590.
  - [11] Chaubal TV, Dixit MB. Ankyloglossia and its management. *Indian Soc Periodontal* 2011; 15 (3): 270-272. DOI: 10.4103/0972-124X.85673
  - [12] Messner AH, Lalakea ML. The effect of ankyloglossia on speech in children. *Otolaryngol Head Neck Surg* 2002; 127 (6): 539-545. DOI: 10.1067/mhn.2002.129731
  - [13] Mayur S. Bhattad, M. S. Baliga, and Ritika Kriplani. Clinical Guidelines and Management of Ankyloglossia with 1-Year Followup: Report of 3 Cases. Hindawi Publishing Corporation. Volume 2013, Article ID 185803, 6 pages.
  - [14] AAPD Guidelines 2023 for conscious sedation.
  - [15] Laser Institute of America American National Standard for Safe Use of Lasers in Health Care (2011) ANSI Z136.3.