CASE REPORT

UNRESTRICTING THE TONGUE FOR BETTER SPEECH: A CASE REPORT ON LINGUAL FRENECTOMY

Dr. Mishal Muhammed Haris*, Dr. Dimpleja J*, Dr. Zarrin Rahnuma*
Dr. Anirban Biswas*, Dr. Somen Roy Chowdhury**

ABSTRACT

Ankyloglossia also known as tongue tie is a condition that restricts tongue movement due to abnormal attachment, shortness in length or size of the lingual frenum. In this article we have reported an 8 year old child with ankyloglossia who complains of restricted tongue mobility and difficulty in articulation and pronunciation of some words. So it was decided to perform frenectomy under local anesthesia. Even though management of ankyloglossia is controversial, early surgical intervention especially in this case may give better results in terms of improvement of speech.

KEY WORDS

ankyloglossia, frenectomy, speech difficulty

ABOUT THE AUTHORS

* Post Graduate Trainee, **Professor
Department Of Pedodontics &Preventive Dentistry
Dr. R. Ahmed Dental College, And Hospital, Kolkata

CORRESPONDING AUTHOR

Dr. Mishal Muhammed Haris
Post Graduate Trainee
Department Of Pedodontics & Preventive Dentistry
Dr. R Ahmed Dental College, And Hospital
Email Address: mishalh951@gmail.com
Phone Number:9645880186

INTRODUCTION

Ankyloglossia which is also known as tongue tie is a common congenital condition that impairs the free movement of the tongue. Although it's a relatively small anomaly and easy to treat, if left untreated may result in difficulty in breast feeding, Speech disorders, gingival recession, malocclusion (class III), poor oral hygiene leading to dental caries. Currently there is no standard definition available for ankyloglossia but in 2020 a group of otolaryngologists defined ankyloglossia as "condition of limited tongue mobility caused by a restrictive lingual frenulum"[1]. The word ankyloglossia comes from the Greek words "agkilos" (for crooked or loop) and "glossa" (tongue)[2,3].Management of Tongue tie is a controversial topic regarding its benefits in the long run , time of intervention advised and the decision to whether Frenotomy (incision without removal of tissue, advised in infants) or Frenuloplasty (resection and repositioning of lingual frenum) or frenectomy (complete removal of frenulum) or no intervention is to be advised[1].

CASE REPORT

An 8-year-old male child reported to our department of pedodontics and preventive dentistry, Dr. R. Ahmed Dental College and Hospital, Kolkata with a chief complaint of restricted tongue mobility and lack of clarity in speech (when being compared to his peers and siblings) since birth. Apart from these, the patient had a good general health with no apparent relevant medical history. Intra Oral examination revealed presence of tongue-tie or ankyloglossia. The ankyloglossia was classified as Kotlows class III (3-7mm of free tongue, depicted in table 1). There were no other dental findings like malocclusion or lingual recession found in relation for the same. The patient was advised to go for lingual frenectomy procedure. After educating the parents about the anomaly and the surgical procedure regarding its benefits, parents consented to the procedure. The procedure was done under Local anesthesia using 2% lignocaine hydrochloride with 1:80000 adrenaline and the frenectomy was done by scalpel method. The tongue was secured

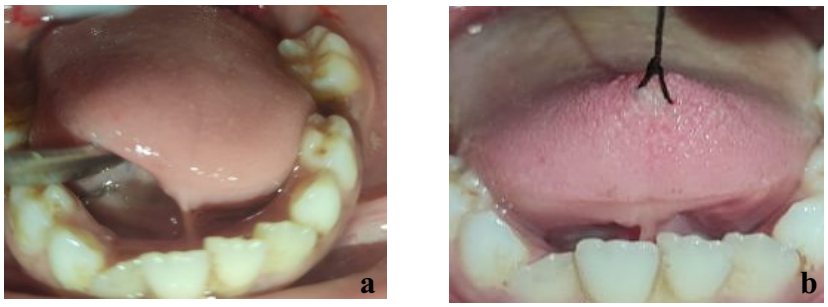

Figure 1: (a) Pre-operative image of the class III ankyloglossia (b) suture placed at tip of tongue to aid in control of tongue movements during the surgery

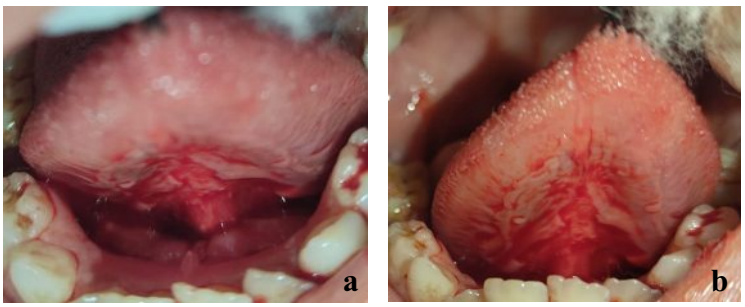

Figure 2:(a) Diamond shaped wound seen after removal of wedge shaped tissue (b) further enlarging of the wound to release the muscle fibers and improve the separation of the tongue from the floor of the mouth

Figure 3: Suture placed along the midline of the tongue and along the lingual vestibule with 4-0 black braided silk sutures

Figure 4: (a) 2 months Post Operative Image showing uneventful healing with minimal scar tissue formation (b) and (c)improved mobility and patient is able to take tongue forward more

with 4-0 black braided silk sutures placed at the tip of the tongue to better elevate and restrict tongue movement during the procedure(figure-1b). A curved hemostat was inserted under the tongue and clamped onto the bottom of lingual frenum. Using a scalpel two incisions one above and below the hemostat was placed in such a way that the incision would remove a wedge-shaped tissue from the lingual frenum leaving behind a diamond shaped wound between the ventral surface of the tongue and the floor of mouth (figure 2-a and b). Using dissecting scissor all the muscle fibers surrounding the wound edges will be released to further improve the tongue mobility and helps in giving a tension free closure of the wound edges. When adequate separation of the tongue from the floor of the mouth was achieved, sutures were placed along the wound margins to close the wound (figure 3). Sutures were removed after 1 week and healing was uneventful with minimal scar tissue formation. Patient came for a follow up after 2 months, the tongue showed good mobility and improved speech was also reported, the tongue was able to move freely beyond the vermillion border of lower lip (figure 4 - a, b and c).

DISCUSSION

Ankyloglossia is a relatively common congenital anomaly of the tongue that features restrictive motion of the tongue characterized by a short, thick or tight band of tissue (lingual frenulum) that connects the ventral surface of the tongue to the floor of the mouth. An accurate etiology of ankyloglossia has not yet been determined. It has been associated with

Table 1-Kotlows classification (normal range of free tongue movement is >16mm

Classification	Measurement of tongue movement (in mm)
Class I : Mild ankyloglossia	12–16 mm
Class II: Moderate ankyloglossia	8–11 mm
Class III: Severe ankyloglossia	3–7 mm
Class IV: Complete ankyloglossia	<3 mm

X-Linked cleft palate syndrome and rare syndromes like Van Der Woude, Kindler and Opitz. Ankyloglossia has a reported prevalence of 0.1%-10.7% of general population and has a reported male predilection[4]. Management of ankyloglossia although controversial requires a multidisciplinary approach as it is present at birth and often diagnosed by a pediatrician on routine checkup and may need further evaluation by Speech and Lactation specialists. Association of ankyloglossia with feeding difficulties, speech disorders and development of motor skills related to oral cavity is controversial and has significant disparity in opinion among speech pathologists, otolaryngologists, pediatricians, lactation consultants and pedodontists regarding its management and appropriate time of surgical intervention[5]. Various studies suggest that Ankyloglossia may affect breast feeding as rooting reflex of the baby requires the tongue to move downwards and forwards above the lower lip and once a proper latch is established sucking reflex starts followed by the swallowing reflex[6,7]. Failure of these steps causes low milk supply due to improper latching and cause nipples to get cracked and sore resulting in a painful breast feeding experience for the mother. This may lead to overall stopping of breast feeding by the mother and switching to formulae/bottle feeding. In these cases, early intervention may better than deferring the treatment. Children with ankyloglossia cannot protrude the tongue beyond the vermillion border of the lower lip and may show a heart-shaped depression on the anterior border of the tongue[8]. In Older children Ankyloglossia affects development of speech and articulation as restricted mobility of the tongue may cause difficulty in pronunciation of consonants and sounds like “s, z, t, d, j, l, ch, zh, th, dg,” and “r” (Difficulties in pronunciation is generally not diagnosed under speech disorders)[9,10,11]. Poor oral hygiene is also a common finding in these patients and it may cause dental caries due to the difficulty in cleaning the lower teeth. This happens due to the tip of the tongue curling underneath during protrusion and has limited lateral and superior motions. Another problem that arises with ankyloglossia is gingival recession due to attachment of the frenum onto the papillae. To better classify severity of the anomaly in different patients, Ankyloglossia can be classified into 4 classes based on Kotlow's assessment (table 1)[12]. Ankyloglossia is asymptomatic in most of the patients and usually resolves without any treatment or the patients learn to compensate for their restricted lingual mobility. However in some patients where there is significant evidence indicating ankyloglossia being a possible etiological factor in causing malocclusion (class III), Recession, feeding difficulties, a surgical intervention may be required. frenotomy, frenectomy or frenuloplasty is usually advised. Frenectomy is the usual choice of treatment in older children and adults, however in case of neonates and infants the frenulum is thin and relatively avascular and hence frenotomy is advised where an incision is placed on the frenum without removing any tissue and it can done as an in-office procedure. In older children surgical treatment may require to be done under local anesthetic or short general anesthesia as the frenulum is thicker and more vascular. It is done as frenectomy either with or without a Z-plasty repair[13].

CONCLUSION

Tongue tie or ankyloglossia is often missed in diagnosis and is often left untreated. Its management has wide disparity among different specialist. Currently there is insufficient evidence regarding lingual frenectomy and its possible benefits in terms of improvement in speech and correcting improper latching in neonates and infants .However, as lingual frenectomy is an uncomplicated surgical intervention and when there is ample evidence where potential benefits outweighs the harms, we can consider lingual frenectomy as a viable treatment option.

REFERENCES

1. Messner AH, Walsh J, Rosenfeld RM, Schwartz SR, Ishman SL, Baldassari C, Brietzke SE, Darrow DH, Goldstein N, Levi J, Meyer AK, Parikh S, Simons JP, Wohl DL, Lambie E, Satterfield L. Clinical Consensus Statement: Ankyloglossia in Children. Otolaryngol Head Neck Surg. 2020 May;162(5):597-611.

2. Newman DWA. The American Illustrated Medical Dictionary. Philadelphia: WB Saunders Co; 1985. [Google Scholar]

3. 2. Wellington JH, Hoerr NL, Blakistons OA, editors. New Gould Medical Dictionary. 1st edn. Toronto: The Blakiston Co; 1949. [Google Scholar]

4. Suter VG, Bornstein MM. Ankyloglossia: facts and myths in diagnosis and treatment. J Periodontol. 2009 Aug;80(8):1204-19.

5. Messner AH, Lalakea ML. Ankyloglossia: Controversies in management. Int J Pediatr Otorhinolaryngol. 2000;54(2–3):123–31.

6. Griffiths DM. Do tongue ties affect breastfeeding? J Hum Lact. 2004;20(4):409–14.

7. Nyqvist KH, Sjoden PO, Ewald U. The development of preterm infants' breastfeeding behaviour. Early Human Development. 1999;55:247–264.

8. Walsh J, Tunkel D. Diagnosis and Treatment of Ankyloglossia in Newborns and Infants: A Review. JAMA Otolaryngol Head Neck Surg. 2017 Oct 01;143(10):1032-1039.

9. Dixon B, Gray J, Elliot N, Shand B, Lynn A. A multifaceted programme to reduce the rate of tongue-tie release surgery in newborn infants: Observational study. Int J Pediatr Otorhinolaryngol. 2018 Oct;113:156-163.

10. Belmehdi A, Harti KE, Wady WE. Ankyloglossia as an oral functional problem and its surgical management. Dent Med Probl. 2018 Apr-Jun;55(2):213-216..

11. Patel J, Anthonappa RP, King NM. All Tied Up! Influences of Oral Frenulae on Breastfeeding and their Recommended Management Strategies. J Clin Pediatr Dent. 2018;42(6):407-413. [PubMed]

12. Kotlow LA. Ankyloglossia (tongue-tie): A diagnostic and treatment quandary. Quintessence Int. 1999;30:259–262.

13. Lisa M. Elden, Ralph F. Wetmore, William P. Potsic, Chapter 55 - Otolaryngologic Disorders, Editor(s): Arnold G. Coran, Pediatric Surgery (Seventh Edition),Mosby,2012,Pages 707-728,ISBN 9780323072557,