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# **Ankyloglossia and Its Management- Need for Standardised Guidelines**

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## **Author's contribution**

*The sole author designed, analysed, interpreted and prepared the manuscript.*

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## **ABSTRACT**

With increasing diagnosis of ankyloglossia, the need for uniformity in diagnostic criteria and treatment decisions like frenotomy or frenuloplasty has come to the fore. Involvement of multidisciplinary healthcare providers who use various non-standardised resources and tools in the assessment and decision making is debatable. Effects of ankyloglossia on breast feeding, speech and sleep are discussed in this article following review of available high quality evidence based literature.

*Keywords: Ankyloglossia; lingual frenulum; tongue tie; frenotomy.*

## **1. INTRODUCTION**

Ankyloglossia is another terminology for Tongue Tie. It is a congenital condition seen as a string of tissue involving the underside of the tongue extending to the floor of the mouth. Failure to undergo apoptosis during embryological development is the cause [1,2]. There has been extensive evidence in literature debating the

need for its release which is interesting. Surgical textbook published in 1969 by woodcuts demonstrated the excision of an infant's frenulum with scissors [3]. Further, the midwives had a single long fingernail to lyse these at birth thus helping in breastfeeding [4]. Recent studies demonstrated a dramatic surge in diagnosis of ankyloglossia and frenotomies. Factors such as increased awareness, presence of specialists

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like Lactation Consultants and increased breastfeeding rates may be the possible influences [5,6]. Presently the quality and quantity of existing high level evidence is insufficient to plan a multidisciplinary team clinical practice guidelines as mostly these individuals work independently in assessment and providing advice. A recent Cochrane review of new born frenotomy, though suggested reduced mastalgia or nipple pain in mothers but there was no clear evidence on the effect on infant breastfeeding [7]. Another systematic review was inconclusive looking at the non breastfeeding outcomes in view of lack of sufficient or reliable data [8].

## 2. FINDINGS

A review of most recent relevant literature across the Journals and Databases was done to address the effectiveness of frenotomies, possible presence of a clinical consensus or a practice guideline and lastly the need for a multidisciplinary clinic assessment of ankyloglossia needing frenotomy moving forward.

Ideally the lingual frenulum is a fold of mucous membrane found attaching the surface of the tongue to the floor of the mouth in the midline. Its functionality includes stabilisation of the base of tongue giving the freedom to the tip and the rest of the tongue [9]. Ankyloglossia is seen when this frenulum has a more anterior attachment towards the tip of the tongue thus restricting the movements [10]. Coryllos has classified this into four types [1]: Type 1 involves the tip of the tongue, Type 2 is just behind the tip, Type 3 is posterior tongue tie as a thin membrane and Type 4 is also a posterior tongue tie which is thick and short and can be often missed. The frenulum thickness can be variable from a thin membrane to an unusually thick, short and a tight one. Prevalence rates vary between 2-10% among the new borns with M:F ratio being 3:1 [11,12,13].

### 2.1 Diagnosis of Ankyloglossia

The diagnosis of ankyloglossia can be done by simple visual inspection and/or palpation of the frenulum to a more complex classification system such as Hazelbaker Assessment Tool for Lingual Frenulum Function (ATLFF) (Hazelbaker 1993) [7,14]. This is a highly recommended and reliable tool used in assessment of infants younger than 3 months of age [15]. It mainly looks at the function and the appearance of the frenulum.

Score of 14 indicates normal function, 11-14 is acceptable and less than 11 signifies need for frenotomy. Regarding the appearance scale which includes value upto 10, lower scores indicate tongue tie. Scoring less than 8 in indication of tongue tie with no concerns will need no frenotomy unless a functional problem is recognised [7]. Some use the Bristol Tongue Assessment Tool (BTAT) which is also a reliable one [1]. Murphy's Maneuver has been mentioned as an assessment technique in studies which involves pushing the gloved little finger to the base of tongue on one side of the infant's mouth and sweep across to the other side underneath the tongue [16,17,18]. This is done to manually assess and also gives a proprioceptive idea regarding the thickness and the position of the tongue tie. This maneuver is mostly used to assess shortened and thickened frenulum [19]. It is important to note the involvement of multidisciplinary healthcare professionals like the midwives, breast feeding team, Paediatrician and Lactation Consultants who have variable resources and tools for assessment which is not standardised.

### 2.2 Frenotomy Procedure

Frenotomy or clipping of the frenulum is a quick procedure and easy to perform. It is performed by various individuals across different health systems. In the U.K. it is predominantly a Midwifery Led Service as noted across the different trusts. It is performed by Otolaryngologists or Maxillofacial colleagues or trained healthcare providers. Some use a cold steel method like cutting the tissue with scissors [11,20] whereas there is mention of use of laser [21]. There is conflicting and lack of evidence in support of laser technique being superior over the other techniques [22,23]. There is no clear evidence on the standard position of the infant when the procedure is performed in the outpatients without general anaesthesia. The two most important points to note with position is to get good visibility causing less distress to the infant. Following the review of the NICE guidelines document IPG149 [24] and Cochrane review [7], the infant is swaddled and placed in the supine position on the examination table while an assistant may need to hold the head to stabilise when the procedure is done [7]. The other positions include knee-to-knee where the clinician and the assistant sit facing each other with their knees touching and the infant lies with head end on the clinician's knee. The parent supports the head and the clinician carried out

the procedure. In our institution we have routinely performed on infants swaddled in the pram or older than 3 months straddled on to the car seat unit which is placed on the table. Once placed in the position suitable to the clinician's comfort and technique, the tongue is lifted with the index and middle finger of one hand for good visibility and the palm resting on the forehead to stabilise the head. The frenulum is cut with the scissors which is held in the other hand. Care is taken to cut close to the tongue and not to damage the sublingual glands [13]. Bleeding is minimal [25] as lingual frenulum's are usually thin fibrous strand and haemostasis is achieved quickly. Gauze is placed underneath the tongue to stem the bleeding if it is obvious as noted at the time of the procedure [11-13,26-29]. The procedure usually takes between 30 seconds to a minute [11-13,26-29]. Complications like bleeding, pain, infection are generally very rare [19]. Post procedure parents are advised to watch for bleeding and family is educated of possible continual crying due to prolonged pain [19]. Scar tissue which is whitish in colour is noted at the site of excision and should fall off within the next few days. Mothers are encouraged to breastfeed shortly after the procedure as it is well tolerated [19]. Frenuloplasty is usually done in older children though there was clinical consensus that there is not one particular preferred procedure for ankyloglossia in older children [1].

### 2.3 Ankyloglossia Effects on Breast Feeding

It is vital to note that as a maternal and infant breastfeeding dyad, it is important to take into

consideration need for education and counselling on a shared decision making platform [1]. Also to note the dissemination of information by various healthcare professionals, absence of standardised diagnostic criteria or clinical practice guidelines may have its implications on the treatment choices as well as on the outcome expectation [1]. In an interesting study by Power et al 50% of babies with suspected ankyloglossia can breastfeed successfully while upward of 50% who undergo lingual frenotomy may not show long term breastfeeding improvements [30]. Evidence of Multidisciplinary feeding evaluation in infants have shown to substantially reduce the frenotomy procedures by educating with reliable standardised resources and discussing alternative intervention techniques [31,32]. Over the past years with the importance placed on breastfeeding within the society, LATCH scores have gained significance [19]. Comfort score is the most frequently affected element in the LATCH score [19]. Maternal and infant variable factors have to be taken into account [1,32]. With evidence suggestive of suboptimal positioning at the breast [32,33] being the commonest cause of breastfeeding difficulty, emphasis on presence of excellent lactation services is needed [1]. From the Cochrane review it was noted again the absent consensus amongst the healthcare professionals as one survey found that most Lactation Consultants believed that breast feeding problems could be solved by frenotomy [34] in contrast to 90% of Paediatricians and 70% of Otolaryngologists believed ankyloglossia never or rarely causes a problem [35]. This again validates the point for a standardised clinical practice guideline in these cases.

**Table 1. Latch score [36]**

<b>The LATCH Scoring Table</b>			
	<b>0</b>	<b>1</b>	<b>2</b>
L: Latch	Too sleepy or reluctant No latch achieved	Repeated attempts Hold nipple in mouth or suck	Grasps breast Tongue down Lips flanged Rhythmic sucking
A: Audible swallowing	None	A few with stimulation	Spontaneous and intermittent < 24 hold Spontaneous and frequent > 24 hold
T: Type of nipple	Inverted	Flat	Everted (after stimulation)
C: Comfort (breast/nipple)	Engorged Cracked, bleeding, large blisters, or bruises, Severe discomfort	Filling Reddened/small blisters or bruises Mild/moderate discomfort	Soft Tender
H: Hold (positioning)	Full assist (staff holds infant at breast)	Minimal assist (ie, elevate head of bed; place pillows for support) Teach one side; mother does other Staff holds and then mother takes over	No assist from staff Mother able to position/hold infant

## 2.4 Ankyloglossia and Effects on Sleep

It is generally thought that with ankyloglossia there is increased possibility of OSA (Obstructive Sleep Apnoea) as being advocated by certain healthcare professionals. The thinking behind this is the narrow palatal arch due to ankyloglossia contributing to OSA which is based on a single small retrospective study [37,38]. Most important is the presence of associated issues such as retrognathia, micrognathia, neuromuscular disorder and hypotonia [39,40]. Performing frenotomy in these situations with worsen glossoptosis leading to sleep problems and dysphagia in some infants [39,40].

## 2.5 Ankyloglossia and Effects on Speech

There is evidence and consensus that ankyloglossia does not affect speech [41]. Articulation is not affected as per few low quality studies. However sounds that needed greatest amount of tongue elevation /l/, /r/ & /th/ can be produced even with restriction of tongue tip movements [1]. In view poor evidence due to lack of good quality randomised controlled studies which measure the effects of presence or absence of tongue tie and its impact on speech, it is always sensible clinical practice to seek an expert opinion from the speech pathologist about the possible expected outcomes in cases of especially older children.

## 3. CONCLUSION

Following review of the recent literature it is obvious that there is further need for more randomised controlled large numbered studies to support the need of frenotomy in infants with ankyloglossia. It is interesting to note that utilisation of resources or tools in assessment and treatment planning including information dissemination to parents were not standardised even among health professionals within a given health system leading to considerable bias. Hence the need for standardised clinical practice guideline in a multidisciplinary clinic setting is the way moving forward.

## COMPETING INTERESTS

Author has declared that no competing interests exist.

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