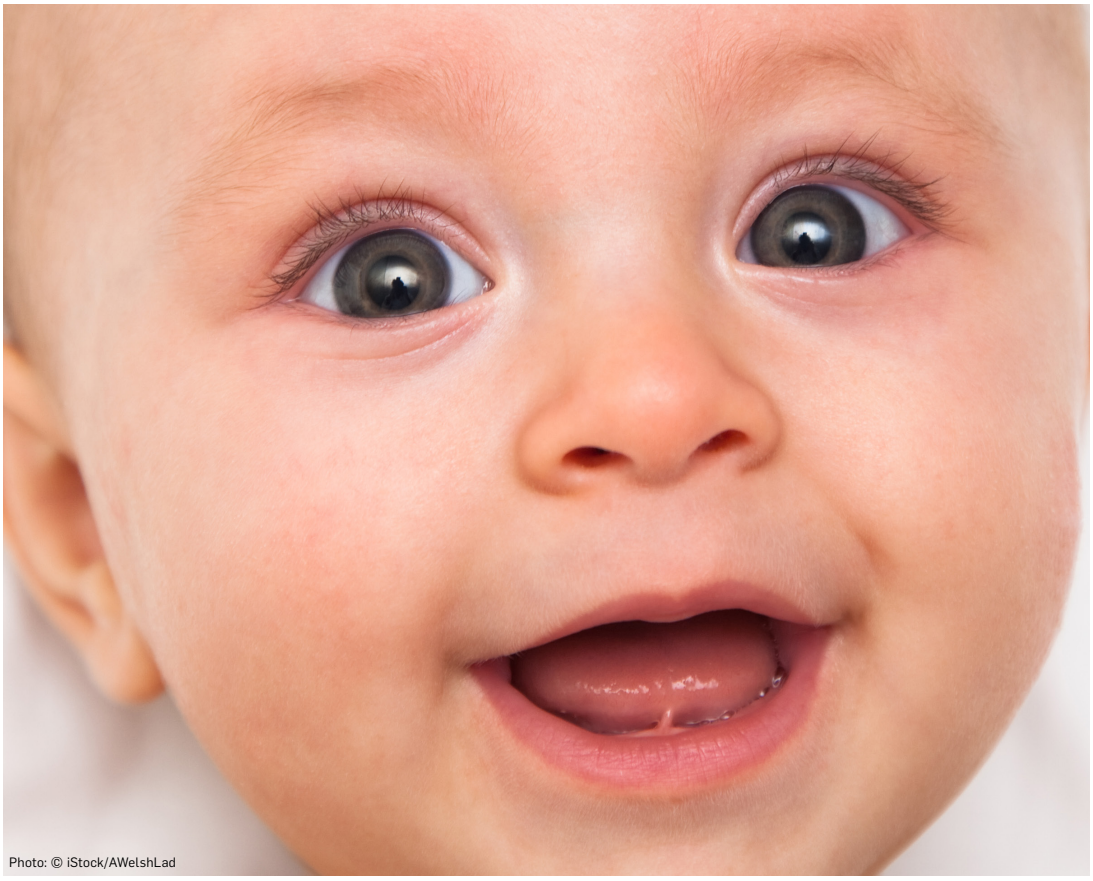
Ankyloglossia

An update of the literature Authors: Dr. Gina Weissman and Dr. Yael Dubester David



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Ankyloglossia (tongue-tie) is a common clinical entity occurring in between 4% and 10% of newborns.[1] It has classically been described in such terms as "tethering" of the tongue, a "heart-shaped" tongue on protrusion, and inability to protrude the tongue beyond the mandibular alveolar ridge. Possible implications are maternal pain or poor latch with breastfeeding and speech disturbances, although there is some controversy over whether, and to what degree, ankyloglossia can affect these functions.[2-3] The following article summarizes novel research findings on this topic.

Good assessment and diagnosis are important because many of breastfeeding babies with ankyloglossia will not encounter any problems.[3] Frenotomy appears to improve breastfeeding in infants with tongue-tie, but the placebo effect is difficult to quantify. A randomized controlled trial showed a significant decrease in the pain score after frenotomy versus sham procedure (the control group, in order to estimate the placebo effect). There was also a nearly-significant improvement in latch after frenotomy. Frenotomy appears to alleviate the mother's nipple pain immediately after surgical intervention. Ankyloglossia plays a significant role in some early breastfeeding difficulties and frenotomy is an effective therapy for these difficulties. Complications are rare, but it is important that it be carried out by a trained professional.[3-4]

The Academy of Breastfeeding Medicine urges that more research be undertaken so that the benefits and risks of frenotomy for ankyloglossia and its effectiveness in treating breastfeeding concerns can be better understood.[5]

The diagnosis of ankyloglossia is typically subjective, reliant on the practitioner's assessment of the limitation in tongue movement and clinical significance of the tethering.

There is very little published literature defining normal lingual frenulum variability in neonates, further complicating the issues of defining pathological ankyloglossia. In addition, the more recently defined entity of "posterior" or "submucosal" tongue tie is less obvious on examination and has no validated diagnostic criteria.

Walker et al (2018) published a prospective cohort study trying to define tip-frenulum length for ankyloglossia and its impact on breastfeeding. The purpose was to investigate the normal lingual frenulum anatomy in newborns and to evaluate tip-frenulum distance as an objective diagnostic tool for identifying newborns at risk for anterior and posterior tongue tie and breastfeeding difficulty. 100 healthy newborns were evaluated. Each newborn

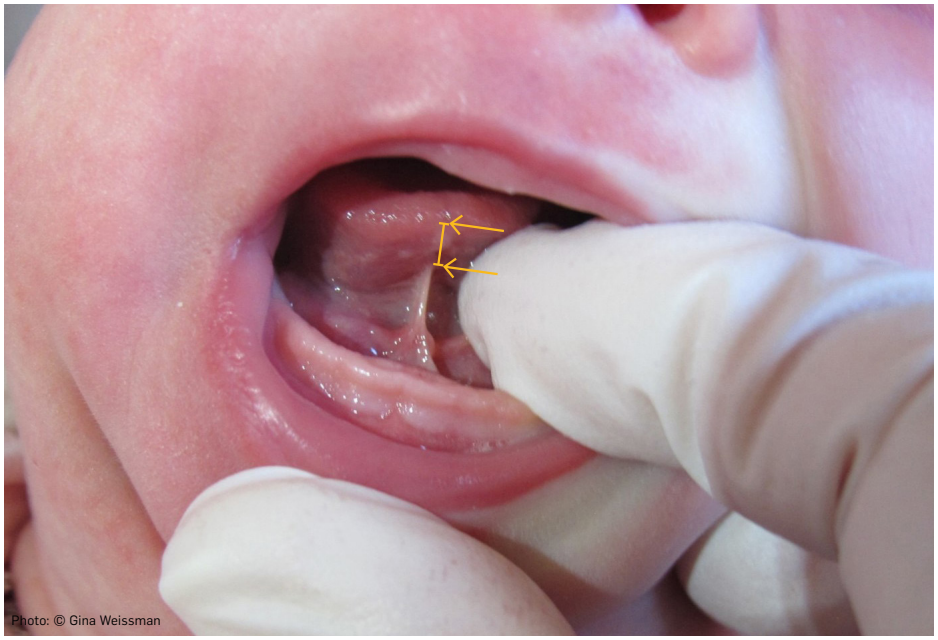

Fig. 1.: In the study of Walker et al. (2018) the distance from the tip of the tongue to the attachment of the lingual frenulum was measured.

› underwent examination of the oral cavity, including inspection and palpation of the floor of the mouth for the presence or absence of a posterior band or cord.

Each subject also underwent measurement of the distance from the tip of the tongue to the attachment of the lingual frenulum (Fig. 1). The Infant Breastfeeding Assessment Tool (IBFAT) and maternal pain scale were used to evaluate the presence and quality or degree of nipple pain, rooting reflex, sucking pattern, and latch. Mothers were contacted again two weeks later. Measured tip-frenulum lengths ranged from 2 to 15 mm. Mean length from all measurements was 9.11 mm with a SD of 2.65 mm. Median length from all measurements was 10 mm.

This research recognizes that shorter tip-frenulum distances were associated with greater levels of maternal pain during breastfeeding. Tip-frenulum length may, therefore, be a helpful tool in identifying mother-newborn dyads at risk for early breastfeeding cessation. No significant differences in IBFAT scores were identified with respect to infant tip-frenulum length when considering the entire population of mothers. However, when mothers were stratified according to their level of previous breastfeeding experience, mothers with two or more previously breastfed children reported a positive correlation between tip-frenulum length and IBFAT scores. This indicates that, although a first-time mother may need more lactation assistance before determining a treatment course for a short tongue/tongue tie, a plan may be able to be more rapidly determined with a mother with more experience.

However, **the presence of a visual cord (such as anterior tongue tie) is easier to diagnose by comparison to a palpable cord (such as posterior tongue tie). Inter-rater reliability (degree of agreement among raters) for a palpable cord was substantially lower. This suggests that the diagnosis of posterior ankyloglossia by palpation of a thick, fibrous posterior cord, as described in the literature, should be interpreted with caution, particularly when considering surgical intervention.**[6]

Breastfeeding is a complex interaction involving the mother-infant dyad, with countless variables to predict its effectiveness. Further studies should be directed at investigating other diagnostic criteria to define clinically significant posterior ankyloglossia, and whether treatment with frenotomy can result in improved breastfeeding in these patients.

In order to determine the impact of surgical tongue-tie/lip-tie release on breastfeeding impairment (nipple pain, latching difficulties etc.) a prospective cohort study was published by Ghaheri et al. (2016)[7]. A total of 237 dyads were enrolled after self-electing laser lingual frenotomy and/or maxillary labial frenotomy. The study was conducted using only a 1,064-nm diode laser. According to the study authors, surgical release of tongue-tie/lip-tie resulted in significant improvement in breastfeeding outcomes. The improvements observed occurred early (1 week postoperatively) and continued to improve through 1 month postoperatively. **Improvements were demonstrated in both infants with classic anterior tongue-tie and less obvious posterior tongue-tie.** Maternal self-efficacy, nipple pain, infant reflux symptoms and the rate of milk transfer – **all were shown to significantly improve with lingual frenotomy with or without maxillary labial frenectomy,** indicating a strong consistency of treatment effect as Ghaheri et al. concluded.

However, according to Douglas (2017), studies of the efficacy of frenotomy are of poor quality and are characterized by author bias.[8] Douglas observed in her breastfeeding clinic that normal, although anatomically diverse, lingual and maxillary labial frenula are commonly diagnosed as posterior tongue-tie and upper lip-tie and referred for frenotomy. When she performs comprehensive breastfeeding assessments on babies with breastfeeding problems or fussiness, including those who have had oral surgery in the previous weeks or months, she finds a range of underlying problems that have not been properly identified and addressed, though the women have usually seen multiple health professionals. Douglas also critically analyzed Ghaheri's study on the impact of surgical tongue-tie/lip release on breastfeeding im-

pairment. She concluded that Ghaheri et al. has not reliably demonstrated benefits of laser surgery for these infants, but has confused association with causation, in the context of failure to control for multiple potential confounders. The list of problems that the mothers brought to Dr. Ghaheri might be common presentations in breastfeeding babies, with multiple causes other than oral ties. As Douglas emphasizes, **researchers need to be aware of methodological weaknesses and interpretive biases.** Ghaheri claims that many experts consider it unethical to conduct a randomized controlled trial to investigate the efficacy of laser frenotomy because the risks to mothers and babies of withholding laser surgery contradicts the basic principles of good science.

As Douglas points out, **overtreatment is a serious problem** in the provision of health care in high-income countries.

Breastfeeding families deserve the best possible science so that infants do not receive **unnecessary surgical interventions** when problems arise.[8]

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› [1] Segal LM, Stephenson R, Dawes M, et al: **Prevalence, diagnosis, and treatment of ankyloglossia.** Can Fam Physician 2007; 53:1027–1033.

› [2] Messner AH, Lalakea ML. **Ankyloglossia: Controversies in management.** Int J Pediatr Otorhinolaryngol 2000; 54:123–131.

› [3] Power RF, Murphy JF: **Tongue-tie and frenotomy in infants with breastfeeding difficulties: Achieving a balance.** Arch.Dis Child 2015; 100:489–494.

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› [5] https://abm.memberclicks.net/assets/DOCUMENTS/PROTOCOLS/11-neonatal-ankyloglossia-protocol-english.pdf

› [6] Walker RD, Messing S, Rosen-Carole C, McKenna Benoit M. **Defining Tip–Frenulum Length for Ankyloglossia and Its Impact on Breastfeeding: A Prospective Cohort Study.** BREASTFEEDING MEDICINE, Volume 13, Number 3, 2018

› [7] Ghaheri BA, Cole m, Fausel SC, Chuop M, Mace JC: **Breastfeeding Improvement Following Tongue-Tie and Lip-Tie Release: A Prospective Cohort Study.** Laryngoscope. 2017 May; 127(5):1217-1223. Epub 2016 Sep 19.

› [8] Douglas P: **Making Sense of Studies That Claim Benefits of Frenotomy in the Absence of Classic Tongue-Tie.** J Hum Lact. 2017 Aug; 33(3):519-523.

ABOUT THE AUTHORS

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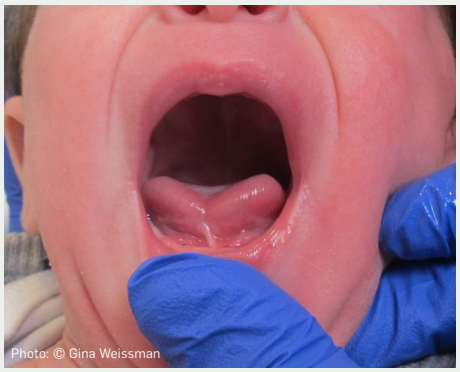
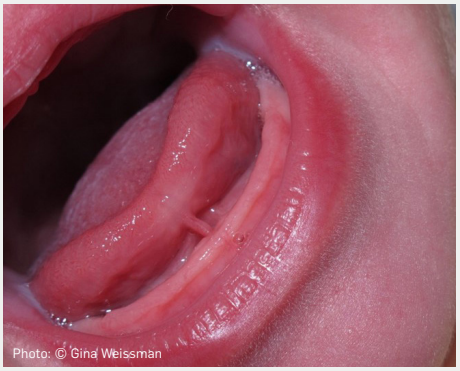
Photo gallery Ankyloglossia Photos by Dr. Gina Weissman

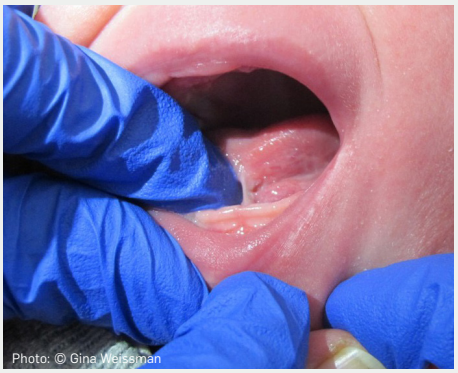
Thin type 1 – a short lingual frenum attached to a heart-shaped tip.



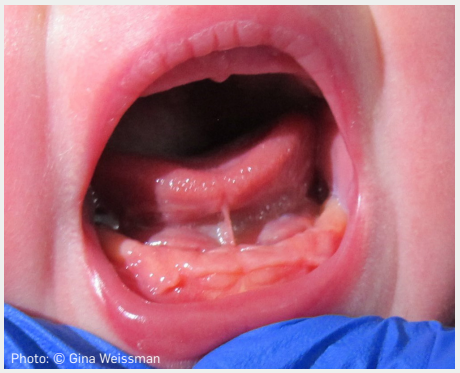
Type 1 tongue tie – a fibrous tight frenum showing restriction in tongue elevation.



Thick type 1 – thick fibrous type 1, blanching near the tip when trying to elevate.

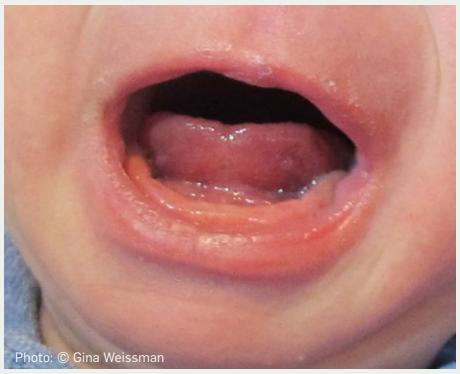


Tongue-tie Type 1 – a short tight frenum. It is hard sometimes even to insert a finger.

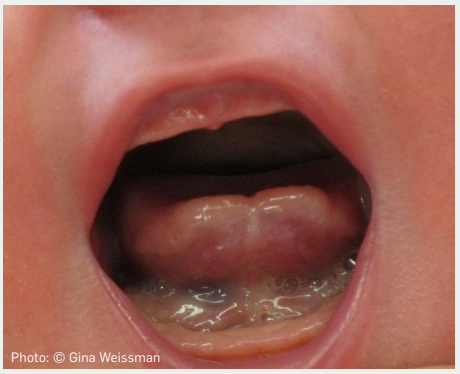


Type 2 – the frenum is attached a few millimeters from the tip, restricting the tongue movement.

Type 3 – a short, non-elastic frenum attached to the alveolar ridge, like an Eiffel tower.

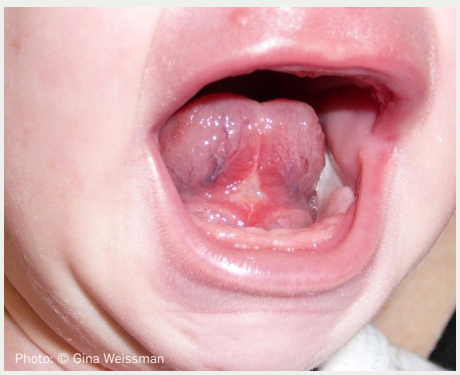


Type 4 and other issues – we can notice the a-symmetry while crying and elevation of floor of the mouth.



Type 4 palpable cord – the frenum is not visible, therefore challenging to diagnose. Mid-tongue elevation is restricted.

Type 4 slightly palpable cord – we can see the heart-shaped tip, demonstrating the tension while elavating.



There are still controversies whether to perform post op. exercises (But that is for the next article)
Post op. diamond shape area.

Breastfeeding immediately after frenotomy- biological nurturing is a good posture to achieve a breastfeeding.