



# Tongue Tie and Dysphagia: an evidence-based approach

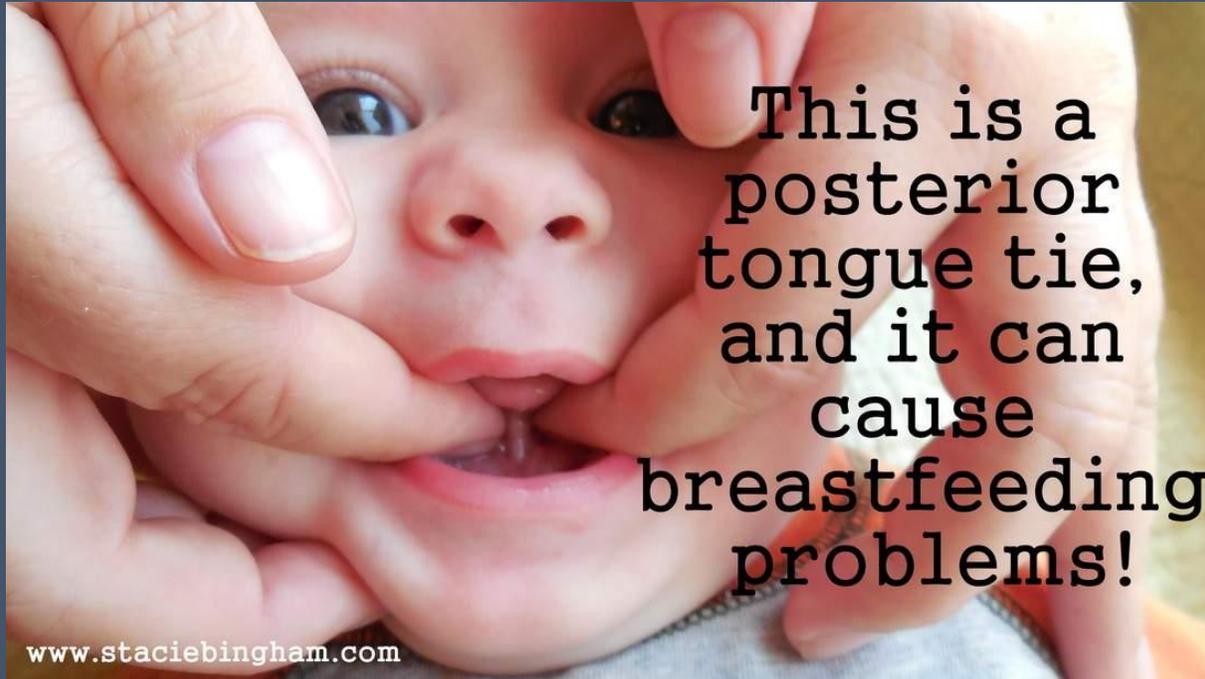
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University of Rochester School of Medicine

November 16, 2019



Many of the published websites available to patients and the community are opinion pieces without clear sources, and with inherent bias toward performing frenotomy for tongue tie.

Aaronson et al., 2018

# Ankyloglossia and Dysphagia

- Tongue tie
- Lip tie and other oral ties
- Latch, tongue mobility and dysphagia: physiology
- Tongue tie and reflux
- Controversies in the literature
- Tentative conclusions
- Where do we go from here?



**10** *Hidden*  
**Tongue Tie Symptoms**  
You Need to Know About

# Case 1

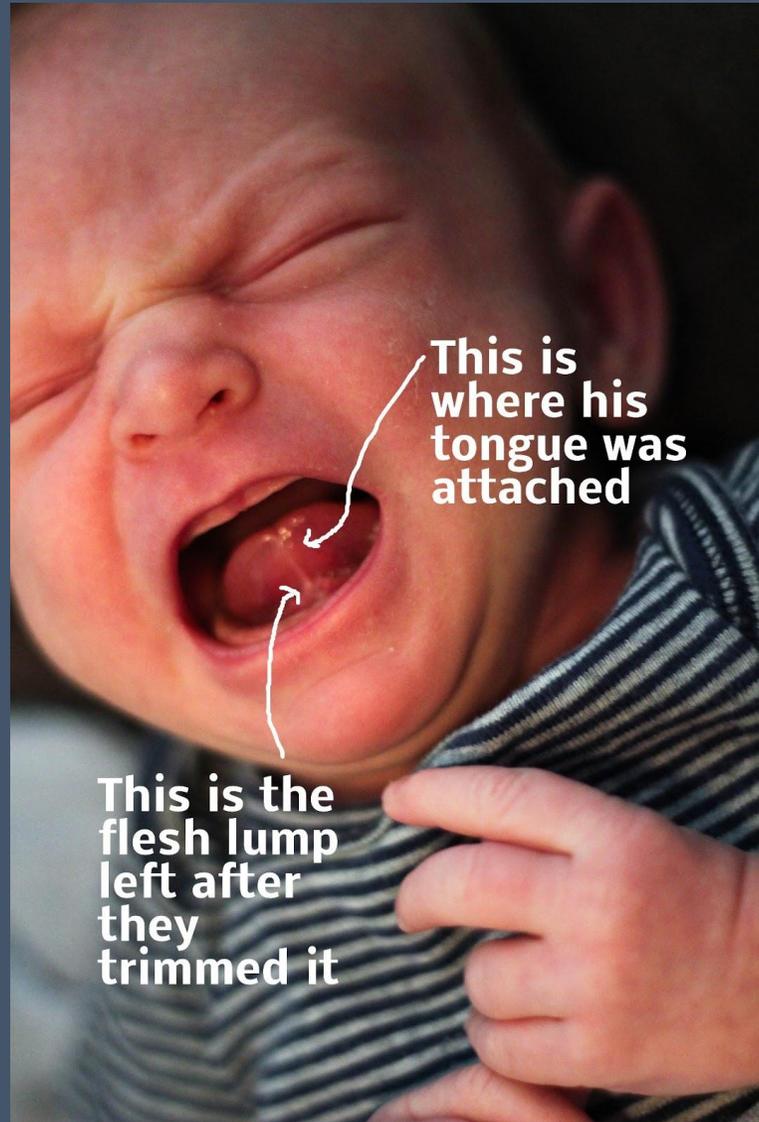
- Mother-infant dyad: 35 year old G1P1 mother and a 3 week old male
  - falling off of the breast
  - inability to use a pacifier
  - swallowing air, clicking
  - has not regained birth weight
  - maternal nipple pain
  - pumping and supplementing
  - lactation services in place

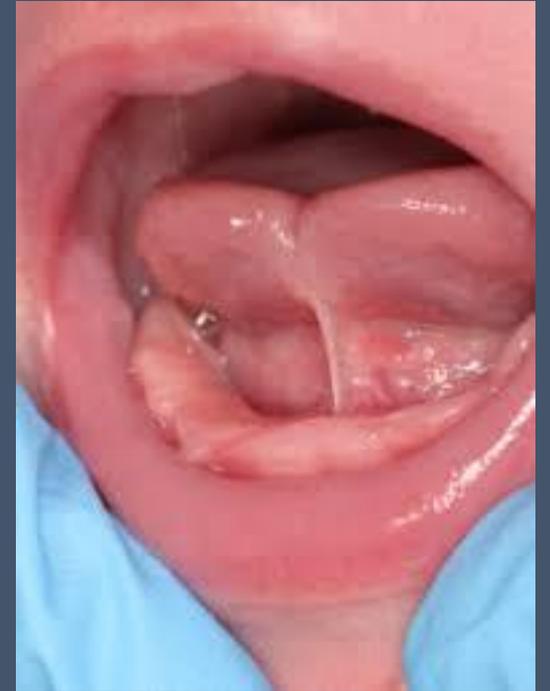


# Case 1

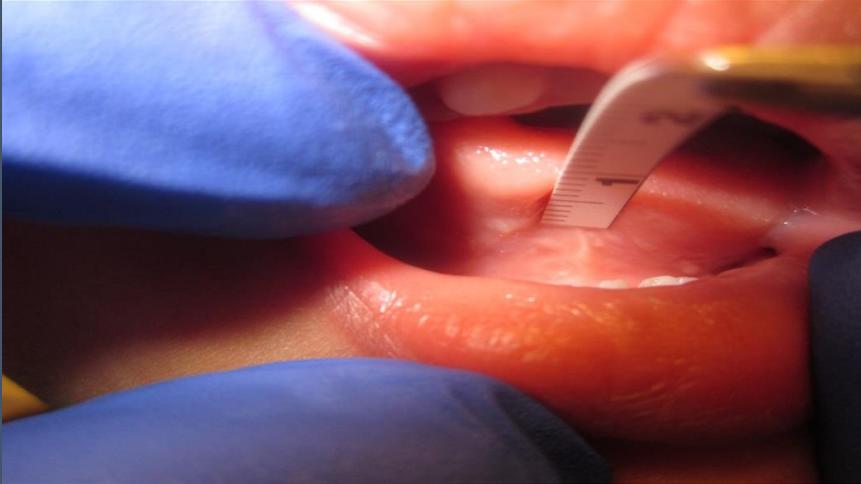
- No local resources or help
- Parents researched on their own and brought the baby to a dentist about 3 hours away where they paid out of pocket for laser tongue and lip tie release
- Immediate improvement in fussiness, clicking, reflux symptoms



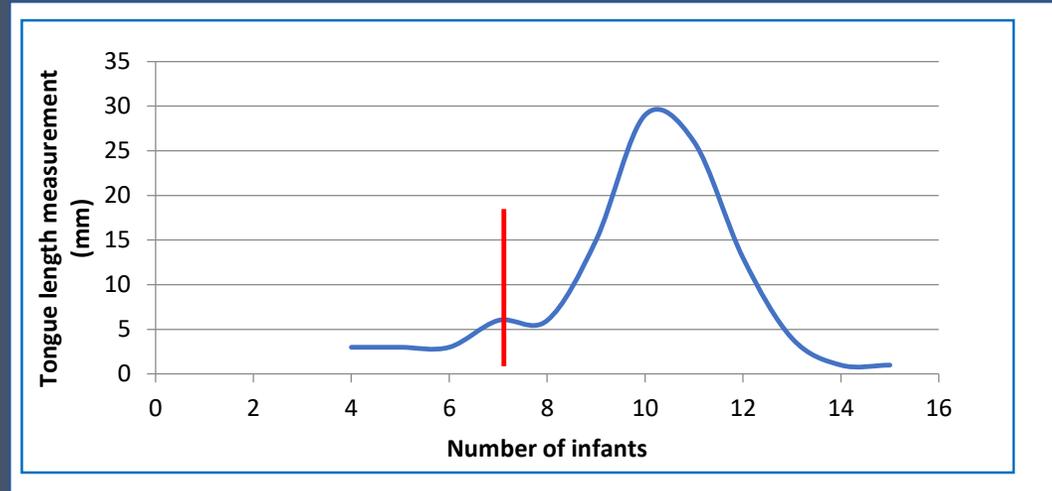




# Normative Data



Mean distance is 9 mm

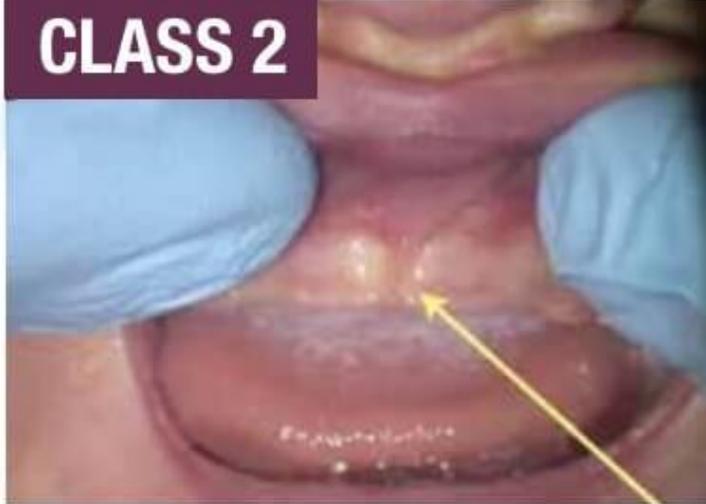


10<sup>th</sup> percentile is 7mm

**CLASS 1**



**CLASS 2**



**CLASS 3**



**CLASS 4**



**PONDERING**  
— BARBARA HIGHAM —

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Barbara / November 26, 2017 / Breastfeeding, tongue-tie

## Why Upper Lip-Tie Isn't a Thing





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*The CalmFamily community blog*

*Silent Reflux & Tongue Tie – The Real Reason for Unhappy Babies?*

17/4/2013 0 Comments

Why are the simplest solutions often kept hidden from us when we become mothers? With my firstborn (my son, Jackson) I did as I was told and have many regrets these days that I didn't trust my instincts over the advice of health professionals, friends and family. In those days I had no one to tell me otherwise.

With Lola, things changed, although the journey was very tough. When she was two weeks old the

*Categories*

- All
- Acceptance
- Babies
- Baby Experts
- Baby Products
- Baby Sleep
- Babywearing
- Behaviour
- Birth

## There are many myths about lip and tongue ties, but here are some facts.

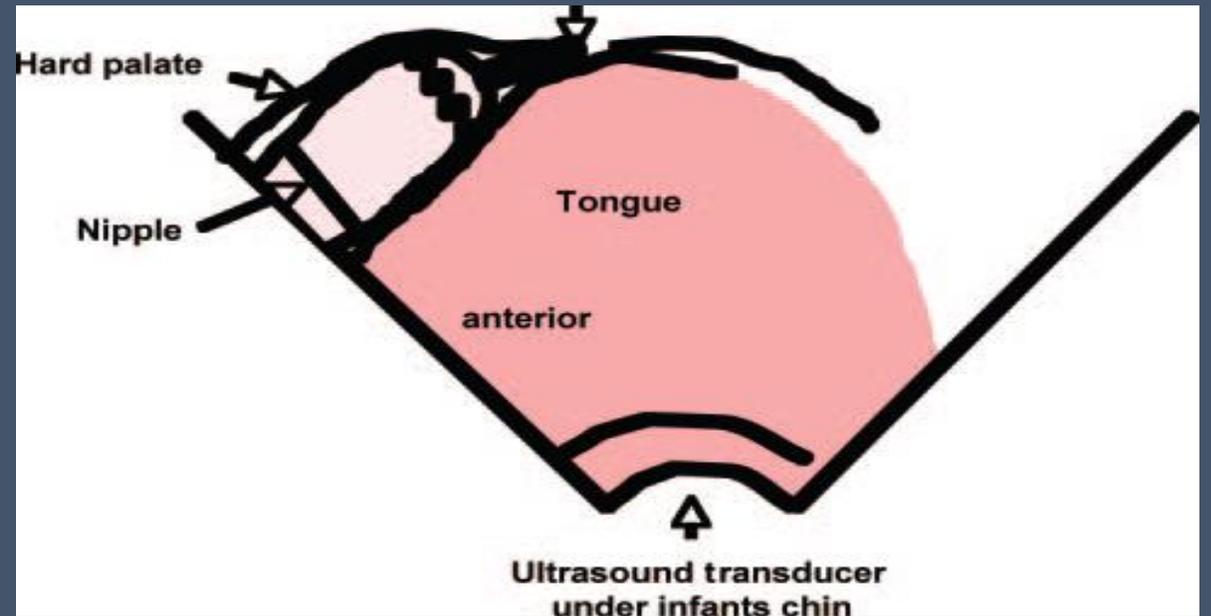
- It is possible to have both an anterior tie AND a posterior one
- Digestion starts in the mouth, and so tongue ties can lead to digestive problems like colic and reflux.
- Babies with tongue ties often have narrow palates, so teeth may be overcrowded.
- When you see a lip tie, there will almost always also be a tongue tie.

# Oral ties and swallowing mechanics



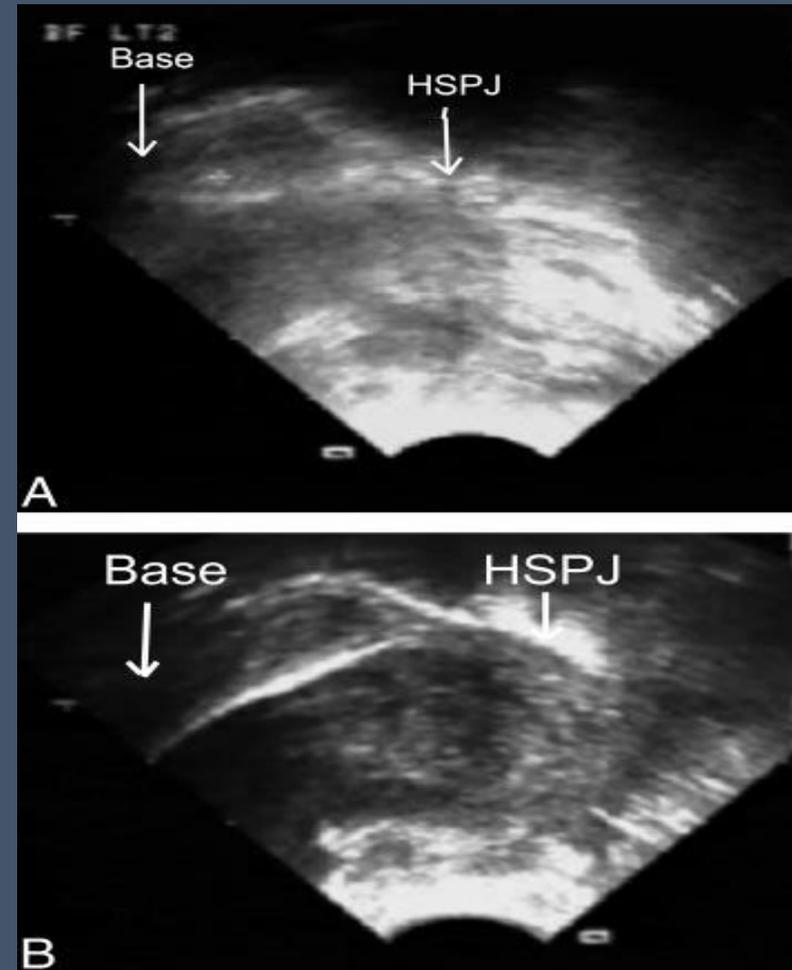
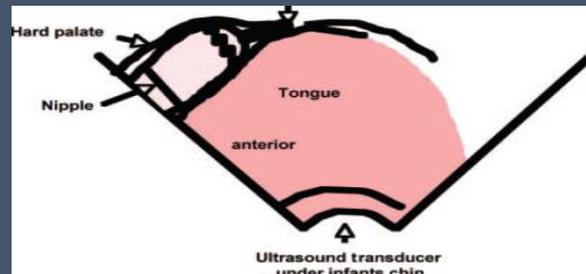
# Ultrasound Dynamics

- Geddes et al.
- Effect on milk removal and sucking mechanism as imaged by ultrasound
  - 24 mother-infant diads
  - US performed before and 7d after frenulotomy



# Ultrasound Dynamics

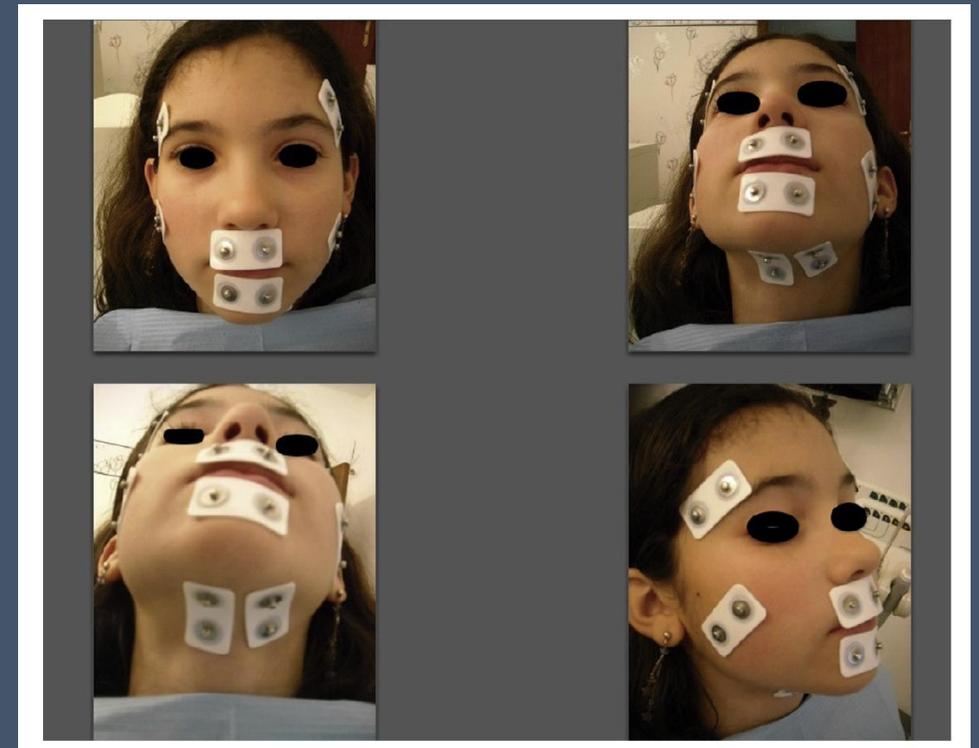
- All dyads experienced improved milk intake, milk-transfer rate, LATCH score, and maternal pain
- US showed decreased nipple compression post-frenulotomy in 23/24



# Frenulectomy of the tongue and the influence of rehabilitation exercises on the sEMG activity of masticatory muscles

Simona Tecco <sup>a,\*</sup>, Aberto Baldini <sup>b</sup>, Stefano Mummolo <sup>c</sup>, Enrico Marchetti <sup>c</sup>, Maria Rita Giuca <sup>d</sup>, Giuseppe Marzo <sup>c</sup>, Enrico Felice Gherlone <sup>a</sup>

- Electromyography and Kinesiology
- Atypical swallowing, low lingual posture, limited tongue movement, limited ability to suck against the palate
- Improvement in muscle sEMG potentials after treatment with lingual frenotomy and rehabilitation exercises



## Posterior Tongue Tie, Base of Tongue Movement, and Pharyngeal Dysphagia: What is the Connection?

Laura Brooks<sup>1,4</sup>  · April Landry<sup>1,2</sup> · Anita Deshpande<sup>2</sup> · Cinzia Marchica<sup>2</sup> · Anthony Cooley<sup>1,3</sup> · Nikhila Raol<sup>1,2</sup>

- Case report: Term baby with longstanding aspiration and poorly coordinated feeding.
  - Abnormal FEES and Videofluoro swallow study (VFSS)
  - Followed by aerodigestive team for 17+ months
  - MRI, swallowing therapy, DLB, EGD, supraglottoplasty, interarytenoid injection, gtube placement
  - No improvement on multiple subsequent VFSS throughout this time
  - Posterior tongue tie with restricted elevation and lateralization
  - Parent reported immediate improvement in coughing and interest in thins
  - VFSS 2 months later: improvement in base of tongue movement, pharyngeal pressure generation, and pharyngeal constriction



**DOES MY  
BABY  
HAVE  
SILENT  
REFLUX?**

# Infant Reflux and Aerophagia Associated with the Maxillary Lip-tie<sup>1</sup> and Ankyloglossia (Tongue-tie)

Lawrence Kotlow, DDS<sup>2</sup>

- 340 Infants referred for tongue and lip tie
  - 61% had GERD symptoms
    - Vomiting, regurgitation, inability to sleep supine, fussiness, crying after nursing, morning congestion
  - 40% treated with a PPI or H2 blocker with no benefit
- All underwent release of tongue and lip tie
  - 93% showed improvement in feeding and GERD symptoms



Kotlow Clinical Lactation 2011;2(4):25-29.

Kotlow Int J Child Health Nutrition 2016;5:10-16.

## Aerophagia Induced Reflux in Breastfeeding Infants With Ankyloglossia and Shortened Maxillary Labial Frenula (Tongue and Lip Tie)

Scott A. Siegel

- Retrospective analysis of 1000 Mother-Infant dyads over a 5 year period
    - All infants had tongue and lip tie divided
    - Post-procedure questionnaires at 1 and 2 weeks
      - 52% improvement of reflux symptoms and weaned off meds
      - 19% some improvement but still on reflux meds
      - 28% no change
- 1) Pain
  - 2) Clicking
  - 3) Extended feeding times
  - 4) Poor seal
  - 5) Fussiness
  - 6) Reflux symptoms, especially after feed
  - 7) Post-feed gastric distention (aerophagia)
  - 8) Infant on H2 blockers and/or PPIs without improvement

COMMUNITY // August 3, 2018

# Reflux, Tongue-Tie and the Ongoing Injustice to Children

*All too often this simplest of issues in infancy is overlooked or completely missed which causes a cascade of problems later in life*

By [Aine Homer](#), The Baby Reflux Lady, Mum, Coach and Author



# Caution in interpreting the literature

- No consensus on diagnosis
- Caution when 100% of referred patients are diagnosed/treated
- Procedural bias
- Recall bias
- Difficulty with blinding
- Incidence and prevalence of GERD in infants
- Natural history of disease as babies get older
- Peer reviewed articles are scarce

# Breastfeeding Improvement Following Tongue-Tie and Lip-Tie Release: A Prospective Cohort Study

Bobak A. Ghaheri, MD; Melissa Cole, IBCLC; Sarah C. Fausel, BA; Maria Chuop, BS;  
Jess C. Mace, MPH, CCRP

- 237 Dyads self-selected laser lingual and/or maxillary frenotomy
- Compared outcomes at 1 week and 1 month
- I-GERQ-R Validated 13-item survey to evaluate GERD symptoms in infants

TABLE III.  
Overall Preoperative and All Postoperative Average Outcome Measure Scores (n = 237).

Breastfeeding Outcome Measures	Preoperative Mean (SD)	1 Week Postoperative, Mean (SD)	1 Month Postoperative, Mean (SD)	F Test Statistic, df = 2	P Value*
BSES-SF total score	43.9 (12.6)	52.3 (11.4)	56.5 (10.8)	212.3	<.001
I-GERQ-R total score	16.5 (6.1)	13.2 (5.0)	11.6 (4.9)	85.3	<.001
VAS pain score	4.6 (2.7)	2.2 (1.8)	1.5 (1.7)	259.8	<.001

\*P values reflect overall significance between all within-subjects time points using repeated measures analysis of variance F test results.

BSES-SF = Breastfeeding Self-Efficacy Scale-Short Form; df = degrees of freedom; I-GERQ-R = revised Infant Gastroesophageal Reflux Questionnaire; SD = standard deviation; VAS = visual analog scale;

TABLE V.  
Average Preoperative and Postoperative Improvement in I-GERQ-R Total Scores Across Participant Subgroups.

Subgroups:	Preoperative, Mean [SD]	1 Week Postoperative, Mean [SD]	1 Month Postoperative, Mean [SD]	F Test Statistic, <i>df</i> = 2 ( <i>P</i> Value)	RMI*
Age: 0–4 weeks	15.0 [5.5]	13.1 [4.8]	12.3 [5.0]	19.9 (<.001)	12%
Age: 5–8 weeks	19.3 [6.5]	14.0 [5.9]	10.8 [4.3]	67.6 (<.001)	39%
Age: 9–12 weeks	17.2 [6.1]	12.3 [4.2]	10.7 [5.0]	23.6 (<.001)	33%
Males	16.3 [5.8]	13.0 [4.9]	11.3 [5.1]	51.9 (<.001)	24%
Females	16.7 [6.5]	13.4 [5.2]	12.1 [4.6]	33.5 (<.001)	19%
Kotlow lip classification type					
Class III	17.0 [5.9]	13.3 [5.0]	12.1 [4.8]	43.8 (<.001)	21%
Class IV	16.0 [6.3]	13.1 [5.0]	11.3 [5.0]	41.8 (<.001)	23%
Coryllos tongue classification type					
Type I	14.9 [6.8]	12.2 [6.5]	9.8 [6.6]	7.6 (.004)	37%
Type II	15.9 [5.2]	13.1 [4.8]	11.2 [4.5]	12.1 (<.001)	23%
Type III	16.6 [6.8]	12.8 [5.0]	11.5 [4.6]	33.5 (<.001)	21%
Type IV	16.8 [5.9]	13.6 [5.0]	12.2 [5.0]	33.9 (<.001)	20%
Procedure type					
Tongue	15.4 [5.4]	12.4 [4.4]	11.1 [5.5]	18.1 (<.001)	22%
Both tongue and lip	16.9 [6.3]	13.4 [5.2]	11.9 [4.7]	67.4 (<.001)	22%

\*RMI between preoperative and 30-day follow-up scores; lower scores on I-GERQ-R survey indicate improvement.

*df* = degrees of freedom; I-GERQ-R = revised Infant Gastroesophageal Reflux Questionnaire; RMI = relative mean improvement; SD = standard deviation.

# Controversy



- Remarkably, the authors state that they “did not incorporate a control group ... because ... many experts do not feel it ethical to offer an untreated control study arm.”
  - Yet it has not been established that the diagnoses of PTT and ULT are valid or useful
  - It has not been established that frenotomy for PTT and ULT is beneficial.
  - It has not been established that the risk of laser frenotomy for PTT and ULT and associated wound-stretching exercises is low, as the authors' claim.
  - **Moreover, the financial burden of infant oral surgery for both parents and the health system is significant.**
- Breastfeeding women and their babies deserve the very best of 21st century science, not expensive and unproven technological “quick fixes.”



*Flip the Lip!*

**It might be the  
cause of your  
breastfeeding issues!**

Learn more about Upper Lip Ties: [www.tongue-tie-education.com](http://www.tongue-tie-education.com)  
or "Tongue Tie Babies Support Group" on Facebook

## Case 2

- Mother-infant dyad: 30 year old G1P1 mother and a 4 day old male
  - difficulty latching
  - irritability
  - poor weight gain
  - maternal nipple pain
- Posterior tongue tie on exam
- In discussion with family, advised a short period of watchful waiting



# Case 2

- Two weeks later...
  - Baby was diagnosed with a milk-soy protein allergy
  - Mother started elimination diet
  - Intermittent supplementation with alimental formula
  - Baby nursing fine and gaining weight





[Barbara](#) [July 6, 2018](#) [Breastfeeding, tongue-tie](#)

**[Does Tongue-Tie Disempower Mothers and Damage Babies?](#)**

# Case 3

- 2 week old infant diagnosed with posterior tongue tie
- In-office lingual frenulectomy complicated by immediate hemorrhage that was unable to be controlled with Afrin, Gelfoam, Silver Nitrate cautery, and manual finger pressure
- Transferred from the pediatrician's office to the emergency room with the provider holding pressure during transport
- Otolaryngology was consulted and helped control the bleeding
- Patient required transfusion
- Follow up: patient with multiple food allergies and GERD. She is now 13 months of age and is still being managed with elemental formula.



Votive tablet of 1731 in the pilgrimage church of Herrgottsruh, Friedberg, Bavaria, **Giving thanks for salvation from severe hemorrhage following frenotomy.** The tablet shows the mother in childbed, the kneeling father, the injured neonate on the table, surrounded by the desperate midwife and two disputing surgeons with their instruments, as well as Jesus Christ and St. John of Nepomuk in the clouds.



# Tentative Conclusions

- Many infants with oral ties have poor latch and reflux symptoms
- Thoughtful, multidisciplinary approach
- Shared decision making with parents
- Evidence based guidelines

## Multidisciplinary Care for Tongue Tie

