Tongue Tie and Other Tethered Oral Tissues

What Do We Know and Where Do We Go?

Presented by

Dawn M. Moore MA, CCC/SLP
Expressions Speech & Language Center

www.expressionsspeech.com
Tongue Tie and Other Tethered Oral Tissues

What Do We Know and Where Do We Go?

• How many people believe they currently have or have had a patient/child with tongue tie?
  • What did you do/What happened?

• How many believe tongue tie can cause speech difficulty in SOME?

• Has anyone ever wondered why we, as a field, ignore tongue tie considering it is a major articulator AND the beginning of the digestive system responsible for swallowing?
Demonstration Activity

I need one volunteer that has shoes on with shoelaces 😊
Demonstration
Activity

Walk five steps up and five steps back.
Run five steps up and five back.
   Lift your left leg up.
   Lift your right leg up.
Pick a leg and lift to the side.

Let’s Change the MOBILITY
Now walk five steps up and back.
Run three steps up and back.
   Lift your left leg up.
   Lift your right leg up.
Pick a leg and lift to the side.
# Demonstration Activity

<table>
<thead>
<tr>
<th>What Change Occurred?</th>
<th>Possible TONGUE Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can’t walk as fast</td>
<td>Errors at word level and beyond</td>
</tr>
<tr>
<td>Can’t run as fast</td>
<td>Imprecise articulation/errors</td>
</tr>
<tr>
<td>Decreased range of UP motion</td>
<td>Speech errors /l/, /r/!</td>
</tr>
<tr>
<td></td>
<td>Palatals? Velars? Lateral?</td>
</tr>
<tr>
<td></td>
<td>Hyponasality ~ Try it!</td>
</tr>
<tr>
<td><em>Has anyone wondered about the significant increase in feeding issues in children in the last 10 years? What IF it is due to Tongue Tie?</em></td>
<td>Tongue can’t rest on palate (normal resting posture),</td>
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<tr>
<td></td>
<td>Swallowing is inefficient and significantly altered.</td>
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<tr>
<td></td>
<td>Feeding issues arise ~ Nursing</td>
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<tr>
<td></td>
<td>Tongue thrust can develop</td>
</tr>
<tr>
<td></td>
<td>Inability to clean teeth ~ Decay!</td>
</tr>
<tr>
<td>Decreased range of LATERAL motion</td>
<td>Speech errors ~ Varies</td>
</tr>
<tr>
<td></td>
<td>Chewing affected</td>
</tr>
<tr>
<td></td>
<td>Inability to clean teeth</td>
</tr>
</tbody>
</table>
TONGUE TIE

EXAMPLES

- How old do you think this child is?
  
  Play Original Audio

- Post Surgery Audio ~ Same words

- Heavy R-Story ~ Herbie the Hearing Ear Dog
TONGUE - TIE
SYMPTOMS & PICTURES

Review of Symptoms of Tongue and Lip Ties

The following pictures are from the source below


Based on Dr. Elizabeth “Betty” Coryllos Classification System

Class 1 Tongue Tie

This is the classic heart-shaped tongue that most doctors feel is the only real tongue tie. The tie inserts into the tip of the tongue.
Class 2 Tongue Tie

Considered to be an anterior tie, this tie inserts just behind the tip of the tongue.

We don't see a heart-shaped tongue, but the tie is still clearly seen.
Class 3 Tongue Tie

Classified as a Posterior TT
The distinction between this and a class 4 TT is that the class 3 still has a thin membrane present.
TONGUE-TIE PICTURES

The following pictures are from the source below


Class 4 Tongue Tie

No thin membrane is present, so this type of tie is the most commonly missed.

The front and sides elevate, but the mid-tongue cannot.
TONGUE - TIE PICTURES

Dr. Kotlow, DDS

*Kotlow Diagnostic criteria (one) for clinically apparent tongue-ties in infants

**Type I (*4LK) - total tip involvement

Type II (*3LK) Midline-area under tongue (creating a hump or cupping of the tongue)

Type III (*2LK) Distal to the midline. The tongue may appear normal

Type IV (*1LK) Posterior area which may not be obvious and only palpable. Some are submucosally located

**Lactation consultants diagnostic criteria

Lawrence Kotlow DDS 2011
I almost missed a #5 a month ago because the tissue was so thin and the line barely visible until it split at the gum line!
TONGUE - TIE PICTURES

The following pictures are from the source below


Posterior TT Correction

A classic diamond-shaped wound seen in an appropriate posterior tie release.
Tethered Oral Tissues

Why did tongue tie surgery fall out of favor with doctors?
Before the 1940s, tongue and lip ties were treated regularly, but as formula companies began to heavily influence doctors, the desire to treat ties for breastfeeding success diminished greatly. As a result, physicians learn almost nothing about the mouth in relationship to feeding in medical school today, Dr. Notestine, DDS explains.²

Other than breastfeeding, tongue and lip tie can influence speech, dental hygiene, and oral-facial development which can lead to narrowed airways and sleep apnea.

These short or tight frenums, or frenulums, which also may include the cheek attachments—restrictions now referred to as Tethered Oral Tissues (TOTS)—should be examined at birth, Dr. Notestine explains. They are BIRTH DEFECTS that require treatment!

If a child were born with webbed fingers or toes, no one would think twice about having surgery to correct it, yet releasing the tongue, a MAJOR articulator, and the beginning of the digestive system, most doctors look the other way. WHY?

We still circumcise little boys, just a few days old, yet we will NOT touch the tongue!

Is tongue tie a fad?
No, it’s an old problem that is finally starting to get the attention that it deserves!

Is tongue tie genetic? YES!
Studies have shown that TT is autosomal dominant which means it is located one of the 22 chromosomes that is NOT an X or Y leading to a 50/50 chance of being tied if there is a genetic history.¹
Tethered Oral Tissues

**Types of Tongue Tie**
There are TWO types of Tongue-Tie and a classification system that is not always followed (pictures and types are listed in this handout)
- Anterior ~ Easy to identify
- Posterior ~ Very hard to identify

**Is the prevalence of tongue tie increasing?**
It may be increasing. We are also identifying it and treating it instead of ignoring it.

Twenty-seven years ago, your only autism reference might have been from the movie Rainman. What is your reference now? The vast number of kids you work with? Your family member? Your own child? Things change.

Ten years ago we were told not to mention the “s” word because it would make kids worse. We told parents not to mention it either and to ignore the signs and symptoms. Now, we are told it’s okay to say the “s” word and that saying the ‘s’ word doesn’t make kids worse. Things changed again!

Since there is likely some genetic predisposition towards ankyloglossia and a gene is passed from generation to generation, and that gene is potentially passed in a dominant fashion, more and more babies will be affected by that gene with each new generation and with increasing population size.¹

**What does the tongue need to do?**
The tongue has to be able to do more than protrude! It has to be able to clean your teeth. It has to be able to move FAST to articulate clearly. It has to be able to swallow appropriately.

**References**
1) Ghaheri, Bobby Dr. (ENT), Resources and Downloads, www.drghaheri.com
2) Notestine Greg Dr. (DDS), *The Healthy Children Project*, May 10, 2015
Here is a lip tie that was contributing to diastema ~ teeth separation. Many doctors will tell you it’s no big deal and that it will rip on.

Here is a Buccal tie that was contributing to gingival recession. Contributed by Kristen Berning Dentist at Exceptional Dentistry of the Tri-State Region Member of the Ankyloglossia Professional Support Group.

Tethered Oral Tissues

What do we do? ~ Learn and educate others!

Dr. Kotlow is a Pediatric Dentist and an leading authority on Tongue-Tie and its implications. His classification system is in the pictures above:  http://www.kiddsteeth.com/articles/websitettlnbew.pdf

Dr. Ghaheri is an ENT in Portland, Oregon and has an amazing practice where he trains others, performs community outreach to educate the professionals and the public, and his website is full of resources:  http://www.drghaheri.com/

Alison Hazelbaker
Created the Hazelbaker Assessment Tool for Lingual Frenulum Function (HATLFF):  http://www.alisonhazelbaker.com/
She is a founding member of the International Affiliation of Tongue Tie Professionals:  http://tonguetieprofessionals.org/

Carmen Fernando is an Australian SLP who started the website Tonguette.net and created the Tongue Tie Assessment Protocol:  www.Tonguette.net:

Facebook Groups
Tongue Tie Babies Support Group
https://www.facebook.com/groups/tonguettebabies/

Speech Therapy & Tongue Tie:
https://www.facebook.com/groups/speechtherapyandtonguette/

Coalition of Speech-Language Pathologists for Tethered Oral Tissues:  https://www.facebook.com/groups/500245043460710/

Tongue Tied Adults Support Group:  https://www.facebook.com/groups/1494393564165999/?fref=nf
Defining ankyloglossia: a case series of anterior and posterior tongue ties.

Introduction
Ankyloglossia is a congenital condition in which tongue mobility is limited due to an abnormality of the lingual frenulum. The impact of ankyloglossia on breastfeeding is poorly understood but there is a recent trend toward more recognition of this condition and early intervention when needed. Currently, there lacks clear definition of ankyloglossia and different subtypes have been proposed with no clinical correlation.

Objective
To determine the prevalence of anterior versus posterior ankyloglossia in a large series of consecutive patients and to assess clinical outcomes after frenotomy.

Methods
Retrospective chart review of patients from July 2007 to July 2009 who were diagnosed with ankyloglossia and underwent office frenotomy. Baseline characteristics, specific feeding issues, type of ankyloglossia, and clinical outcomes after frenotomy were reviewed.

Results
Of the 341 total patients, 322 (94%) had anterior ankyloglossia and 19 (6%) had posterior ankyloglossia. Median age at presentation was 2.7 weeks (range 1 day of life to 24 weeks); 227 were males and 114 were females. Revision frenotomy rates were significantly higher for the posterior ankyloglossia group (3.7% anterior and 21.1% posterior, p = 0.008).

Conclusion
Anterior ankyloglossia is much more common and readily managed when compared to posterior ankyloglossia. Posterior ankyloglossia is a poorly recognized condition that may contribute to breastfeeding difficulties. The diagnosis is difficult due to the subtle clinical findings but relevant health care providers should be aware of this condition. Frenotomy is a simple, safe, and effective intervention for ankyloglossia which improves breastfeeding.
OBJECTIVE: We wanted to determine whether ankyloglossia is associated with articulation problems and the effect of frenuloplasty on speech and tongue mobility.

STUDY DESIGN: We conducted a prospective study of 30 children aged 1 to 12 years with ankyloglossia undergoing frenuloplasty. Outcomes were assessed by measurements of tongue mobility, speech evaluation, and parent questionnaires.

RESULTS
- Mean tongue protrusion improved from 14.2 mm preoperatively to 25.8 mm postoperatively (P<0.01).
- Similarly, mean tongue elevation improved from 5.2 to 22 mm (P<0.01).
- Preoperative speech pathology evaluation documented articulation problems thought due to ankyloglossia in 15 of 21 children.
- Postoperative evaluation in 15 of these children showed improvement in articulation in 9, no change in 4 who had normal speech preoperatively, and an ongoing articulation disorder in 2. Parent perception of speech intelligibility on a scale of 1 to 5 improved from 3.4 to 4.2 (P<0.01).

CONCLUSION: Tongue mobility and speech improve significantly after frenuloplasty in children with ankyloglossia who have articulation problems.

Department of Head and Neck Surgery, Stanford University, Stanford, CA, USA. amessner@stanfordmed.org
BACKGROUND:
Ankyloglossia has been associated with a variety of infant-feeding problems. Frenotomy commonly is performed for relief of ankyloglossia, but there has been a lack of convincing data to support this practice.

OBJECTIVES:
Our primary objective was to determine whether frenotomy for infants with ankyloglossia improved maternal nipple pain and ability to breastfeed. A secondary objective was to determine whether frenotomy improved the length of breastfeeding.

METHODS:
Over a 12-month period, neonates who had difficulty breastfeeding and significant ankyloglossia were enrolled in this randomized, single-blinded, controlled trial and assigned to either a frenotomy (30 infants) or a sham procedure (28 infants). Breastfeeding was assessed by a preintervention and postintervention nipple-pain scale and the Infant Breastfeeding Assessment Tool. The same tools were used at the 2-week follow-up and regularly scheduled follow-ups over a 1-year period. The infants in the sham group were given a frenotomy before or at the 2-week follow-up if it was desired.

RESULTS:
Both groups demonstrated statistically significantly decreased pain scores after the intervention. The frenotomy group improved significantly more than the sham group (P < .001). Breastfeeding scores significantly improved in the frenotomy group (P = .029) without a significant change in the control group. All but 1 parent in the sham group elected to have the procedure performed when their infant reached 2 weeks of age, which prevented additional comparisons between the 2 groups.

CONCLUSIONS:
We demonstrated immediate improvement in nipple-pain and breastfeeding scores, despite a placebo effect on nipple pain. This should provide convincing evidence for those seeking a frenotomy for infants with significant ankyloglossia.
Has anyone established criteria for determining the need for surgical intervention?

This article states that their criteria for surgical intervention is stages 4 and 5, and sometimes 3:

“Our criteria for surgical intervention for the degree of frenulum are the following: We consider frenula categorized as degree 4 or 5 to require surgery. And the lingual frenulum degree 3 is only considered for surgery if it's related to another alteration, pathology or disorder. In these doubtful cases, we establish a period between 3 and 6 months for rehabilitation, before a frenectomy is considered. Furthermore, we assess the problems of speech, dental malocclusion, atypical swallowing, etc. “


Where’s ASHA?
Teaming up to Correct TT (ASHA 2014)

Robyn Merkel-Walsh, MA, CCC-SLP; Anthony Jahn, MD, FACS The ASHA Leader, January 2014, Vol. 19, online only. doi:10.1044/leader.FTR5.19012014.np

The Tongue Was Involved, But What Was the Trouble?
The search for the cause of a preschooler’s difficult behavior leads to a surprising discovery.

Nicole Archambault Besson, EdS, MS, CCC-SLP

The ASHA Leader, September 2015, Vol. 20, online only. doi:10.1044/leader.CP.20092015.np

The American Academy of Pediatrics


Many of today’s practicing physicians were taught that treatment of tongue-tie, (ankyloglossia) is an outdated concept - a relic of times past. Among breastfeeding specialists tongue-tie has emerged as a recognized cause of breastfeeding difficulties - and a very easily corrected one.

During the last several decades of predominant bottle-feeding, tongue-tie was relegated to the status of a “non-problem” because of the lack of significant impact upon bottle feeding behaviors. The goal of this article is to alert pediatricians to the potential link between tongue-tie and breastfeeding problems in order to expedite intervention in symptomatic cases.
Histological Characteristics of Altered Human Lingual Frenulum

E-ISSN: 2311-8687/14

Roberta Lopes de Castro Martinelli1, Irene Queiroz Marchesan2,* , Reinaldo Jordão Gusmão3 , Antonio de Castro Rodrigues4 and Giédre Berretin-Felix5

High concentration of type I collagen was detected in all types of lingual frenulum. Due to the fact that type I collagen is resistant to traction, stretching exercises may not be helpful to elongate the lingual frenulum. Therefore, lingual frenectomy may be considered the appropriate procedure to release the tongue in order to provide better oral functions.
Frenulotomy for breastfeeding infants with ankyloglossia: effect on milk removal and sucking mechanism as imaged by ultrasound


PATIENTS AND METHODS. Twenty-four mother-infant dyads (infant age: 33 ± 28 days) that were experiencing persistent breastfeeding difficulties despite receiving professional advice were recruited. Submental ultrasound scans (Acuson XP10) of the oral cavity were performed both before and ≥7 days after frenulotomy. Milk transfer, pain, and LATCH (latch, audible swallowing, type of nipple, comfort, and hold) scores were recorded before and after frenulotomy. Infant milk intake was measured by using the test-weigh method.

RESULTS. For all of the infants, milk intake, milk-transfer rate, LATCH score, and maternal pain scores improved significantly postfrenulotomy. Two groups of infants were identified on ultrasound. One group compressed the tip of the nipple, and the other compressed the base of the nipple with the tongue. These features either resolved or lessened in all except 1 infant after frenulotomy.

CONCLUSIONS. Infants with ankyloglossia experiencing persistent breastfeeding difficulties showed less compression of the nipple by the tongue postfrenulotomy, which was associated with improved breastfeeding defined as better attachment, increased milk transfer, and less maternal pain. In the assessment of breastfeeding difficulties, ankyloglossia should be considered as a potential cause.
The effects of office-based frenotomy for anterior and posterior ankyloglossia on breastfeeding

Cliff O’Callahan\textsuperscript{a}, \textbf{Susan Macary}\textsuperscript{b}, Stephanie Clemente\textsuperscript{c}  
\textsuperscript{a}International Journal of Pediatric Otorhinolaryngology  
Volume 77, Issue 5, May 2013, Pages 827–832

Objectives
The objectives of this study were to assess the effect of office-based frenotomy on reversing breastfeeding difficulties among infants with problematic ankyloglossia, and to examine characteristics associated with anterior and posterior ankyloglossia.

Methods
Mother’s of infants who underwent a frenotomy for ankyloglossia from December 2006 through March 2011 completed a post-intervention web-based survey about breastfeeding difficulties they experienced before and after the frenotomy. Maternal-infant dyads had been referred from health providers to a primary care practice for assessment of ankyloglossia. Infants were subsequently classified as having no ankyloglossia, anterior (Type I or Type II) or posterior (Type III or Type IV).
The effects of office-based frenotomy for anterior and posterior ankyloglossia on breastfeeding (continued)

Results
There were 311 infants evaluated for ankyloglossia and 299 (95%) underwent a frenotomy. Most infants were classified as having Type III (36%) or IV (49%) ankyloglossia compared to only 16% with anterior (Type I and Type II combined). Differences by classification type were found for gender (P = .016), age (P = .017), and maxillary tie (P = .005). Among survey respondents (n = 157), infant latching significantly improved (P < .001) from pre- to post-intervention for infants with posterior ankyloglossia. Both the presence and severity of nipple pain decreased from pre- to post-intervention among all classifications (P < .001). Additionally, 92% of respondents breastfed exclusively post-intervention. The mean breastfeeding duration of 14 months did not differ significantly by classification.

Conclusions
Breastfeeding difficulties associated with ankyloglossia in infants, particularly posterior, can be improved with a simple office-based procedure in most cases. The diagnosis and treatment of ankyloglossia should be a basic competency for all primary care providers and pediatric otorhinolaryngologists.
Preferred Providers for Diagnosing and Correcting Tongue Tie

Brian A. McMurtry, DDS, FAGD
10816 Black Dog Lane #100
Charlotte, NC 28214
(704)-392-3883
drmcmurtry@gmail.com
http://www.tongue-tied.com
(laser)

1) Do you take insurance? No
2) If yes, what insurances will you accept? NA
3) Do you accept Medicaid? No
4) What is the out of pocket (no insurance) cost for a revision? $575 w/ out molars $600 w/ molars
5) What type of surgery to do use (laser, scissor)? Laser
6) Do you use general (put the child under) or local anesthesia? No general, topical for younger, local for older
7) Can the parent be in the room with the child? No
8) What ages will you treat? Any
9) Will you treat a child with a repaired cleft lip and palate? We have before

Dr. David Draper
Better Dental
501 N Salem St #105
Apex, NC 27502
(919) 355-5123
http://betterdental.com/
(laser)

1) Do you take insurance? Yes
2) If yes, what insurances will you accept? Any, will file with Dental first then Medical.
3) Do you accept Medicaid? Yes
4) What is the out of pocket (no insurance) cost for a revision? Varies and will give a 10% discount
5) What type of surgery to do use (laser, scissor)? Laser
6) Do you use general (put the child under) or local anesthesia? Local or topical but they try not to use anything. Just depends on the child.
7) Can the parent be in the room with the child? Yes
8) What ages will you treat? Any
9) Will you treat a child with a repaired cleft lip and palate? Yes
Karen Wuertz, DDS, PA, Diplomate, American Board of Craniofacial Dental Sleep Medicine, Fellow, American Academy of Craniofacial Pain.
Dental Transformations
408 E. Colonial Avenue
Elizabeth City, NC 27909
252.335.4341
http://dentaltransformations.com/
laser

1) Do you take insurance? **No**
2) If yes, what insurances will you accept? **N/A**
3) Do you accept Medicaid? **No but will do procedure at a low cost of $50.00. She would have to look at the child's case before making that type of decision.**
4) What is the out of pocket (no insurance) cost for a revision? **Varies**
5) What type of surgery to do use (laser, scissor)? **Laser**
6) Do you use general (put the child under) or local anesthesia? **None**
7) Can the parent be in the room with the child? **No**
8) What ages will you treat? **Any**
9) Will you treat a child with a repaired cleft lip and palate? **Would have to look at case before she decides.**
Thank you for attending this presentation. Please fill out the following brief survey. You may write additional comments on the back of this sheet.

Check one of the boxes below that best fits your feelings about the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Disagree Completely</th>
<th>Disagree Somewhat</th>
<th>Neither Agree Nor Disagree</th>
<th>Agree Somewhat</th>
<th>Agree Completely</th>
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<tbody>
<tr>
<td>I enjoyed coming to the presentation.</td>
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<td>The speaker answered my questions about the subject.</td>
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<td>The speaker made the subject easy for me to understand.</td>
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<td>The handouts I received were very helpful.</td>
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<td>I would recommend this presentation to others.</td>
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What was the most important thing you learned from this presentation?


What suggestions do you have to improve this presentation?


Would you recommend this presentation to others?


