



Ankyloglossia

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The lingual frenulum is a fold of tissue that attaches the ventral surface of the tongue to the floor of the mouth. Embryologically, the tongue separates from the floor of the mouth through apoptosis, with the frenulum being the remaining anchoring tissue at birth. Ankyloglossia, or tongue-tie, occurs when the frenulum is unusually anterior, thick, tight, or short, resulting in limitation of the tongue's mobility. The prevalence of tongue-tie has most often been reported in the range of 3% to 4% of infants, with a male predominance ranging as high as 2.6:1. Clinical manifestations of tongue-tie depend on the age of the child and vary in severity. In infancy, children present with feeding difficulties, most commonly inability to latch onto the breast, and the nursing mother may well experience nipple pain. The American Academy of Pediatrics has persistently emphasized the numerous health and emotional benefits of breastfeeding for both the mother and the child. Therefore, identifying reversible causes of breastfeeding issues carries important clinical significance. Tongue-tie has been linked to articulation difficulties in children learning how to speak. In older children and adults with ankyloglossia, up to 50% have reported mechanical issues beyond feeding and speaking difficulties, including decreased ability to lick the lips and clear the teeth of food, as well as difficulty playing wind instruments.

Classification and diagnosis of ankyloglossia has been a source of some controversy in the medical community over the years, rooted in a lack of standardized definitions or consensus on a validated grading system. The classic anterior ankyloglossia is defined as a frenulum that attaches close to the tip of the tongue, and a posterior tongue-tie is somewhat of a debated concept. Although many authors define this latter category as symptomatic ankyloglossia where the frenulum may be shorter, thicker, or even submucosal, attaching more posteriorly to the undersurface of the tongue, some question its existence at all.

A recent panel of pediatric otolaryngologists published a Clinical Consensus Statement in 2020 that defined tongue-tie as “a condition of limited tongue mobility caused by a restrictive lingual frenulum.” The panel recognized the lack of agreement regarding anterior and posterior tongue-tie but suggested that practitioners focus on its definition of ankyloglossia, not making the diagnosis of ankyloglossia in the absence of restrictions in tongue mobility and of a restrictive lingual frenulum.

Several classification systems exist to help define the severity of tongue-tie. The Hazelbaker Assessment Tool for Lingual Frenulum Function incorporates not only the appearance of the tongue-tie but also functional items that allow providers to better characterize and identify issues that nursing mothers may or

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may not be experiencing. Another commonly cited grading system, the Coryllos system, grades the type of frenulum present but does not comment on functionality. The Bristol Tongue Assessment Tool incorporates some functional components but lacks evaluation of suck, which is present in the Hazelbaker Assessment Tool. The Martinelli Lingual Frenulum Protocol incorporates clinical history with specific questions about family history and breastfeeding as well as anatomical, functional, nonnutritive, and nutritive sucking evaluations.

The utility and clinical application of these grading systems is debated. A recent position statement on ankyloglossia by the Academy of Breastfeeding Medicine (ABM) notes that these grading systems and clinical assessments vary not only in their complexity but also in interrater reliability and should not be used as the primary deciding factor to pursue surgical treatment of tongue-tie. The ABM instead emphasizes the importance of history and physical examination findings in conjunction with a skilled clinical breastfeeding assessment.

Subjective complaints reported by breastfeeding mothers of children with restrictive tongue-tie include issues with latching, longer feeding sessions, poor breast drainage, and nipple pain. The mother may have damage from compression of the nipple, including ulceration and associated mastitis, and the child may have poor weight gain

from feeding difficulties. Suboptimal intake jaundice, or breastfeeding jaundice, can also be a presenting sign in the presence of feeding difficulties from tongue-tie. On physical examination, it is important to look for any restricted tongue movements, inability of the child to protrude the tongue, and a thickened short frenulum (Fig 1). The ABM emphasizes the importance of a detailed breastfeeding assessment that includes observation of feeding.

Patients with clinically significant tongue-tie with associated feeding or speech difficulties should be referred to a pediatric otolaryngologist for further evaluation. Mothers in the hospital with perceived feeding difficulties of their newborn often benefit from consultation with a lactation consultant or speech and language pathologist before an otolaryngologist's evaluation. Many breastfeeding issues can be effectively managed by skilled lactation support, and these conservative measures may be offered to parents before proceeding with frenotomy. With some exceptions, patients up to 6 months of age can safely have a frenotomy performed in the office setting (Fig 2). The procedure involves elevating the tongue with a grooved retractor and releasing the frenulum using scissors or a scalpel. Hemostasis is usually achieved with direct pressure or may require chemical (silver nitrate) cautery or (rarely) a few interrupted, absorbable sutures. It is important to discuss



Figure 1. Infant presenting to an otolaryngology clinic with ankyloglossia. A thin frenulum is tethering the tip of the tongue, disrupting elevation and protrusion. The child also demonstrated inefficient latch with breastfeeding and around the examiner's gloved finger.



Figure 2. The same infant as pictured in Fig 1 in the clinic after the release of ankyloglossia. The figure demonstrates the detached frenulum, and the tongue is no longer tethered to the floor of the mouth and can more easily elevate and protrude.

with parents the risks of the procedure, including bleeding, infection, scarring, and the possible need for another intervention in the future if there is a recurrence. In addition, there is a small risk of injury to Wharton's duct, the opening of the submandibular gland, visible lateral to the frenulum. For patients whose feeding difficulties are multifactorial, providers must discuss with parents that a frenotomy may not improve or change their child's feeding and/or speech articulation issues. For children older than 6 months or those who cannot tolerate in-office frenotomy, the procedure can be performed in the operating room under general anesthesia.

Ankyloglossia is a common finding in children and is often cited as a reason for breastfeeding difficulties in infants and speech issues in older children. There are many classification systems, and a consensus on management of tongue-tie is difficult to achieve given the difficulty of coordinating a multidisciplinary approach in the first few weeks after birth among pediatricians, pediatric otolaryngologists,

lactation consultants, and speech pathologists. Emphasis should be placed on the physical examination and history when there is a concern for tongue-tie, and in the appropriate clinical context, in-office frenotomy should be considered as first-line treatment.

COMMENT: The bottom line here is that the 3% to 4% of children born with a tight anterior frenulum do not all need surgical intervention. The decision to cut the "tied tongue" should be based not on its appearance but on whether it significantly interferes with function: either feeding or speech articulation. And even when an infant has difficulty breastfeeding, or an older child has problems with articulation, measures more conservative than frenotomy should also be proposed: lactation support and speech therapy may well obviate the need for cutting.

—Henry M. Adam, MD
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ANSWER KEY FOR AUGUST PEDIATRICS IN REVIEW

Delayed Puberty: 1. E; 2. C; 3. B; 4. B; 5. B.

Interpretation of Oxygen Saturation in Congenital Heart Disease: Fact and Fallacy: 1. D; 2. C; 3. A; 4. B; 5. E.

Pediatric Environmental Cold Injuries: 1. B; 2. A; 3. E; 4. C; 5. B.