

A review on the management of Ankyloglossia

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INTRODUCTION

Ankyloglossia, also known as “tongue-tie” is a congenital anomaly in which the lingual frenulum restricts movement of the tongue. The lingual frenulum, according to the International Affiliation of Tongue-Tie Professionals, is a midline remnant of tissue between the ventral surface of the tongue and the floor of the mouth. If it interferes with normal function, it is described as “symptomatic ankyloglossia”.¹

Beyond this description, there has been a lack of agreement on what defines ankyloglossia, leading to difficulty in gathering epidemiological data, although research has shown an incidence in the range of between 3.2-10.7%, as well as a higher incidence in boys.² More recently there has been a shift away from the anatomical descriptors to a focus on the functional issues caused by the condition, primarily those relating to the problems with feeding. In addition there has been a large amount of controversy regarding the significance of ankyloglossia, with differing opinions from a variety of specialisms over its management. Whilst it has been shown that cases may resolve spontaneously, or those affected may learn to compensate, in others a surgical intervention may well prove beneficial.

DEVELOPMENT

The tongue develops early on, roughly 4-7 weeks in utero, derived from several pharyngeal arches. The anterior two-third of the tongue is formed mainly by two lingual proliferations of the first pharyngeal arch, whereas the posterior-third is derived from the third arch, with a small contribution from the fourth arch. Later the frenulum undergoes apoptosis and detaches from the floor of the mouth. It is thought that some disturbance of this process contributes to the formation of ankyloglossia, though the exact cause is not entirely apparent.³

A number of syndromes have been suggested as associations with ankyloglossia, including Opitz⁴ and oral-facial digital syndrome.⁵ An X-linked cleft palate syndrome caused by the TBX22 gene mutation has also been linked,⁶ as well as familial ankyloglossia with X-linked and autosomal dominant inheritance.⁷ Nonetheless most cases of ankyloglossia are thought to be sporadic and the role of a genetic aetiology has not yet been proven.

The descriptors anterior and posterior ankyloglossia are used, though the posterior type remains controversial because there is some belief that this can be a normal trait and any feeding difficulties are attributable to other factors.⁸ This can make diagnosis challenging, especially since there are a variety of classification systems available, none of which correlate to functional impairments and are not universally accepted. The classic criteria are of frenulum attachment at or near the tongue tip, though this does not take into account the posterior ankyloglossia type. More often than not, clinicians describe a tongue-tie as an incidental finding or symptomatic. Feeding difficulties are the main driving force behind whether there are functional problems.

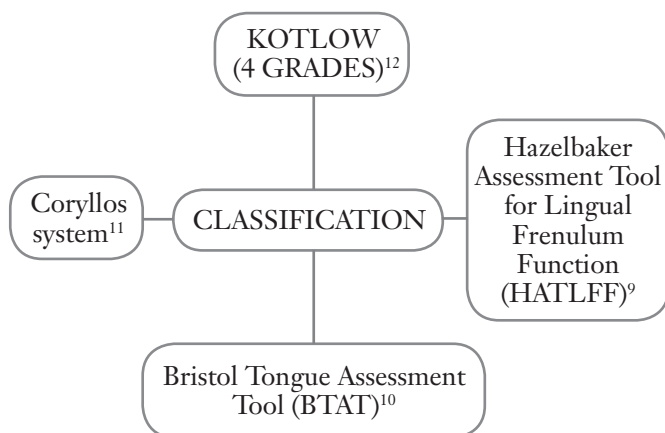


Figure 1: Common classification systems for ankyloglossia

SYMPTOMS & PROBLEMS

These can generally be sorted into two categories, as listed below.

Problems for mother	Problems for baby
<ul style="list-style-type: none"> • Painful nipples • Recurrent breast abscesses • Reduced milk supply • Psychological effects (e.g. feeling inadequate for not being able to provide for baby) • Exhaustion from repeated failed feeding 	<ul style="list-style-type: none"> • Unable to attach to breast, causing “gulping” and “clicking” noises • Fussing during feeding • Problems with weight gain • Irritability • Prolonged feeding

Table 1: Symptoms of ankyloglossia

Examination of the infant often reveals tongue mobility restriction. Dimpling, heart-shaped tongue deformity, and restricted tongue protrusion may also be noted.



Figure 2: 14yr old male presenting with ankyloglossia (with permission from Medical Illustrations, RLI)

It should be highlighted that many cases are symptomatic, but according to the NHS, if ankyloglossia remains in older children it may cause speech, eating and oral hygiene issues.¹³ The role of malocclusion, mandibular incisor irregularity, gingival recession and mandibular growth has been considered but evidence is limited.¹⁴⁻¹⁵

GUIDELINES

NICE guidance provides the main source of information regarding the treatment for ankyloglossia.¹⁶ In summary:

- Asymptomatic tongue-tie requires conservative management such as breastfeeding advice.
- Careful assessment is required to determine whether division is appropriate.
- Frenotomy, the procedure of choice in infants, can be performed without local anaesthesia.

Trials have attempted to show a correlation between frenotomy and successful breastfeeding post-operatively. One randomised controlled trial showed mothers reported 95% of babies had improved breastfeeding 48 hours after tongue-tie division,¹⁶ yet it is incredibly difficult to show a direct correlation. This is due to the complex interaction between mother and child, dependent on multiple factors. Currently there is limited evidence to suggest that surgical intervention improves breastfeeding. Therefore it would be prudent to assess the need for division on a case-by-case basis, not merely provided for every infant presenting with tongue-tie.

MANAGEMENT

The Academy of Breastfeeding Medicine protocol in 2004¹⁷ states that conservative management of tongue-tie may be sufficient, requiring no intervention beyond breastfeeding assistance, parental education, and assistance. Other non-surgical therapies often suggested by lactation consultants include nipple shields, changes in feeding positioning or tongue stretching. Newer proposed treatments are physical and speech therapy; yet it has been reported that a large number of cases undergo frenotomy. In 2013 there were nearly 10,000 operations performed under the NHS¹⁸ and perhaps more privately. Why is there this seeming disparity between recommendations and practice?

Firstly, frenulum attachment and feeding issues vary greatly in severity and symptoms. Breastfeeding relies on a number of different elements coming together and there is suggestion that other factors impact on diagnosis, including socioeconomic status, cultural issues and first-time motherhood.¹⁹ Bearing this in mind, clinicians may likely default to intervening with ankyloglossia despite uncertainty over whether the frenulum is playing a role in feeding difficulty, which in itself can be hard to discern.

Secondly, there is misunderstanding of the frenulum itself, causing debate over its appearance, structure and function. Assumptions within the public are that any frenulum is abnormal and therefore requires treatment, whereas trials have shown that only infants with severe tongue-tie reported improvement in breastfeeding compared to the control group.²³ Furthermore, another trial by *Emond* in 2013²⁰ found no objective improvement in feeding scores. From this it can be inferred that the

severity is a key indicator in the need for intervention or not. At the same time it can be difficult for clinicians to categorise what is severe.

Finally, there are a great number of specialties involved with tongue-tie (paediatricians, lactation consultants, midwives, otolaryngologists, oral surgeons) with seemingly differing opinions over management. NICE Guidance: Division of ankyloglossia for breastfeeding¹⁶ states there are “conflicting opinions among specialist advisors and some stated that it is difficult to be certain whether any perceived improvement in breastfeeding is due to division of the tongue-tie.” A survey by Messner²¹ aimed to determine the views of the specialties involved in ankyloglossia and found a marked contrast in some cases. Whereas most lactation consultants believed tongue-tie to be a frequent cause of infant breastfeeding difficulties that could be solved with frenotomy, 90% of paediatricians and 70% of otolaryngologists in the study believe that ankyloglossia rarely causes a feeding problem. The wide range of opinions highlights the need for further consultation over guidelines in order to avoid confusion in diagnosis and treatment.

CONCLUSIONS

Though there are surgical interventions that are implemented quite widely, there is also much disagreement amongst the way these cases should be handled. Therefore, in order for there to be agreement on management protocol, it is first important to have an agreement upon definition and classification. There are also socioeconomic and cultural factors that should be taken into consideration, as some may consider ankyloglossia a normal trait whilst others consider it abnormal.

A crucial step forwards would also be to provide education to the public so that mothers better understand both conservative and surgical interventions. National and international organisations need to provide guidance on when it becomes necessary to intervene. Currently there is more guidance available on frenotomy and its efficacy, but it is lacking on the non-surgical treatment that can be provided. From this, it will be easier to analyse and understand whether there are newer ways in which tongue-tie can be better managed.

In summary, as long as clinicians understand this congenital anomaly is not the primary factor that affects infant breastfeeding, frenotomy is considered a safe and viable option for infants.²¹ However the current strength and quality of evidence is rather low,²³ indicating the need for further investigations into available treatment options.

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