

# Tongue tie and tongue tie division: a significant problem needing intervention or are too many babies being treated?

This article reviews the diagnosis and treatment of tongue tie for newborn infants with breastfeeding difficulties. It highlights differences of opinion between professional groups and why these exist and suggests how the issues could be resolved with a well designed randomised controlled trial.

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### Key points

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1. Tongue tie is a diagnosis made more frequently in recent years with more babies receiving intervention.
2. Differences in opinion exist about the significance of this problem and whether treatment in the form of surgical division should be routinely used.
3. Evidence exists that tongue tie might cause pain and difficulty with breastfeeding but studies have not yet shown whether intervention improves breastfeeding rates.
4. A well designed randomised controlled trial is needed but there are several significant problems in organising such a trial.

**T**ongue tie, or ankyloglossia, is the name given to a short lingual frenulum; the piece of tissue which attaches the tongue to the base of the mouth. Tongue tie division (also called frenectomy or frenulectomy or frenotomy) is the surgical cutting of the frenulum. The term tongue tie division better describes the procedure in comparison to the other terms, which are somewhat inaccurate. Division can be performed in a clinic or in an operating theatre with blunt ending scissors without any anaesthetic by surgeons or breastfeeding experts who have been trained, and babies are usually fed immediately afterwards. It appears to be tolerated well and many mothers are often reported to feel some immediate improvement in feeding.

### Differences in opinion about tongue tie

A recent article in *Infant* summarised what the author believed were common misconceptions about tongue tie.<sup>1</sup> The ideas expressed in this article may be very different from those that many neonatologists and paediatricians would recognise and highlight a significant divide in ideas around this subject that appear to exist between different health professional groups.

On the one hand, many breastfeeding specialists and midwives feel that tongue tie is a significant and frequent cause of breastfeeding problems requiring fairly urgent intervention. The treatment is generally considered safe and easy to perform. The view of many neonatologists and paediatricians, however, is that tongue tie is a rare cause of significant problems;

a minor issue at most and possibly of no great significance. Many on this side of the argument would agree that while there are some individuals who have a very short or tight frenulum, deciding which infants (if any) need intervention is difficult and rather than subject many to intervention it is better to err on the side of no surgery. There is concern that babies who are not feeding for other reasons may be included and their other problems go unrecognised or untreated if not properly assessed.

Decisions about intervention are made in different settings by different professional groups in different regions using different criteria. This may lead to the diagnosis being made too frequently with an excessive number of babies being subject to unnecessary intervention. On the other hand, if it is an effective and safe treatment it should be equally available to facilitate breastfeeding for all.

The perceived misconceptions highlighted in the previous article included reassurance given to mothers who were experiencing pain; weight gain not being a useful measure of severity of tongue tie; and reflux being a possible symptom. No evidence, however, was given to support any of these ideas other than the author's experience. All of the highlighted problems are common in babies with and without tongue tie and, other than subjective short-term measures, there is at present no convincing evidence that these are improved by its division.

The reasons for the differences in opinion between professional groups are complex but there is clearly a divide and a feeling on both sides of the argument that there is a problem. For both sides, though,

there is a strong desire to support mothers to ensure babies can breastfeed in as optimal a way as possible. This article aims to highlight and understand these differences in opinion, review the studies that have been published in this area and consider how knowledge and understanding could be improved through further research. Also included in this issue of *Infant* is an opinion piece from Sarah McMullen and Patricia Wise, representing the NCT (page 92), highlighting the lack of uniform breastfeeding support services across the UK. It is interesting to note that we agree that tongue tie may be over-diagnosed and although it may be the cause of some feeding problems, more research is needed.

### Increase in frequency of tongue tie division

Over recent years enthusiasm for cutting the frenulum of infants when it appears tight or short has increased. This, however, has not been brought about by large studies or high quality research that demonstrated significant benefits. It has, though, been supported by large bodies that support breastfeeding such as the Baby Friendly Initiative<sup>2</sup> and the National Childbirth Trust (NCT).<sup>3</sup> This has been justified by a number of publications and opinion articles but these have generally been observational and lacking in controls. While observational data are important, it is only with controlled data and ideally randomised controlled trial data that we can be certain we are doing more good than harm with an intervention.

It also seems odd that a normal physiological process such as breastfeeding may require a surgical intervention in a relatively large minority of the population in order to be successful, particularly when we know that in some cultures breastfeeding is universal. The quoted frequency of tongue tie is 4-10%.<sup>4-6</sup> If all of these cases were treated there would be many tens of thousands of infants needing tongue tie division in England and Wales each year.

It is also interesting to speculate why a short frenulum should develop evolutionarily if it causes such significant problems. Have changes in feeding practices or other differences in the way infants are cared for led to an increase? Alternatively short frenulums may always have been around without causing

significant problems. To support surgical intervention in this situation, while many doctors suggest the opposite, seems counter to the midwifery position of promoting normality and aiming for non-intervention.

NCT recently had a campaign for greater availability of tongue tie services because clinics are available in some parts of the UK but not in others.<sup>3,7</sup> This is true but what is the correct approach? Ideally breastfeeding support provided by those adequately trained to provide it, should be widely available for all women in the community as well as in hospital. Tongue tie affects a minority of babies so should not be the focus of this support. Improving breastfeeding rates is very important for the future health of children. The reasons why babies are not breastfed are multiple and are mostly related to social attitudes and norms. Perhaps our efforts should be concentrated in these areas rather than focus on a minority of babies who may or may not be helped by intervention.

A quick internet search leads to many advertisements for private practitioners who undertake these operations. Do these exist because this is a serious problem that is not being addressed by the NHS or do they represent practitioners cashing in on maternal anxiety at a time when mothers are most vulnerable? Does having a thriving private practice influence a practitioner's judgement as to whether tongue tie division is a useful treatment or not? One would hope not but there is a conflict of interest.

### Is tongue tie division safe?

Generally tongue tie division appears to be safe and in fact this was the focus of a National Institute of Care Excellence (NICE) review<sup>8</sup> to determine whether this interventional practice should continue. Bleeding or recurrence appear to be the main problems and some adverse outcomes have been reported<sup>9,10</sup> but these appear to be rare when the procedure is performed by trained personnel. However, it is not without risks and studies so far have not been powered to assess the true incidence of such adverse outcomes.

The NICE guideline was produced to try to tackle some of the problems of tongue tie division. It reviewed the evidence that was available at the time and concluded that the procedure was safe and that due to limited evidence further clinical trials were needed. It was published in 2005 and has

1. Current evidence suggests that there are no major safety concerns about division of ankyloglossia and limited evidence suggests that this procedure can improve breastfeeding. This evidence is adequate to support the use of the procedure provided that normal arrangements are in place for consent, audit and clinical governance.
2. Division of ankyloglossia for breastfeeding should only be performed by properly trained and registered healthcare professionals.
3. Publication of further controlled trials on the effect of the procedure on successful long-term breastfeeding will be useful.

**FIGURE 1** The recommendations of the NICE guideline on the division of tongue tie for breastfeeding (NICE 2005).<sup>8</sup>

not been reviewed since. The guideline's recommendations can be seen in **FIGURE 1**.

### The published evidence

The evidence for benefit from tongue tie division remains very thin. A long-awaited, recently published Cochrane review<sup>11</sup> concludes that surgical release of tongue tie does not consistently improve infant feeding but is likely to improve maternal nipple pain. However, the quality of the evidence is low because of few studies, poor study design and a low number of babies. The authors recommend further research to clarify and confirm any effects.

Another systematic review from 2015<sup>12</sup> concluded that published studies show differences in breastfeeding scores, maternal pain and perception of breastfeeding but not in breastfeeding rates, speech function or other long-term outcomes.

There are five randomised controlled trials looking at frenectomy.<sup>3,13-16</sup> The numbers are relatively small (only 253 babies randomised to intervention or control) and none of the studies were powered to look at rates of breastfeeding as an outcome. The significant problem with all of the studies is that the control groups were also treated after a short delay (24 hours to seven days) so that important longer term effects of the intervention could not be investigated. The most recently published study<sup>16</sup> looked at 107 randomised babies (55 intervention, 52 control). The primary outcome was the LATCH score, a mother and nurse

reported measure of breastfeeding effectiveness. Breastfeeding rates were assessed although the study was not powered to show a difference in them. Surgery was offered to the control group after five days, and 35 out of 52 accepted it. At five days, though, the LATCH score and the other two pre-specified secondary outcomes, a maternal pain score and the rate of breastfeeding at eight weeks, were the same in both groups. Exclusive breastfeeding at eight weeks was 58% in the intervention and 64% in the control group; any breastfeeding was 83% in the intervention vs 80% in the control group, however this is difficult to interpret since many of the controls were also divided. The Infant Breast Feeding Assessment Tool (IBFAT) and the Breastfeeding Self-Efficacy Score – Short Form (BSES-SF) were also the same in both groups.

### Trial design

One of the problems is that because many healthcare professionals who have taken up intervention are convinced of its benefit and supported by large organisations,<sup>2,3</sup> it has now become difficult to properly study this matter and perform a trial without intervention. If tongue tie division does improve breastfeeding, it could benefit many babies in the UK and might improve breastfeeding rates; it would therefore be important to ensure it is widely available. On the other hand, if it does not improve breastfeeding then many babies may currently be subjected to unnecessary surgical treatment. It is generally safe but a rare complication such as bleeding in a baby with clotting problems could sometimes occur and could result in significant morbidity. It is, therefore, important that the balance between risks and benefits is determined in a randomised controlled trial.

Could a new study answer this question? There are a number of problems. One of the issues is identifying which babies have a tongue tie that requires intervention. Many babies have a short frenulum but only some of the mothers will choose to breastfeed and only some of those will have difficulties. The association between tongue tie and breastfeeding difficulties does appear to be real. Those working in the field feel very strongly that this is the case, but does this affect breastfeeding rates? If it does not affect breastfeeding rates it could still be important but perhaps there may be other solutions

rather than division of the tongue tie. Some cohort studies found differences in maternal pain and breastfeeding perception but did not find a difference in breastfeeding rates (at one month and two months) between those with and without tongue tie.<sup>5,6</sup> The numbers were small but these studies would suggest that with breastfeeding support most babies with tongue tie can still breastfeed.

Definitions of tongue tie have varied between studies. Some definitions are not just anatomical but also functional so that by definition tongue tie is associated with breastfeeding difficulty. It is argued that this is important because of variation and interaction between mother and infant. Improved ways of assessing and classifying the problem are required. This is difficult but the BTAT (Bristol Tongue-tie Assessment Tool)<sup>17</sup> score has been validated and appears useful and the BBAT (Bristol Breastfeeding Assessment Tool) score is a standardised way of assessing breastfeeding during the first few days after birth.<sup>18</sup>

So how can we find the answer to this problem? More observational data could help understanding of the problem but to answer the key question the outcomes need to be studied without intervention, ie no division of frenulums. Simply recording the outcomes of infants subjected to intervention tells us nothing about what would have occurred without intervention. A good, well-designed randomised controlled trial is needed.

One of the major questions is which outcome is important and what is tongue tie division trying to achieve? While some short-term measures, such as maternal discomfort and ease of breastfeeding, are very important and impact on breastfeeding, the key factor has to be breastfeeding success rates in those treated. In other words, does division in term infants with a tongue tie result in improved breastfeeding rates at a later stage (three months)? This is important because improved breastfeeding rates would result in significant long-term health benefits.

Putting this question into the framework of a 'PICO' model (a technique used in evidence-based practice to frame and answer a clinical question) can be seen in **FIGURE 2**.

A trial must compare division accompanied by breastfeeding support with no division accompanied by breastfeeding support. The studies already published compared immediate with delayed division and this has two problems. Firstly, it precludes measuring any long-term outcomes, even duration of breastfeeding, not to mention speech development or long-term health. Secondly, it limits participation to staff and parents who already believe it works. Short-term measures of breastfeeding scores and maternal pain are particularly susceptible to biased reporting, and it is likely that there is a strong placebo effect.

Will parents agree to their baby joining such a trial? Many will want one or other option, and recruitment will be a challenge but trials have been successfully conducted in other similar circumstances. It will need many centres and many parent invitations. It will be very important that staff involved are in equipoise and are willing to recruit subjects and not routinely divide the frenulum in babies in the control arm. Some babies in the 'no division' group might end up undergoing division – it would be impossible to forbid division ever. To avoid biasing the results in favour of 'no division' such babies would be analysed in their original group, by 'intention to treat'. To keep the numbers small, only parents who could give a reasonable commitment to stick with the allocated treatment should be recruited. This will also slow recruitment. Blinding is particularly difficult because the tongue tie is easy to see and sham procedures (placebo surgery) would not hide it from parents or staff assessing outcomes.

The sample size is also difficult because a large number of infants are likely to be required. All of the mothers of babies eligible for a trial would, by definition, be

|                     |   |
|---------------------|---|
| <b>Population</b>   | Term infants who have difficulties breastfeeding in the first few weeks after birth and have a tongue tie (defined according to anatomical score) |
| <b>Intervention</b> | Breastfeeding support and surgical division of the tongue tie   |
| <b>Comparator</b>   | Breastfeeding support and no division   |
| <b>Outcome</b>      | Rate of breastfeeding at three months   |

**FIGURE 2** Does surgical intervention improve breastfeeding rates? The PICO (population, intervention, comparator, outcome) framework.



intending to breastfeed (as bottle feeding babies would not be relevant or eligible) and are likely to be very motivated to continue so it is likely that the breastfeeding rate, even in the control group, would be high. As a result, the expected difference in breastfeeding rates between the groups would be small, requiring a large trial to show a difference.

If the results show that division does not lead to improved breastfeeding rates the trial would save thousands of babies from unnecessary surgery, and the money saved could be spent on other ways to help breastfeeding. If division improves breastfeeding rates, it can be rolled out properly, with significant health benefits.

The National Institute for Health Research recently put out an expression of interest for groups willing to perform a trial in this area. It is hoped, therefore, that a study will be funded and an answer to this conundrum will be found in the near future.

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