

## Mini-Review Article

# Effectiveness of Tongue Tie Release in Neonates. Is the Feedback Essential?

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## Background

Although tongue tie is one of the common conditions that paediatric surgeons encounter, there are still controversies on different aspects regarding management [1]. Tongue tie remains a field of multi-disciplinary inputs and concerns of different health professionals that includes neonatologists, paediatricians, GPs and breast feeding specialist nurses [2]. Surgical outcome and endpoint achievements of tongue tie release have been assessed from different perspectives.

## Aim of study

To evaluate the effectiveness of tongue tie release on breast feeding.

## Methods

A prospective study was carried out on 50 neonates presented with feeding difficulties to the ambulatory care clinic during 15 months period. The study consists of 2-part questionnaire, pre and post-tongue tie release. The study has been approved by hospital local committee and informed consent has been granted. The questions are subjective closed end type to assess the following; nipple latching, breast soreness & feeding difficulties. In the current study, we used these simple questions instead of the preformed questionnaires. A pre-tongue tie procedure questionnaire was completed exclusively by breast feeding ladies in all cases before surgical consultation to avoid bias. Babies were assessed and all were normal clinically apart of tongue tie (no oral anomalies and neuromuscular disorders). The tongue tie procedure was carried out in the out-patient clinic under complete aseptic condition without sedation. Direct surgical division of the sublingual frenulum under vision. According to NICE guidelines, tongue tie release in infancy could be done without anaesthesia. Babies were allowed breast feeding straight away after the procedure and were observed for 30

minutes for bleeding in the outpatient area before discharge. A post procedure questionnaire was handed to the mothers to complete and return by post in 3 weeks. Twenty-six mothers were very helpful and successfully filled both parts of the given questionnaire (with full answers within 3 weeks post procedures). No further clinic review was conducted. The results are presented in numbers and percentages to demonstrate the differences between pre and post tongue tie release.

## Results

50 neonates underwent tongue tie release. Mean age at procedure was 6.6 weeks. No statistical difference in sex prevalence. Procedures were carried out by the same surgical team (consultant and senior surgical registrar) and no complications (active bleeding) have been recorded. No need for regular post procedure analgesia as carers reported. Twenty-six pre and post procedure questionnaires were collected and analysed. The pre and post feeding methods and difficulties outcome are expressed in percentage of the total number of cases (26 cases) and presented in (Tables 1 & 2). However, the current results do not demonstrate significant statistical differences.

Feeding Methods	Pre tongue tie release- n (%)	Post release- n (%)
BF	12 (46.15%)	16 (61.54%)
AM	1 (3.85%)	2 (7.69%)
EBM	0(0%)	0(0%)
BF+EBM	3(11.54%)	2(7.69%)
BF+AM	8(30.77%)	6(23.08%)
BF+EBM+AM	2(7.69%)	0(0%)

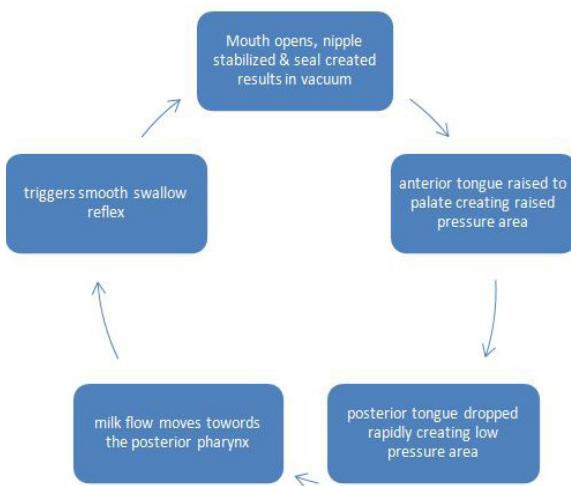
**Table 1:** Comparison between different feeding methods at pre and post tongue tie release effects (BF-Breast feeding, AM-Artificial milk, EBM-expressed breast milk)

Feeding Difficulties	Pre tongue tie re-release- n (%)	Post release- n (%)
None	14 (53.85%)	0 (0%)
Non-latching	3 (11.54%)	0 (0%)
Soreness of nipples/breast	13 (50%)	5 (19.23%)
Interrupted feeding	16 (61.54%)	2 (7.69%)
Prolonged feeding/unsatisfied	11 (42.31%)	9 (34.62%)
Poor weight gain	5 (19.23%)	1 (3.85%)

**Table 2:** Comparison between feeding difficulties presentations at pre and post tongue tie release outcome.

## Discussion

Tongue-tie or ankyloglossia is defined as restricted tongue mobility as a result of a short and/or tight lingual frenulum [3]. The patient has a short lingual frenulum on the under aspect of the tongue, which can lead to various problems with breast feeding [4]. Subsequent difficulties are; latching difficulties, nipple pain, poor weight gain and eventually a reduction in milk supply. About 3% of infants are born with a tongue-tie which may lead to such problems [5]. Prevalence rates reported in different series ranges from 0.02 to 10.7% and it is 2.6 times more in male [6]. Different feeding methods are encountered during infancy. However, breast feeding is the common recommended method during the neonatal period of life. The role of the tongue in breast feeding has been illustrated on (Figure 1).



**Figure 1:** Dynamic activities record the role of the tongue in breast feeding.

The current questionnaire showed similar breast feeding outcome pre (96%) and post (93%) tongue tie release (exclusive and mixed). Affected infants are more likely to be exclusively bottle-fed by the first week of age. However, exclusive breast feeding

post procedure percentage was higher (62%) compared to (46%) pre tongue tie release. Also, there is an obvious trend of reducing mixed feeding methods percentage post procedure. 50% before procedure were having mixed feeding and reduced to about 30% post procedure.

Feeding difficulties were the main engine that drove to early surgical referral. The vast majority of responders to the questionnaire reported prolonged feeding time in (42%), nipples or /and breast soreness in 50% and interrupted feeding in 62% of babies as a reflection of difficult breast feeding. Other encountered difficulties were difficulties in latching nipples in 3% and poor weight gaining in 5%. All these difficulties were reduced dramatically by 53%. Major drop was recorded in percentage of prolonged feeding to 34% and soreness to 19%. Massive reduction of interrupted feeding was observed at (8%). The current results demonstrated comparable figures to the published article reviews [1-3, 5-8]. Miranda BH reported at 2 weeks post release a significant improvement in weight gain (15+/-1.2 centiles) and improvement in breastfeeding process [7]. Ballard reported that latching process is improved in all cases and maternal pain levels fell significantly after the procedure [5]. With longer period of follow up post tongue tie release, breast feeding ladies could become satisfied with the results. Australian Breastfeeding Education and Support services, reported that breast-feeding improved in 83%. Parents reported high levels of satisfaction with the procedure and no complications were reported [9]. Assessment tools for tongue tie release vary, however Hazelbaker assessment system shows high reliability as reported by Amir et al [10]. The function items (lateralization, lift and extension of tongue) had kappa values over 0.65 which indicates "substantial" agreement. The function items relating to infant sucking (spread, cupping, peristalsis and snapback) received low kappa values with insignificant p values.

This questionnaire reflects increased degree of local public awareness about tongue tie as the numbers of referrals have been increasing. Referral portals were traditionally from neonatologists and GPs. However, well trained breast feeding nurse practitioners are concerned and referred their babies at earlier stages.

## Conclusions

Tongue tie release increased the effectiveness of breast-feeding and minimised the feeding difficulties at three weeks' post treatment. We recommend the early referral for tongue tie release if feeding difficulties are observed in the presence of a tongue tie. Subjective and objective feedback from parents and carers is a key factor to assess the efficacy of the procedure.

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