Nature and Science

Websites:
http://www.sciencepub.net/nature
http://www.sciencepub.net

Emails:
naturesciencej@gmail.com
editor@sciencepub.net

MARSLAND PRESS
Multidisciplinary Academic Journal Publisher

Ankyloglossia and Its Effect on Breast Feeding

Hatem Abd El-Kadder Saafan[1]; Ali El-Anwar[2]; Mohamed Saeed El-Sherbiny[1]; Mohamed Gamal Abdel Nasser Mohamed[1]

[1]Paediatric Surgery Department, Faculty of medicine, Ain Shams University, Egypt
[2]General Surgery Department, Faculty of medicine, Ain Shams University, Egypt
m.g.abdelnasser@gmail.com

Abstract: Background: According to the World Health Organization Global Health Observatory data repository, the rate of exclusive breast feeding in Egypt under 6 month according to the last official study done was 39.4%Review of evidence has shown that, on a population basis, exclusive breastfeeding for 6 months is the optimal way of feeding infants. Ankyloglossia has been controversial among the medical community as a cause affecting the efficacy of breastfeeding. Aim of this Study is to establish the effect of ankyloglossia on breastfeeding. **Objective:** To evaluate effect of frenulum releases in newborn infants with suspected tongue-tie (ankyloglossia) and its variable degrees and to determine the associated effects of frenotomy on breastfeeding variables in infants with ankyloglossia. **Methods:** Ethical considerations and study approval were obtained, patients attending Ain Shams University hospitalsin a duration of 6 months. Two self-reported questionnaires were administered to mothers whose infants were undergoing frenotomy to determine the degree of tongue tie and the effectiveness of breastfeeding prior to frenotomy, Telephone contact after procedure by two weeks was done to determine effectiveness of tongue tie release on the breastfeeding of the patients. **Results:** LATCH score showed improvement in 70% of the cases as the patient attachment during breastfeeding increasing post frenotomy making breastfeeding more efficient. **Conclusion:** Ankyloglossia is a congenital oral anomaly with variable degrees affects efficient breastfeeding and frenotomy is not an elective surgery in age below 6 months for patient on exclusive breastfeeding.
[Hatem Abd El-Kadder Saafan; Ali El-Anwar; Mohamed Saeed El-Sherbiny; Mohamed Gamal Abdel Nasser Mohame. **Ankyloglossia and Its Effect on Breast Feeding.** *Nat Sci* 2019;17(12):59-62]. ISSN 1545-0740 (print); ISSN 2375-7167 (online). http://www.sciencepub.net/nature. 8. doi:10.7537/marsnsj171219.08.

Keywords: Breast Feeding; Ankyloglossia

1. Introduction

Ankyloglossia or tongue tie is a congenital oral anomaly caused by thick short lingual frenulum being tightly attached to the underside of the tongue causing limitations in the movement of the tongue. According to the World Health Organization Global Health Observatory data repository, the rate of exclusive breastfeeding in Egypt under 6 month according to the last official study done was 39.4%. Ankyloglossia has been controversial among the medical community as a cause affecting the efficacy of breastfeeding [(1)].

Review of evidence has shown that, on a population basis, exclusive breastfeeding for 6 months is the optimal way of feeding infants. Breastfeeding is the foundation of good nutrition and protects children against disease. In this way, breastfeeding allows all children to thrive and develop to their full potential. Breastfeeding has profound impact on a child's survival, health, nutrition and development. Breast milk provides all of the nutrients, vitamins and minerals an infant needs for growth for the first six months, and no other liquids or food are needed. Risk factors affecting breastfeeding should always be faced with a great concern [(2)].

Aim of the Study

To evaluate effect of frenulum releases in newborn infants with suspected tongue-tie (ankyloglossia) and its variable degrees and to determine the associated effects of frenotomy on breastfeeding variables in infants with ankyloglossia.

2. Patients and Methods

This is a prospective Cohort Study included 20 patients were recruited from Department of Paediatric Surgery – Ain Shams Universityfrom February to August 2019.

Patients were recruited in the study according to the following criteria: Patients in the age group between 1 day to 6 month of age, and breast feeding patients**.**

Patients were excluded from the study according to the following criteria: Patients older than 6 month of age, and artificial feeding patients.

Participants are freely giving fully informed consent to participate. These informed consents in this retrospective study are verbal consents. Participants' confidentiality and data security are guaranteed. Participants should be able to withdraw from the research process at any time; they also should be able to withdraw their data if it is identifiable as theirs, and should be told when this will no longer be possible. Describe any expected benefits for the research participants, also any possible risks to them.

Study Tools:

- Questionnaire about the satisfaction of breast feeding pre and post frenotomy (LATCH scale score)
- Questionnaire about the degree of Tongue tie (Hazelbaker's assessment tool).
- Study Interventions: frenotomy by electric cauterization.

Statistical analysis

Data were collected, revised, coded and entered to the Statistical Package for Social Science (IBM SPSS) version 23. The quantitative data were presented as mean, standard deviations and ranges. Also qualitative variables were presented as number and percentages. The comparison between groups regarding qualitative data was done by using ***Chi-square test.*** The confidence interval was set to 95% and the margin of error accepted was set to 5%.

3. Results

Statistical analysis results from the study done confirms that the study was done on patients reaching the age of the 6 months, all exclusively breastfed. It proves also a point discussed in the study review the male female relation in patients with tongue tie in which male ratio predominated in 80%: 20% ratio.

Table (1): Demographic Data.

		Total no. = 20
Age (months)	Mean ± SD Range	3.75 ± 1.37 2 – 6
Sex	Female Male	4 (20.0%) 16 (80.0%)

According to hazelbaker's assessment tool for lingual frenulum, on the case study according to appearance: Most cases had rounded or square shaped tongue while some had cleft in the tip, Half of the cases had moderate elasticity of the tongue, most of the cases had lingual frenulum length when lifted about 1cm, half of the cases had the lingual frenulum attached to the tip of the tongue, and about half of the cases had the lingual frenulum attached to just below alveolar ridge.

According to hazelbaker's assessment tool for lingual frenulum, on the case study according to Function:45% of cases had poor lateralization of the tongue, most of cases had good lift of the tongue reaching the mid of the mouth, most of cases had poor extension of the tongue didn't even reach the gum, most of cases had good spread of the tongue, most of cases had moderate cup with side edges only, half of the cases had peristalsis originating from the posterior of the tip, most of the cases had no snapback.

Table (2): Appearance items.

Appearance items		**Total no. = 20**
Appearance of tongue when lifted	Good Perfect	5 (25.0%) 15 (75.0%)
Elasticity of frenulum	Good Perfect	10 (50.0%) 10 (50.0%)
Length of frenulum when tongue lifted	Good Perfect	14 (70.0%) 6 (30.0%)
Attachment of lingual frenulum to tongue	Good Perfect	10 (50.0%) 10 (50.0%)
Attachment of lingual frenulum to inferior alveolar edge	Good Perfect	9 (45.0%) 11 (55.0%)

Table (3): Function items.

Function items		**Total no. = 20**
Lateralization	Poor Good Perfect	9 (45.0%) 6 (30.0%) 5 (25.0%)
Lift of tongue	Good Perfect	14 (70.0%) 6 (30.0%)
Extension of tongue	Poor Good Perfect	12 (60.0%) 4 (20.0%) 4 (20.0%)
Spread of anterior tongue	Good Perfect	14 (70.0%) 6 (30.0%)
Cupping	Good Perfect	17 (85.0%) 3 (15.0%)
Peristalsis	Good Perfect	10 (50.0%) 10 (50.0%)
Snapback	Good Perfect	9 (45.0%) 11 (55.0%)

Table (4): LATCH score done pre and post frenotomy

		Pre	**Post**	**Chi-square test**		
		No. (%)	**No. (%)**	**X^2**	**P-value**	**Sig.**
Latch	Good Perfect	15 (75.0%) 5 (25.0%)	1 (5.0%) 19 (95.0%)	20.417	< 0.001	HS
Audible swallow	Poor Good Perfect	2 (10.0%) 5 (25.0%) 13 (65.0%)	0 (0.0%) 2 (10.0%) 18 (90.0%)	4.092	0.129	NS
Type of nipple	Good Perfect	1 (5.0%) 19 (95.0%)	1 (5.0%) 19 (95.0%)	0.000	1.000	NS
Comfort level	Good Perfect	4 (20.0%) 16 (80.0%)	1 (5.0%) 19 (95.0%)	2.057	0.152	NS
Hold position	Good Perfect	1 (5.0%) 19 (95.0%)	1 (5.0%) 19 (95.0%)	0.000	1.000	NS

P-value > 0.05: Non significant; P-value < 0.05: Significant; P-value < 0.01: Highly significant

According to LATCH score done pre and post frenotomy it shows significant improvement of the latching of the infant to the mother's breast post frenotomy with P- value less than 0.001 with improvement percentage 70%.

4. Discussion

Tongue tie and its effect on breastfeeding has been controversial subject for many authors to determine whether frenotomy has effect on the outcome of the patient breastfeeding or not.

The importance in studying the effect on frenotomy on breastfeeding is due to the fact that throughout all studies done the best source of nutrition for infants.

Our study was done on a randomized group of patients, At presentation, 2 common symptoms were associated with breastfeeding problems caused by a tonguetie: latching on and continuous feeding.

Most of them had HATFLL scores moderate degree suggesting to do frenotomy, there was a significant improvement in the LATCH score pre and post frenotomy reaching 70% in percentage of improvement of latching during breastfeeding which improved the whole feeding process and helped mothers in improving their discomfort and emotional link with their infants which implies that tongue tie had an effect on breastfeeding and its release improves it dramatically.

Debate for the frenotomy and its effect on breastfeeding is still out going some authors suggest that Ankyloglossia is relatively common in the newborn population.

Muldoon and her colleagues (2017) [(3)] supports the hypothesis that frenotomy positively affects breastfeeding variables in infants with tongue-tie supports the hypothesis that frenotomy positively affects breastfeeding variables in infants with tongue-

tie according to prospective before and after cohort study was conducted. Following ethical approval, two self-reported questionnaires were administered to women whose infants were undergoing frenotomy at seven healthcare clinics in the Republic of Ireland. Data on breastfeeding variables prior to the frenotomy procedure and at 1-month post frenotomy were collected and compared it was found out that Infants' ability to extend their tongues to the lower lip after frenotomy was significantly increased ($p < 0.0001$). Almost all participants (91%) reported an overall improvement in breastfeeding post-frenotomy. Pain on breastfeeding was significantly reduced post-frenotomy (MD 2.90, 95% CI 3.75 to 2.05) and overall LATCH scale scores were significantly increased (MD -0.50, 95% CI -0.67 to −0.33).

Billington (2018) [(4)]in a study included 100 infants with complete follow-up data on 87 (87% response rate). Median age at release of TT was 17 (2–88) days without any recurrence. Status at 3 months was CR (n = 70, 80%); MoR (n = 13, 15%), and MiR (n = 4, 5%). 43 (49%) were exclusively BF, 36 (41%) were supplementing BF with some formula (2/3 by choice and 1/3 owing to insufficient milk production), and 8 (10%) were using only formula milk (7 by choice and2 owing to ongoing feeding difficulties). Of the 17 mothers still experiencing symptoms, 5 were exclusively breast-feeding, and 8 were persisting with combined feeds found out that Infants attending tongue-tie clinic achieved both higher exclusive breastfeeding and combined breast and bottle-feeding when compared to national breast-feeding data at 3 months of age. This can facilitate the achievement of long-term breastfeeding, exposing infants and mothers to many of the associated benefits.

Rowan-Legg et al. (2015) [(5)] found that ankyloglossia is an anatomical finding without significant consequences for infants affected by this condition.

Evidence appears to show that most newborns with this condition are still able to breast feed successfully.

Based on available evidence, frenotomy cannot be recommended for all infants with ankyloglossia. There is no absolute relationship between ankyloglossia and breastfeeding difficulties. If an association between significant tongue-tie and major breastfeeding problems is identified and surgical intervention is deemed to be necessary, frenotomy should be performed by a clinician experienced with the procedure, using appropriate analgesia.

Raveenthiran in (2012) [(6)]suspects the scoring tools used in this study and question their reliability and perhaps they appear absurd on several counts. For example, in HATLFF tool ―lifting of tongue‖ is graded according to the degree of lift. How is it possible to command or stimulate a newborn to lift its tongue to the maximum possible extent? Similarly peristalsis of tongue is graded as complete, partial or none. It is perplexing as to how the authors could observe and grade peristalsis which occurs during sucking within closed mouth. HATLFF was developed by Alison Hazel-baker for her Master's degree thesis in 1993[(7)].

Soon, it was adopted by many without critical external validation. A recent study from Minnesota University found this tool useless in identifying tongue-tied infants at risk of breast feeding problems. Despite this scientific evidence, the authors went ahead to choose this questionable tool for defining inclusion criteria. Thus, a selection bias could not be ruled out.

Conclusion

Ankyloglossia is a congenital oral anomaly with variable degrees affects efficient breastfeeding and frenotomy is not an elective surgery in age below 6 months for patient on exclusive breastfeeding.

References

1. Reddy NR, Marudhappan Y, Devi R, Narang S. Clipping the (tongue) tie. Journal of Indian Society of Periodontology. 2014;18(3):395.
2. Hoddinott P, Tappin D, Wright C. Breast feeding. BMJ. 2008; 336(7649): 881–887.
3. Muldoon K, Gallagher L, McGuinness D, Smith V. Effect of frenotomy on breastfeeding variables in infants with ankyloglossia (tongue-tie): a prospective before and after cohort study. BMC pregnancy and childbirth. 2017;17(1):373.
4. Billington J, Yardley I, Upadhyaya M. Long-term efficacy of a tongue tie service in improving breast feeding rates: A prospective study. Journal of Pediatric Surgery. 2018;53(2):286-8.
5. Rowan-Legg A. Ankyloglossia and breastfeeding. Paediatrics & Child Health. 2015;20(4):209-13.
6. Raveenthiran V. Release of tongue-tie in neonates. J Neonat Surg 2012;1:15.
7. Ricke LA, Baker NJ, Madlon-Kay DJ, DeFor TA. New-born tongue-tie: prevalence and effect on breast-feeding. J Am Board Fam Pract 2005; 18: 1–7.

8/27/2019