Comparisons of the Latching on between Newborns with Tongue-Tie and Normal Newborns

Pawin Puapornpong MD*, Kasem Raungrongmorakot MD*,
Visan Mahasitthiwat MD**, Sukwadee Ketsuwan RN***

** Department of Obstetrics & Gynecology, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*
*** Department of Otolaryngology Head & Neck Surgery, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*
**** Obstetric & Gynecology Nursing Department, HRH Princess Maha Chakri Sirindhorn Medical Center, Nakhon Nayok, Thailand*

Background: *Breastfeeding is recommended as the exclusive feeding for the first six months of the newborns life. Difficulty in latching and breastfeeding resulting from tongue-tie are believed to be a problem.*
Objective: *To compare the latching on between newborns with tongue-tie (ankyloglossia) and normal newborns.*
Material and Method: *The subjects were 833 normal, postpartum women who delivered without complications at HRH Princess Maha Chakri Sririndhorn Medical Center in Nakhon Nayok Province between January and June 2013. Their newborns oral cavities' were checked for tongue-tie screening and diagnoses using Kotlow's criteria. Latch scores were used for latch-on assessment at the second day postpartum. Demographic data and latch scores were collected and analyzed by the t-test, Chi-square test, Odds ratio with 95% confidence interval and One-way of ANOVA test.*
Results: *The data shows that the incidence of tongue-tie was 13.4% (6.2% with mild tongue-tie, 5.5% with moderate tongue-tie, and 1.7% with severe tongue-tie). The mean of latch scores in the tongue-tied groups were significantly lower than that in the normal group, especially in the moderate and severe tongue-tie subgroups. The odds ratios for latch scores were ≤8 compared between the moderate and severe tongue-tied subgroups and the score in the normal and mild tongue-tied subgroups was 1.4.*
Conclusion: *The latch scores in tongue-tied newborns were significantly lower than those in normal newborns.*

Keyword: *Tongue-tie, Latch score, Breastfeeding*

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Tongue-tie or ankyloglossia is defined as a short lingual frenulum that limits tongue mobility[1,2]. Nowadays, breastfeeding is accepted as the gold standard for feeding newborns. Breastfeeding is recommended as the exclusive feeding for the first six months of the newborns life. Difficulty in latching for breastfeed resulting from tongue-tie is believed to be a problem. Seventy percent of ENT doctors do not believe the problems arise from tongue-tie. Sixty-nine percent of breastfeeding specialists believe it to be a problem[3]. This makes the subject controversial.

Latching is an important part of breastfeeding. The tongue-tied infants referred to us for the present study, with problems of difficulty in latching, was found to be 64 to 84%[4,5]. Compare difficulties in latching between tongue-tied babies and normal babies were at 25% and 3%, respectively. These values were obtained using an infant breastfeeding assessment tool[6]. However, latch scores are the popular latching assessments used in Thailand. Latch scores are assessed by latching on, audible swallowing, type of nipples, comfort and assistance requirement parameters. Latch scores can predict whether the mother will be breastfeeding at six weeks postpartum[7]. There is scant data in the literature regarding the latching on of tongue-tied newborns. Thus, we were interested in comparisons of latching between tongue-tied newborns and normal newborns in the present study.

Correspondence to:
Puapornpong P, Department of Obstetrics & Gynecology, Faculty of Medicine, Srinakharinwirot University, 62 Moo 7, Ongkharak, Nakhon Nayok 26120, Thailand.
Phone: 037-395-085, Fax: 037-395-087
E-mail: pawinppp@yahoo.com

Material and Method

The data was collected between January and June 2013. Inclusion criteria were women who delivered without complications; i.e. multiple pregnancies, preeclampsia, antepartum hemorrhage and preterm labor at the HRH Princess Maha Chakri Sririndhorn Medical Center and had accepted to be

participants in the present study. Exclusion criteria were women who had postpartum hemorrhages or had had any contraindications to breastfeeding. The newborns oral cavities were screened for tongue-tie by a nurse in the postpartum ward. Suspected tongue-tie cases were referred to an ENT doctor for diagnosis using the Kotlow criteria. Normal length from the tip of the tongue to the frenulum could be greater than 16 millimeters[8]. We categorized tongue-tied newborns into four tongue-tie groups, mild (12-16 mm), moderate (8-11 mm), severe (3-7 mm), and complete (<3 mm)[9]. In the present study, a length shorter than 3 millimeters was categorized in the same group as the subjects with severe tongue-tie. The mothers were encouraged to breastfeed their babies every two to three hours. The latch scores were utilized for latch-on assessments at 42 to 48 hours postpartum. Demographic data and latch scores were collected and analyzed by the t-test, Chi-square test, Odds ratio with 95% confidence interval (CI) and one-way of ANOVA test. A p-value less than 0.05 was considered statistically significant. Statistical analysis was performed using SPSS IBM Singapore Pte Ltd (Registration No.1975-01566-C). We used 0.05 of α error, 0.95 of power, and df = 3 and effect size = 0.5. The calculated simple size was 69. This study was approved by The Ethical Committee of the Faculty of Medicine, Srinakharinwirot University.

Results

The number of postpartum women that had enrolled in our research project totaled 833. The number of tongue-tied newborns was 112 (13.4%). Of these, 52 cases (6.2%) were rated at mild tongue-tie, 46 cases (5.5%) presented with moderate tongue-tie, and 14 cases (1.7%) had severe tongue-tie. The demographic data of the normal newborn group had shown that the mean age of the postpartum women was at 25.6±8.7 years of age. The percentage of primigravida women was 55.9%. The mean gestational age of the women was 37.9±1.2 weeks. The mother's occupation was as self-employed or as housewives for 53.7% of the subjects. The mean body mass index measured at 25.3±5.0 kg/m^2. The mean nipple length of the mothers' was 0.7±0.2 centimeters. The mean newborn birth weight was at 3088.4±598.5 grams. The demographic data of the tongue-tied newborn group had shown the mean age of the postpartum women to be 25.1±9.5 years. The percentage of primigravida women was 59.8%. The mean gestational age of these women was 37.9±1.4 weeks. The mother's occupation was as self-employed or as housewives for 48.2% of the subjects. The mean body mass index was measured to be 29.3±5.5 kg/m^2. The mean nipple length was 0.7±0.3 centimeters. The mean newborn birth weight was 2967.9±390.5 grams. The details of demographic data are shown in Table 1.

There were significantly differences of latch scores between normal and tongue-tied groups ($p<0.001$). The percentage of latch scores greater than 8 in normal and tongue-tied groups was significantly different ($p = 0.003$). The details of the latch scores in the normal and tongue-tied groups are shown in Table 2. In cases with latch scores ≤8, the odds ratio

Table 1. Demographic data of the normal and tongue-tied newborn groups

Mother and newborn's data	Normal group (n = 721)	Tongue-tie group (n = 112)	p-value
Mother's age (year)	25.6±8.7	25.1±9.5	0.605
Gestational age (week)	37.9±1.2	37.9±1.4	0.939
Primigravida (%)	403 (55.9)	67 (59.8)	0.178
Housewife or self-employed (%)	387 (53.7)	54 (48.2)	0.332
Body mass index (kg/m^2)	25.3±5.0	29.3±5.5	0.406
Nipple length (cm)	0.7±0.2	0.7±0.3	0.319
Birth weight (gram)	3088.4±598.5	2967.9±390.5	0.280

Table 2. Comparison of the latch scores in normal, mild tongue-tied, moderate tongue-tied and severe tongue-tied groups

Latch score	Normal newborn (n = 721)	Mild tongue-tie (n = 52)	Moderate tongue-tie (n = 46)	Severe tongue-tie (n = 14)	p-value
Latch score, mean ± SD	8.1±0.1	7.6±0.4	6.7±0.4	7.1±0.6	<0.001
Latch score >8, n (%)	285 (39.5)	21 (40.4)	10 (21.7)	0	0.003

between the tongue-tied and normal groups was 1.2 (95% CI 1.1-1.4) and the odds ratio between the moderate to severe tongue-tied and the ratio of the normal groups in addition to the mild tongue-tied groups was 1.4 (95% CI 1.2-1.6).

Discussion

The incidence of tongue-tie in the present study was 13.4%. It was higher than the incidence as noted in a previous study in which the incidence was 1.7 to 10.7%. This is due to the variability of the diagnostic criteria[1,8,10]. We used Kotlow's diagnostic criteria. It was simple and practical for use in tongue-tie screening at the postpartum ward prior to consultation with specialists.

No significant differences between the normal and tongue-tied groups were observed in terms of the demographic data in maternal age, gravida, gestational age, occupation, body mass index, nipple length, and newborn birth weight and there were no discernible effects on breastfeeding[11-17]. The mean of latch scores was significantly lower in the tongue-tied group. Similar results have been reported by Lalakea et al who found that the infant's difficulty in latching onto the breast occurred significantly more frequently in the tongue-tied group (25%, versus 3% for controls). These results were obtained by use of the infant breastfeeding assessment tool[6]. We used latch scores in the present study because latch scores correlate with successful breastfeeding at six weeks postpartum. Mothers with latch scores ≤8 should be followed-up closely. Because tongue-tie can make nipples painful, breastfeeding may be discontinued. Nipple pain in the first three weeks was associated with termination of up to 10 to 26% of the mothers' compliance with breastfeeding[3,18,19].

Mothers who had latch scores greater than 8 were more likely to continue breastfeeding at six weeks postpartum[7]. The percentage of latch scores greater than 8 in the tongue-tied group was significantly lower than similar scores in the normal group. This was especially evident in the moderate and severely tongue-tied subgroups. In these subgroups, the odds ratio with latch scores ≤8 was 1.4 when compared with the mild tongue-tied and normal subgroups. We suggested that close monitoring was essential because the risk of failure in breastfeeding was high. If the problem in latching continued at subsequent follow-up appointments after correction of the position used in breastfeeding, consultation for a possible frenotomy was considered as an alternative treatment. Frenotomy is the most appropriate treatment in newborns because it is simple, can be done expeditiously, and has minimal complications[1-4,6,8,20-24]. The procedure may be performed at bedside or in the physician's office using local anesthesia or the procedure can be done without anesthesia. The time spent for this procedure is only about 5 minutes. The baby can be breastfed immediately post procedure. When latching was assessed prior to and following the procedure, the differences found were statistically significant[2,22,23].

However, the limitation of the present study was that no mother's breast pain data was collected for further analysis. Maternal breast pain directly affects the latch scores. If the latch scores were low due to maternal breast pain, we may be able to correct this problem and, subsequently, improve the latch scores and compliance in breastfeeding. This information should be a basis of future studies.

Conclusion

Latch scores in tongue-tied newborns were significantly lower than the scores of normal newborns. Odds ratios for latch scores ≤8 in the moderate to severe tongue-tied group were at 1.4 in comparison with the mild tongue-tied and the normal newborn group.

What is already known on this topic?

Tongue-tie is correlated with breast pain and stopping breastfeeding early. Tongue-tie newborns have difficult latching. Latching is an important part of breastfeeding. Mothers who had latch scores greater than 8 were more likely to continue breastfeeding at six weeks postpartum

What this study adds?

The incidence of tongue-tie was 13.4%. Latch scores in tongue-tied newborns were significantly lower than the scores for normal newborns. No one in severe tongue-tied had latch scores greater than 8. Odds ratios for latch scores ≤8 in the moderate to severe tongue-tied group were at 1.4 in comparison with the mild tongue-tied group and the normal newborn group.

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Potential conflicts of interest

None.

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การเปรียบเทียบการเข้าเต้าของทารกที่มีภาวะลิ้นติดกับทารกปกติ

ภาวิน พัวพรพงษ์, เกษม เรืองรองมรกต, วิศาล มหาสิทธิวัฒน์, สุขวดี เกษสุวรรณ

วัตถุประสงค์: *ศึกษาเปรียบเทียบการเข้าเต้าของทารกที่มีภาวะลิ้นติดกับทารกปกติ*

วัสดุและวิธีการ: *ศึกษาในมารดาและทารกหลังคลอดที่คลอดปกติไม่มีภาวะแทรกซ้อนที่โรงพยาบาลศูนย์การแพทย์สมเด็จพระเทพรัตนราชสุดา ฯ สยามบรมราชกุมารี อำเภอองครักษ์ จังหวัดนครนายกตั้งแต่เดือนมกราคม พ.ศ. 2556 จนถึงเดือนมิถุนายน พ.ศ. 2556 จำนวนทั้งสิ้น 833 ราย โดยทำการตรวจประเมินช่องปากทารกหลังคลอดเพื่อคัดกรองและวินิจฉัยภาวะลิ้นติดโดยใช้เกณฑ์ของ Kotlow และเปรียบเทียบคะแนนการเข้าเต้าของกลุ่มทารกที่มีภาวะลิ้นติดกับทารกปกติ*

ผลการศึกษา: *จากการศึกษาพบอุบัติการณ์ของภาวะลิ้นติด ร้อยละ 13.4 แบ่งเป็นภาวะลิ้นติดเล็กน้อย ร้อยละ 6.2 ภาวะลิ้นติดปานกลาง ร้อยละ 5.5 และภาวะลิ้นติดรุนแรง ร้อยละ 1.7 คะแนนการเข้าเต้าในกลุ่มทารกที่มีภาวะลิ้นติดต่ำกว่ากลุ่มทารกปกติอย่างมีนัยสำคัญ และความเสี่ยงของคะแนนการเข้าเต้าที่น้อยกว่าหรือเท่ากับ 8 ในกลุ่มทารกที่มีภาวะลิ้นติดปานกลางและรุนแรงสูง 1.4 เท่า เทียบกับกลุ่มทารกปกติและทารกที่มีภาวะลิ้นติดน้อย*

สรุป: *คะแนนการเข้าเต้าในกลุ่มทารกที่มีภาวะลิ้นติดต่ำกว่ากลุ่มทารกปกติอย่างมีนัยสำคัญ*