

CASE STUDY

Resolution of Milk Ejection Reflex Dysfunction & Increased Breastmilk Supply Following Chiropractic Adjustment in a Nursing Mother of Twins: A Case Report & Review of the Literature

Amanda Baum, DC, CACCP¹

Abstract

Objective: To report on the positive health outcomes following chiropractic care in a patient with dysfunction of the milk ejection reflex and inadequate milk supply.

Clinical Features: The patient was the mother of twin girls born via cesarean section was seen for care two weeks postpartum. She had complaints of inability to initiate a let-down reflex and was not producing enough milk for the twins. She also had neck and shoulder pain along with vasospasms in her breast. Examination revealed subluxations in her upper thoracic region, trigger points located in the right pectoralis muscle and cranial restrictions.

Intervention and Outcomes: Diversified chiropractic technique was utilized to deliver an adjustment to T3-T5. The mother immediately responded saying she felt more sensation in her breast tissue, specifically the nipple and areola. She also reported the ability to relax her shoulders and achieve deeper inhalation during nursing. Following chiropractic she felt the tingling sensation of the let-down reflex and she produced double the amount in ounces of breastmilk she had previously. She was feeling emotionally more stable and even optimistic about maintaining her nursing schedule with the twins. An updated exam at ten months postpartum showed that she was still successfully nursing both twins.

Conclusions: Nursing mothers facing breastmilk production challenges may benefit from chiropractic care. More research is warranted in this area.

Keywords: *Chiropractic, vertebral subluxation, adjustment, milk supply, breastfeeding, let down, oxytocin, prolactin*

Introduction

Unsuccessful breastfeeding is an issue that is affecting most of the world and is becoming more of a recognized problem by lactation consultants, pediatricians, midwives and alternative healthcare providers.¹ However, throughout most research and case studies on the breastfeeding dyad, mother and baby, much of the focus is on the baby's latch and ability to suckle properly

and efficiently transfer milk. Many researchers, lactation consultants and pediatricians are focused on the baby's structure and function with latching and transferring milk from the mother to determine a successful nursing relationship.

There are numerous case studies that show improved

1. Private Practice of Chiropractic, Uniontown, OH

breastfeeding results following chiropractic care of the infant to assist in better latching and improved suckling to increase exclusive breastfeeding without supplementation.¹ Adjustments can be made to address the infant's cranium and upper cervical region, jaw, and also lip and tongue ties if found to be an interference in suckling. If all aspects of the latch and the infant are within normal limits and properly functioning many times the mother is left without answers as to why she may not be producing following the demand of the infant's suck or why she does not feel a let-down reflex or even the oxytocin response to nursing.

Not only is breastfeeding nutritionally superior to all formulas, it also helps the mother to contract her uterus back to normal and release oxytocin hormones to assist the mother and baby in bonding and healing from possible postpartum depression. The benefits of breastfeeding to the infant are not merely nutritional in value. When comparing breastfed to formula fed babies, studies also show a decrease in the risk of newborn diseases, such as ear infections, urinary tract infections, and diarrhea as well as many other long term conditions including obesity, diabetes, allergies, asthma and many other chronic illnesses.^{1,2}

When mothers are encouraged by their partners, family and health care providers they have a significantly higher rate of success in sustaining nursing past 12 weeks. Unfortunately, less than 15% of infants in the United States receive the recommended amount of breast milk past six months of age.^{1,2}

There is a prevailing belief among mothers and society in general that breastfeeding is natural and therefore should be easy. However, unless both mother and baby are functioning with no interference in their nervous systems, range of motion and emotional stability, it can be a difficult action to master.

There is an increase in nursing mothers initiating breastfeeding, but an even larger number of them are dropping off following the first week of breastfeeding due to maternal perception of milk supply being too low.² The perception of low milk supply affects many mothers and can lead to supplementation of formulas or donor milk when the infant does not seem satisfied.²

This then creates a lack of demand on the mother which in turn further decreases the milk supply. Perceived insufficient milk (PIM) supply in breastfeeding also leads new and already emotional mothers into a deeper depressed state decreasing their feelings of self-confidence, self-efficacy and maternal satisfaction.² PIM is becoming a global phenomenon and many infants will suffer if we are not able to provide assistance to both mother and baby to create a healthier and more effective nursing relationship.²

Birth trauma or an unexpected departure from their birth plan can also negatively impact the success of breastfeeding. The trauma can be emotional or physical and both can have substantial disruption of the breastfeeding dyad.³ Over 34 percent of mothers are now reporting some type of birth trauma or a traumatic childbirth experience that increases the delay or failure of lactogenesis. Specifically, unsuccessful home births, stressful labor and delivery, unplanned or emergency cesarean sections, pain, and psychosocial stress

add to breastfeeding challenges.³

Birth can be exceptionally stressful on the mother's nervous system resulting in subluxations to many regions of her spine. The pelvis expands and allows for baby to enter the world through a vaginal birth. During pushing the mother has to be extremely focused on pushing the force of her contractions into her pelvic floor and uterus.

If the mother has had an epidural she is physically unable to activate those muscles in making those pushes productive and often times strains all of her cervical and upper thoracic regions by tensing her entire body and not productively pushing. By straining she actively inhibits blood flow and lymphatic drainage in the associated pectoralis muscles along with muscles and nerves associated with breast function.⁴

Review of Anatomy

The sensory innervation from the dermatome area of the breast tissue is derived from the thoracic intercostal nerves of T3-T5, specifically the anteromedial and anterolateral branches with attention to the nipple from lateral cutaneous of T4. The nerve supply to the breast is from the intercostal nerves of fourth, fifth and sixth intercostal spaces and approximately midway the nipple or areola nerve becomes more superficial and divides into five branches located with one central, two upper, and the remaining two lower. Any trauma to the breast or reduction in nerve function will cause a loss of sensation to the breast.⁴⁻⁶

The supraclavicular nerves supply the sensory fibers for innervation of the upper cutaneous part of the breast leaving the lateral and medial branches to supply the lower cutaneous region of the mammary gland.⁷ Beneath the breast tissue is the pectoralis muscle. The pectoralis major originates from the medial clavicle and lateral sternum to insert on the lateral bicipital groove of the humerus and is innervated by the pectoral nerve on the lateral edge at C5-7 to the clavicular head and the medial edge is the C8-T1.⁴

Somatic sensory nerves and autonomic motor nerves provide innervation of the breast tissue from the postganglionic sympathetic fibers of the thoracic sympathetic chain in the upper paravertebral region.⁷ The composition of the breast, which is a secretory gland, comprises glandular tissue, connective tissue, blood, lymph, nerves and adipose. There are alveoli located in the breast and their action is to synthesize breastmilk from the blood and secrete the milk when stimulated by oxytocin released during a let-down reflex. The breast is also formed out of lobes from each mammary gland which consists of alveoli and milk ducts that end at the nipple pore. Research has indicated that women have between seven to ten lobes per breast.⁸

Review of Physiology

Hormonal influences have a major impact on breast function and nursing. The pituitary gland releases two specific hormones for milk production and ejection, prolactin and oxytocin. Prolactin influences the mass of the breast tissue during pregnancy and contributes to accelerated growth of the alveoli and mammary ducts.^{6,8} Postpartum prolactin release is

controlled by the hypothalamus and initiated by nipple stimulation. When the nipple is stimulated, it will inhibit the release of dopamine and prolactin production will then increase and this stimulates milk production.⁶

Prolactin levels in the blood are stimulated by the baby's suckling and rise with the stimulation of the nipple and breast tissue surrounding the nipple. The prolactin hormone is often referred to as the "mothering hormone" and may be responsible for the mother's need to be around and with her infant to assist in bonding.⁸

Oxytocin is responsible for contractions of the uterus by way of the smooth muscle during and after childbirth and during female orgasms. After birth oxytocin is in charge of contracting the alveoli to express the newly produced milk into the duct system and eject it via the mother's let-down reflex. Oxytocin production is stimulated within one minute of nerve information being received from the nipple.^{6,8} Oxytocin is inhibited by stress or emotional distress and will not proceed in mother's let-down reflex function. Adrenaline and noradrenaline released from the central nervous system will both turn off the oxytocin release.⁶

During an emotional crisis mothers find that their let-down reflexes are affected and may be delayed or inhibited entirely.⁸ One study found that mothers of multiples are more likely to become depressed and not achieve a let-down compared to mothers of single babies. This was attributed to extra financial stress and the demands of two children.⁸

Case Report

History

The patient reported on in this case was 36-year-old and two weeks postpartum and presented to the chiropractic office for a chief complaint of inability to produce enough milk during nursing and not achieving a let-down reflex during breastfeeding her twin newborns. She also suffered from pain in her right upper trapezius and right shoulder. The twins were born via an emergency cesarean section at 34 weeks and 3 days due to twin to twin syndrome. The patient pumped constantly every hour immediately following birth so the twins were given breastmilk exclusively during their 22 day NICU stay. They were also brought to the breast as often as they were able to be out of the incubation area. Mom reported that she was growing more depressed about the struggle to get breastmilk and had more feelings of despair relating to unsuccessful breastfeeding. She was worried she could not continue with her struggle to breastfeed.

Examination

A chiropractic evaluation revealed subluxations in her upper thoracic region and lower cervical spine, specifically the C5-7 and T1-T4 and Right AC joint in the Shoulder. Soft tissue palpation uncovered multiple trigger points and spasms throughout the right pectoralis muscle and the right sternocleidomastoid muscle. The mother also had decreased range of motion with left cervical rotation, and decreased range of motion in the right shoulder with abduction and external rotation.

Intervention & Outcomes

After careful examination and history of the mother, a diversified chiropractic adjustment was performed along with a modified thumb move at the cervico-thoracic junction.

Lymphatic massage with a warm compress was placed over the pectoralis muscle and stretched in abduction with external rotation while performing an origin and insertion release of the muscle. The right shoulder was also adjusted using a drop technique and ice was applied to reduce swelling and inflammation. To help the parasympathetic system recover as well as the previously adjusted thoracic sympathetic chain, basic one cranial technique was performed with specific attention to the occipital region and sphenoid bone with a respiration assisted adjustment.

Immediately following the adjustment, the mother felt more relaxed and had full range of motion in the cervical and thoracic regions with a larger diameter of diaphragmatic excursion. The range of motion in her shoulder increased and patient commented that she felt increased blood flow to her hand and distal extremity.

After the first adjustment the mother contacted our office to say that she was able to produce much more milk (doubled the amount from four to eight ounces) and had felt for the first time a tingling sensation in her breast tissue associated with the let-down response. Her follow up evaluation and adjustment showed consistent improvement in her range of motion without the prior trigger points and spasms in her cervical and thoracic spine, chest and right shoulder. She reported that her stress levels associated with the difficult initial stages of breastfeeding were decreased and she was feeling happier and emotionally more stable. It is now ten months later and mother and babies are all doing wonderful and are continuing their breastfeeding relationship.

Discussion

So much attention is put on the baby during latching issues and our mothers are not supported how they should be. Is baby latching, what is baby's jaw and cervical spine doing, is baby lip or tongue tied? All of these are extremely important questions but what happens when we correct all of those and there are still problems? It is vital to take care of the mother while she is taking care of her children and addressing her subluxations and nervous system dysfunctions could very well change the whole dynamic of the family and the health and wellness of her children for their entire lives.

The breast is a complex structure that is responsible for delivering life sustaining and enriching milk. The hormones in the mother's body are sensitive to physical and emotional stimuli, so she must be taken care of physically and emotionally in order for her to take care of others.

Conclusion

An important and overlooked variable in successful nursing is the nursing mother's health and wellness. Removing subluxations in her nervous system has the potential to allow her body to respond properly to nursing and recover from the

stress of labor and delivery. A healthy nervous system and a nursing relationship should be a priority to both the mother and the baby and also their healthcare provider.

Chiropractic adjustments are crucial following labor and delivery to assist the mother's body in healing and recovery and address the physical and emotional stress from her body not performing how it is designed to. Signals received by the nerves of the breast and nipple stimulate the hypothalamus and the pituitary in the brain to release hormones for milk production and milk let-down. If there is an interference in the signal from these nerves they will not deliver the proper response to the infant suckling.

There are numerous case studies that show improved breastfeeding results following chiropractic care of the infant and mother to assist in better latching and improved suckling to increase exclusive breastfeeding without supplementation.⁹⁻³¹

References

1. Miller J, Beharie M, Taylor A, et al. Parent Reports of Exclusive Breastfeeding After Attending a Combined Midwifery and Chiropractic Feeding Clinic in the United Kingdom: A Cross-Sectional Service Evaluation. *J of Evidence-Based Comp&Alt Med*. 2016;21(2):85-91.
2. Gatti L. Maternal Perceptions of Insufficient Milk Supply in Breastfeeding. *J of Nursing Scholarship*. 2008 Nov 25;40(4).
3. Beck C, Watson S. Impact of Birth Trauma on Breastfeeding: A Tale of Two Pathways. *J of Nursing Research*. 2008 Jul-Aug; 57(4):228-236.
4. Gabriel A, Maxwell P. Breast Anatomy. *Medscape*. 2016 June 29. <https://reference.medscape.com/article/1273133-overview>
5. Sarhadi NS, Shaw-Dunn J, Soutar DS. Nerve Supply of the Breast With Special Reference to the Nipple and Areola: Sir Astley Cooper Revisted. *Clinical Anatomy*. 1997;10:283-288.
6. Riordan J, Auerbach K. Breastfeeding and Human Lactation. 1st Edition. London, England. Jones and Bartlett Publishers International. 1993. Chapter 4, Anatomy and Psychophysiology of Lactation; p. 81-103.
7. Powell RW. Breast Pain. IN: Walker HK, Hall WD, Hurst JW. *Clinical Methods: The History and Physical, and Laboratory Examinations*. 3rd Edition. Boston, USA: Butterworths; 1990. Chapter 169. www.ncbi.nlm.nih.gov/books/NBK277/
8. Mohrbacher N, Stock J. La Leche League International The Breastfeeding ANSWER BOOK. 3rd Revised Edition. Encino, California: Chele Marmet; 2003. Chapter 2, The Breast and How it Work; p. 15-23. Chapter 3, Breastfeeding Basics; p. 25-62. Chapter 14, Multiples- Breastfeeding Twins, Triplets, or More; p. 371-383.
9. Stewart A. Paediatric Chiropractic and Infant Breastfeeding Difficulties: A Pilot Case Series Study involving 19 cases. *Chiropr J Aust*. 2012;42:98-107
10. Miller JE, Miller L, Sulesund AK, Yevtushenko A. Contribution of chiropractic therapy to resolving suboptimal breastfeeding: a case series of 114 infants. *J Manipulative Physiol Ther*. 2009;32:670-674.
11. Holleman AC, Nee J, Knaap SFC. Chiropractic Management of breast feeding difficulties: a case report. *J Chiropr Med*. 2011;10:199-203.
12. Stewart A. Pediatric Chiropractic and Infant Breastfeeding Difficulties: A Pilot Case Series Study involving 19 Cases. *Chiropr J Aust*. 2012;42:98-107.
13. Bernard M, Alcantara J. The Chiropractic Care of a 6 Day old Neonate with Breast Feeding Difficulties and Breastfeeding Jaundice. *Chiropr J Aust*. 2012;42:108-113.
14. Willis SA. The restoration of optimal breastfeeding after chiropractic care in a neonate with breastfeeding difficulties: a case report. *J Clin Chiropr Pediatr*. 2011;12:873-875.
15. Sheader WE. Chiropractic Management of and infant experiencing breastfeeding difficulties and colic: a case study. *J Clin Chiropr Pediatr*. 1999;4:245-247.
16. Cuhel JM, Powell M. Chiropractic management of an infant patient experiencing colic and difficulty breastfeeding: a case report. *J Clin Chiropr Pediatr*. 1997;2:150-154.
17. Vallone S. Linking craniocervical subluxation in infants with breastfeeding difficulties. *ICA Rev*. 1997;53:42-48.
18. Hewitt EG. Chiropractic care for infants with dysfunctional nursing: a case series. *J Clin Chiropr Pediatr*. 1999;241-244.
19. Vallone S. Chiropractic Evaluation and Treatment of Musculoskeletal Dysfunction in Infants Demonstrating Difficulty Breastfeeding. *J Clin Chiropr Pediatr*. 2004;6:349-368.
20. Tow J, Vallone SA. Development of an integrative relationship in the care of the breastfeeding newborn: lactation consultant and chiropractor. *J Clin Chiropr Pediatr*. 2009;10:626-632.
21. Holtrop DP. Resolution of suckling intolerance in a 6-month old chiropractic patient. *J Manipulative Physiol Ther*. 2000;23:615-618.
22. Lavigne V. A Narrative Review and Case Report: Frenotomy Procedure in Neonate with Tongue-Tie, *J Clin Chiropr Pediatr*. 2012;13:1025-1031.
23. Shtulman I, Alcantara J. Resolution of Failure to Thrive, Gastroesophageal Reflux Disease (GERD), Infantile Colic & Breastfeeding Difficulties Following Chiropractic Care to Reduce Vertebral Subluxation: Case Study & Review of Literature *Journal of Pediatric, Maternal & Family Health Chiropractic*, Volume 2018. Pages 53-56.
24. Slak L, Wilson K. Breastfeeding Difficulty Resolved Following Subluxation Based Chiropractic Care & Cranial Work. *Journal of Pediatric, Maternal & Family Health – Chiropractic*. Volume 2013. Issue 1. Pages 7-10.
25. Tutt G, Mesidor R. Resolution of Torticollis, Plagiocephaly & Breastfeeding Difficulties in an Infant Following Subluxation Based Chiropractic Care. *Journal of Pediatric, Maternal & Family Health – Chiropractic*. Volume 2014. Issue 2. Pages 14-20.
26. Improvement in Congenital Torticollis, Plagiocephaly & Breastfeeding Issues in an Infant Following Subluxation Based Chiropractic Care: A Case Study. *Journal of Pediatric, Maternal & Family Health Chiropractic*, Volume 2014

27. Williams S, Alcantara J. Improvement in Congenital Torticollis, Plagiocephaly & Breastfeeding Issues in an Infant Following Subluxation Based Chiropractic Care: A Case Study. *Journal of Pediatric, Maternal & Family Health – Chiropractic*. Volume 2014. Issue 4. Pages 87-94.
28. Collins K, Alcantara J, Holt K. Resolution of Breastfeeding and Gastrointestinal Complaints in Infant Twins with Plagiocephaly & Scaphocephaly Following Birth Trauma: A Case Series. *Journal of Pediatric, Maternal & Family Health – Chiropractic*. Volume 2015. Issue 1. Pages 34-41.
29. Drobbin D, Stallman J. Resolution of Breastfeeding and Latching Difficulty Following Subluxation Based Chiropractic Care: Case Report and Review of the Literature. *Journal of Pediatric, Maternal & Family Health – Chiropractic*. Volume 2015. Issue 3. Pages 102-108.
30. Ferranti M, Alcantara J, Adkins M. Resolution of Breastfeeding Difficulties and Plagiocephaly in an Infant Undergoing Chiropractic Care. *Journal of Pediatric, Maternal & Family Health – Chiropractic*. Volume 2016. Issue 2. Pages 42-45.
31. Parker M. Resolution of Inability to Latch, Breastfeed, Excessively Recessed Jaw & Plagiocephaly in a Newborn Undergoing Chiropractic Care: A Case Report & Review of Literature. *Journal of Pediatric, Maternal & Family Health, Chiropractic*. Volume 2019. Pages 71-77.