

Stimulation of Lactation Using Acupuncture: A Case Study

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Abstract

Introduction: Breastfeeding is a recognized preferred method of infant feeding; however, for many women, difficulties in breastfeeding result in termination before the recommended period of time. Acupuncture is suggested to be a promising option to treat lactation insufficiency and enhance the production of maternal milk.

Main Issue: We have reported the case of a woman with lactation insufficiency due to Caesarean section and congenital unilateral invaginated nipple. Milk production started on the 3rd day following delivery. The newborn was not provided with any food or fluids other than mother's milk. At 5 days of life, the newborn required long feeding periods and lost 4% of his birth weight, with the participant reporting lactation insufficiency described by the perception of inadequate milk production.

Management: Despite the implementation of conventional measures to improve lactation, the difficulties in breastfeeding persisted. Acupuncture was tried on Day 6 of life, and enhanced milk production was observed, which could be measured as the volume of residual milk extracted using the breast pump each time after the newborn achieved satiety. After acupuncture treatment there was an augmentation of maternal milk production from both breasts and successful lactation.

Conclusion: This case study provides information that might be useful for prospective investigation of acupuncture's efficacy in women with lactation insufficiency.

Keywords

acupuncture, breastfeeding, breastfeeding difficulties, case study, insufficient milk

Introduction

Breastfeeding is universally recognized as the preferred method of infant feeding because of well-known neonatal and maternal benefits (Victora et al., 2016). More than 80% of mothers in all country groups initiate breastfeeding following birth; however, more than 50% of them face problems during lactation, which may result in the early cessation of breastfeeding (Victora et al., 2016). Adequate milk production depends on complex physiological and psychological factors, so further study of this subject is important. The common factors leading to cessation of breastfeeding are inadequate latching, painful breasts, and emotional distress in young mothers (Li et al., 2008), although the most frequent reason for early discontinuation is the perception of inadequate mother's milk supply (Li et al., 2008). Lactation insufficiency is associated with primiparity, cesarean section, flat or inverted nipples, duration of labor, labor medications, use of fluids other than mother's milk and/or pacifiers, and maternal overweight (Dewey et al., 2003). The use of medications to augment maternal milk production (galactagogues or lactogogues), for example the dopamine receptor antagonist's metoclopramide and domperidone, is not recommended because of potential safety concerns and limited evidence of their efficacy (Foong et al., 2020). The use of herbal galactogues

(e.g., fenugreek) is associated with numerous maternal side effects, and the extent of their transfer to the infant through the mother's milk is unknown (Foong et al., 2020). Therefore, there is an unmet need to develop additional approaches to increasing milk production and thus improving breastfeeding in patients with inadequate milk production.

Acupuncture is an ancient form of traditional Chinese medicine (TCM) that has been increasing in popularity in industrialized countries since the 1970s (Acar, 2016, Karim et al., 2019). In a randomized controlled trial with 29 lactating mothers with preterm infants, investigators (Haddad-Rodrigues et al., 2013) analyzed the use of acupuncture using

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Table 1. Case Study Timeline of Stimulation of Lactation Using Acupuncture.

Timeline	Care Level	Healthcare Setting	Healthcare Interventions	Participant's Symptoms, Actions & Outcome
DOB	Hospital Care	Delivery room	Elective Caesarean section	Birth weight 3490 gram Congenital unilateral invaginated nipple
DOL 3	Hospital discharge	Maternity ward	maternal education & support	Milk production started Poor latch on the left breast
DOL 5	Community care	Home	Assessment of BF technique. Conventional measures to improve lactation	The newborn required long feeding periods and lost 4% of his birth weight, with the participant reporting lactation insufficiency described by the perception of inadequate milk production
DOL 6	Community care	Home	Acupuncture	Enhanced milk production was observed
DOL 7	Community care	Home	Acupuncture	Sufficient lactation
DOL 9	Community care	Home	Acupuncture	Sufficient lactation
DOL 11	Community care	Home	Acupuncture	Sufficient lactation
DOL 15	Community care	Home	Acupuncture	Sufficient lactation, weight of the neonate 3600 gm
DOL 17	Community care	Home	Acupuncture	Sufficient lactation

Note. DOB = date of birth; DOL = day of life; BF = breastfeeding.

five Chinese auricular points unilaterally for the treatment of anxiety. There was no difference between real and placebo acupuncture for anxiety in mothers with preterm infants (Haddad-Rodrigues et al., 2013). In previous studies of acupuncture at TCM sites used to treat lactation insufficiency, investigators have found mixed results on the release of prolactin and oxytocin (Fan et al., 2020; He et al., 2018; Maged et al., 2020). A randomized controlled study conducted on 60 healthy primiparas with insufficient lactation divided the participants into three groups: Control; those who received low-power He–Ne laser beam on both breasts; and those who received faradic current stimulation at Spleen 6, Liver 3, and Small Intestine 1 acupuncture points on both sides. The mean serum prolactin and infant weight increased significantly in the two groups post treatment when compared with pretreatment. Electroacupuncture was more effective than low-level laser therapy in increasing postnatal milk secretion (Maged et al., 2020). None of the researchers reported have included an analysis of cases of women with breastfeeding problems due to invaginated nipple and following Caesarean section.

Here we report a case where after acupuncture milk production increased in a participant with breastfeeding problems due to unilateral invaginated nipple following Caesarean section. Our case study has provided information that might be a useful contribution to prospective randomized investigations of acupuncture's efficacy in women with lactation insufficiency.

The participant was given a full explanation of the processes and risks of the case study and provided verbal and written consent. The case study was approved by the ethics committee of our Medical Faculty. The participant was given a copy of the article as submitted and has read and approved it for publication.

History and Observational Assessment

A 32 year old woman (1 gravida, 1 para) birthed a healthy male child per elective Caesarean section at 39 0/7 weeks of

gestation, which was preceded by an uncomplicated pregnancy. Milk production started on the 3rd day of life (DOL). The newborn was not provided with any food or fluids other than mother's milk. The latch and feeding techniques were assessed. A poor latch on the left breast was observed, probably as a consequence of congenital nipple invagination. The newborn required long periods of feeding and the participant perceived a lower amount of milk production from the left breast compared to the right one. Thus, she and the attending midwife considered that the total amount of her milk was insufficient. The midwife recommended breastfeeding the baby every 2–3 hr and the use of a thin-walled nipple shield to facilitate sustained breast attachment on the left side. Despite the implementation of these measures, the difference in milk production between the breasts persisted after 72 hr following birth, and the newborn lost 4% of his birth weight in the first 5 DOL (Table 1). Term infants generally lose weight in the first 3–5 DOL with an average loss of 7% of their birth weight. Nevertheless, the participant had the perception of inadequate milk production, which is one of the most common reasons for early termination of breastfeeding.

Management

On DOL 6, acupuncture was tried to enhance lactation. A specialist in medical acupuncture initiated the treatment and the participant's midwife continued to deliver this intervention from the third acupuncture session onward (Figure 1). Each of the practitioners had more than 5 years of experience in medical acupuncture with unrestricted license in medical acupuncture, certified by the local College of Physicians. The choice of acupuncture points was based on experts' recommendations (Acar, 2016) and was adjusted to the particular complaints of the participant. She received body acupuncture at the points ST16, ST18, SI3 on the left side and ST36 and SP6 bilaterally as well as at the acupoint VC17

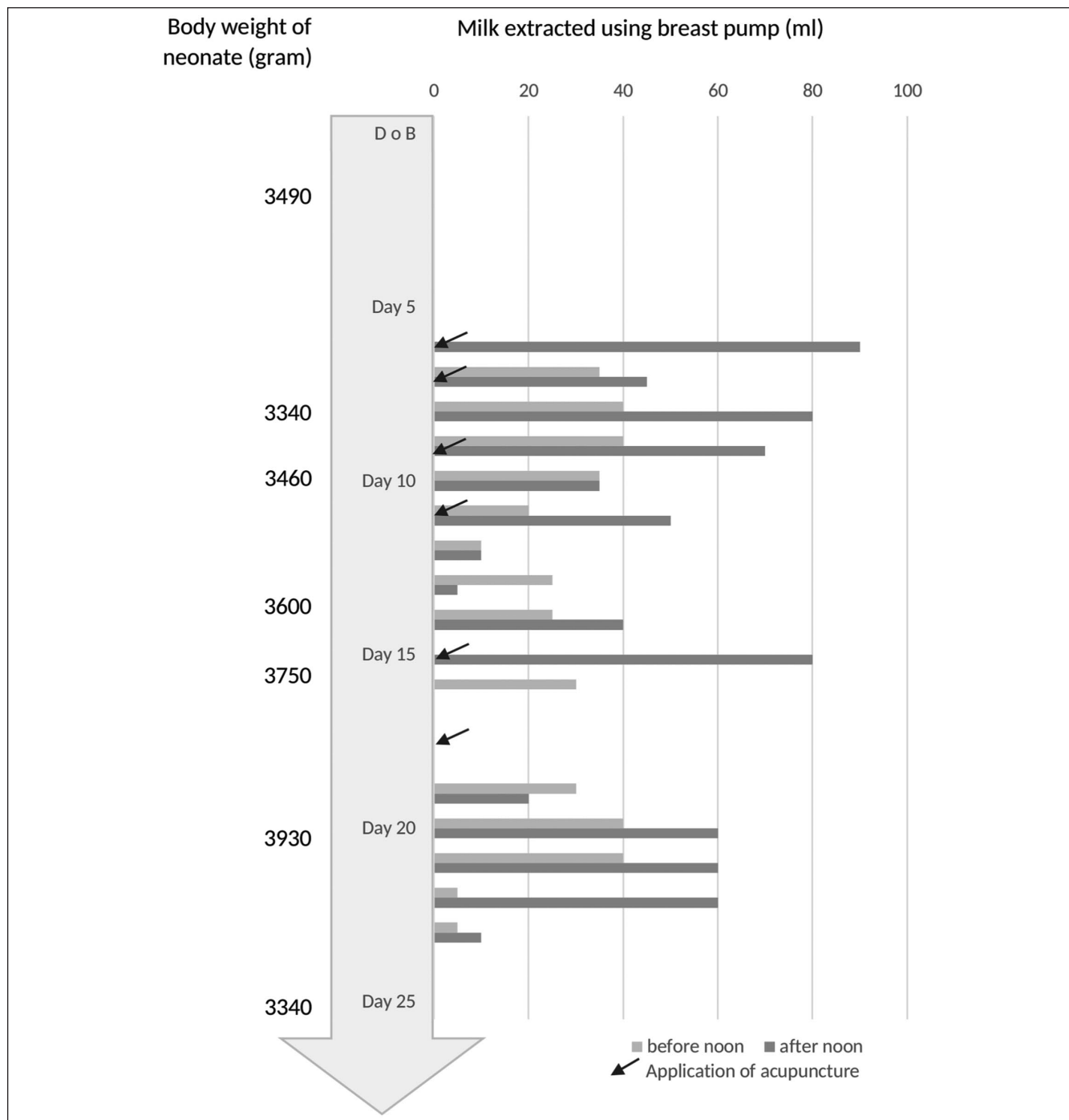


Figure 1. Residual Milk Extracted Using a Breast Pump and the Application of Acupuncture.
 Note. Arrows = application of acupuncture.

(Figure 2A). For auricular acupuncture MA-AH11 (chest) and MA-IC3 (endocrine) points were needled bilaterally (Figure 2B). Both body and ear acupuncture were performed using disposable stainless steel acupuncture needles, 0.2 mm in diameter and 15 mm in length (Seirin Ltd., Japan). All acupuncture sessions were conducted between 11 am and 1 pm in the participant’s home, with her in a comfortable

supine position in a quiet environment. Acupuncture needles were inserted to the depth of 5–10 mm in the body acupoints and maximally 1.5 mm in auricular sites and remained in situ for 30 min. The participant received six sessions of acupuncture in total, with frequency and time of day administered subject to the availability of the two practitioners who performed the acupuncture (Figure 1).

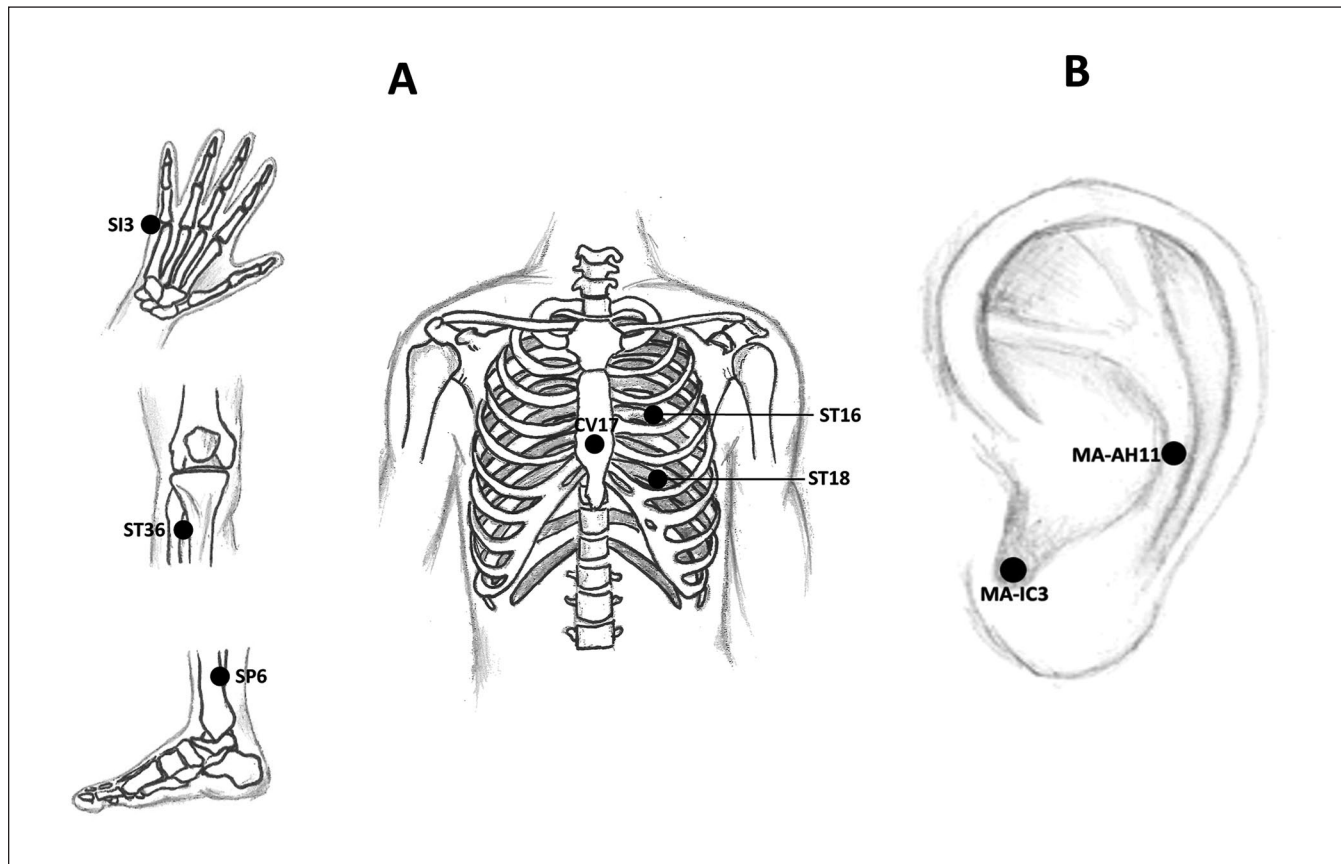


Figure 2. Body (A) and Auricular (B) Acupuncture Points Used to Enhance lactation.

Outcome

Immediately after the first session of acupuncture the participant noticed that both breasts were full of milk, so that she could feed the newborn *ad libitum*. She extracted residual milk using a breast pump. In order to support further milk production, acupuncture was continued as required. During the 1st month following birth, the participant recorded the volume of residual maternal milk each time after breastfeeding, once the newborn had achieved satiety (Figure 1). Following each acupuncture treatment, the volume of milk increased within several hours, measured as residual milk after breastfeeding (Figure 1). Also, the milk was released from both breasts after the first acupuncture session and this bilateral maternal milk production was sustained during the rest of lactation. The infant regained his birth weight DOL 15 and continued to gain weight, 5240 g on the 38th DOL. The acupuncture was discontinued after consultation with the midwife. There were no adverse or unanticipated affects of acupuncture during the treatment period.

Discussion

The lactation insufficiency in this case was likely caused by several factors: i) delay of breastfeeding initiation, which is a

common finding in women following caesarean section (Chen et al., 2017; Prior et al., 2012); ii) invaginated nipple on the left breast; and iii) the perception of inadequate mother's milk supply in the primipara due to the invaginated nipple (Li et al., 2008).

The initiation of sufficient lactation on the 6th DOL and the increase of milk production, which was finally sufficient to satisfy the needs of the child, certainly might have occurred due to the natural course of the condition. However, the rapid increase of extracted maternal milk after each acupuncture session and the initiation of enhanced milk production in the left breast could suggested the influence of acupuncture stimulation (AS) was a beneficial factor in this case.

We believe that AS was the main factor that stimulated and enhanced milk production in this case. Moreover, our observation supports previous researchers' work, where the stimulation of acupuncture points, as compared to various control conditions, was suggested to accelerate the onset of lactation, enhance maternal milk production, and increase the level of serum prolactin (Chen et al., 2017; Lu et al., 2019). These previously suggested positive effects of AS were more pronounced in women after a Caesarean than after a vaginal birth (Chen et al., 2017; Lu et al., 2019).

We are aware of the limitations of our statement, based as it is on a single case study. However, we believe that our observation may provide useful information, that is, the pattern of acupoints and the time and repetition of AS to prepare prospective controlled investigations in the future.

In summary, in this case acupuncture treatment resulted in the initiation of sufficient lactation and increased milk production in a woman with lactation insufficiency due to Caesarean section and congenital invaginated nipple. This case study provides information that might be useful for future prospective investigation of acupuncture's efficacy in women with inadequate milk production.

Author Contributions

Guillermo Pierdant: Conceptualization; Formal analysis; Writing – original draft.

Kristin Westphal: Conceptualization; Investigation; Methodology; Writing – review & editing.

Anja Lange: Conceptualization; Writing – review & editing.

Taras I. Usichenko: Conceptualization; Formal analysis; Investigation; Project administration; Writing – original draft; Writing – review & editing.

Disclosures and Conflicts of Interest

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