

Improvement in Lactation with Traditional Chinese Medicine and Western Herbal Medicine: A Case Study

Abstract

Delayed lactation, insufficient milk supply and other breast-feeding problems are common disorders worldwide, with research showing prevalence of up to 33 per cent. The aetiology of delayed lactation is multifactorial: primiparity is the most important contributor, but long duration of labour and inadequate breast-feeding education and support are also factors. Conventional medical treatment focuses on early postpartum education about proper breast-feeding technique. In the absence of organic pathology, women may be offered pharmaceutical galactogogues, some of which have undesirable side-effects. This case summarises the effects of acupuncture, Chinese herbal medicine, tuina massage, cupping therapy and a Western herbal tincture on a 30 year-old primipara experiencing insufficient lactation. After four weeks of treatment, the patient reported better milk production and a more positive experience of nursing, as well as improvements in other health symptoms. No adverse events were observed. The authors conclude that Chinese medicine combined with Western herbal medicine may be a safe and effective treatment to address insufficient lactation and its underlying causes.

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Biomedical background

Successful breast-feeding has been linked to better health outcomes for children, particularly the reduction of mortality and morbidity from infectious diseases (Horta et al., 2013). Some evidence suggests a long-term reduced risk of diabetes, obesity (Horta et al., 2013), childhood cancers (Martin et al., 2005) and atopic dermatitis (Penders et al., 2013). For mothers themselves breast-feeding is protective against breast cancer (Collaborative Group, 2002), ovarian cancer (Luan et al., 2013) and postpartum depression (Figueiredo et al., 2013). Breast-feeding also helps the uterus contract to its pre-pregnancy size (Holmes, 2013), is useful for postnatal weight loss (Wiessinger, 2010) and is less expensive than infant formula.

Lactation – the process of milk secretion from the breasts – is a complex physiological process. Successful breast-feeding relies on good physical and mental maternal health, as well as the intention to breast-feed (Hurst, 2007). A supportive family and health-care team increases the likelihood of successful breastfeeding, as does better socioeconomic status (Hurst, 2007). The immediate postpartum window is critical to breastfeeding success, when skin-to-skin contact and unrestricted access of the baby to the breast are important factors (Holmes, 2013).

Delayed onset of lactation (OL) and suboptimal infant breastfeeding behaviour affect almost one-

quarter of American mother-infant dyads, even those highly motivated to breastfeed (Dewey et al., 2003). Infants of mothers with delayed OL are seven times more likely to experience excess weight loss in the first weeks of life than those whose mothers have a timely onset of lactation (Dewey et al., 2003). Up to 33 per cent of primiparas experience delayed OL, compared to only five per cent of multiparas (Dewey et al., 2003; Nommsen-Rivers et al., 2010). Caesarean delivery, long labour, use of medications during labour (Dewey et al., 2003; Nommsen-Rivers et al., 2010) and a maternal age greater than or equal to thirty years are risk factors for delayed OL (Nommsen-Rivers et al., 2010). Obesity (Rasmussen et al., 2001), polycystic ovarian syndrome and postpartum haemorrhage (Marasco et al., 2000) have also been proposed as risk factors.

Precise biomedical measurement of the successful and timely onset of lactation is difficult, since milk is transferred directly into the infant. Clinicians must rely on indirect measures such as maternal sensations of breast fullness and nipple tingling, a feeling that the milk has 'come in' and weighing infants before and after feeding (Hurst, 2007). Delayed lactation is diagnosed when the mother reports a lack of such sensations and excess weight loss is noted in her infant. Typical biomedical measures to address this condition include maximising breast stimulation and complete breast emptying, measuring infant milk intake,

making a formal feeding plan and identifying the mother's maximum lactation potential (Hurst, 2007).

The use of pharmaceutical galactagogues (e.g. metoclopramide, a dopamine receptor antagonist) is typically only recommended after treatable causes have been ruled out and education plans have failed (Zuppa et al., 2010). There is a wealth of anecdotal reports regarding the effectiveness of common herbal galactagogues (Forinash et al., 2012; Turkyilmaz et al., 2011), but a dearth of high-quality biomedical research about even the most common preparations. The most recent systematic review in the *Journal of Human Lactation* gives no recommendation for their use (Mortel et al., 2013). It is generally accepted that nearly all healthy women who experience delay can eventually produce adequate supply given the appropriate multifaceted intervention (Chapman et al., 1999).

Oriental medicine background

The jingluo, zangfu and extraordinary organs go through dramatic changes during puberty and menopause. But compared to the abrupt physical transformations that occur during pregnancy, parturition and the onset of lactation, these are gradual processes. Weight gain of 25 to 35 pounds is common as plasma levels increase by 50 per cent, the placenta and foetus mature, adipose tissue builds and redistributes, the breasts enlarge, the legs retain water, and so forth. The yin channels of the legs, Chong mai (Penetrating vessel) and uterus receive much of this abundance in order to nurture the fetus.

Immediately after parturition, blood and qi abruptly reroute upwards from the uterus to the breasts via the Chong mai and Stomach channel. Blood that had nourished the foetus now becomes the substrate for milk. The postpartum woman experiences this as a sudden engorgement or fullness of the breasts, with concurrent contraction of the uterus, Chong mai and leg yin channels. Infant suckling stimulates vasoconstriction of the uterus (Holmes, 2014), and from a Chinese medicine perspective can be likened to a siphon effect whereby blood is redirected up and out through the nipples as milk. This rerouting and transformation hinges on the presence of sufficient qi and blood. Qing dynasty gynaecologist Fu Qingzhu summarised this by stating 'It should be understood that without qi, milk has nothing to transform it, and without blood, milk has nothing from which to be produced.' (Fu, 1992).

Biomedical research describes primiparous women as significantly more susceptible to delayed OL than multiparous women. Chinese medical theory can explain this phenomenon if we consider the body as a watershed, with the channels as its waterways: the first time the channels reroute, the force needed for lactogenesis is akin to a river cutting a new path through the landscape. Subsequent to the first pregnancy, lactogenesis is like refilling a dry riverbed. Other risk factors for delayed OL

corroborate the notion that such channel changes are more difficult for certain women. Advanced maternal age, where the fluidity and pliability of the channels is replaced by a more stagnant system against which qi and blood must push is one example. Long duration of labour and the use of medications during labour can both deplete and stagnate the qi prior to lactogenesis. In addition, nipple abnormality, prior breast trauma and the presence of phlegm (common amongst the obese) obstruct the movement of blood and milk through the channels.

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Based on this understanding of Chinese medical physiology, problems with lactation can be categorised as either excess or deficient patterns, or a combination of both. Excess patterns involve qi stagnation, blood stasis and phlegm, and tend to present with redness, inflammation, swelling, fever and pain (Chin, 1998). Treatment in such cases aims to move the stagnant qi and blood in order to promote lactation. Qi and blood deficiency, on the other hand, tends to present with fatigue, a lack of breast fullness, pallor, dry skin and mucosa, and poor appetite. Treatment in such cases involves tonifying qi and nourishing blood (Maciocia, 2011).

The traditional Chinese medicine techniques of acupuncture, massage and herbal medicine have been proposed by a number of authors as effective treatments for insufficient lactation (as it is termed in the Chinese literature) (Neri, 2011; Zheng 2009, 2012; Mortel, 2013). Research with high quality methodology is scarce, and thus statements about the effectiveness of these treatments for insufficient lactation are difficult to make. The treatment of this condition with Chinese medicine, however, has a long written history in the Chinese medical literature (Clavey, 2003).

Case history

A 30 year-old primipara presented at the authors' clinic three weeks after vaginal delivery of a healthy, full-term boy. Her chief complaint was insufficient breast milk, with absence of the typical sensation of breast fullness expected in the days following delivery. At day three postpartum her baby had lost 12 per cent of his body weight, at which point she began supplementing with formula after each breastfeed. At three weeks of age, her baby was adept at breastfeeding and was gaining weight appropriately using the additional formula, but the patient expressed interest in boosting her milk supply and discontinuing formula supplementation. She expressed concern and feelings of inadequacy that her breast milk was insufficient, describing nursing as both 'such a special thing' and 'one of the most

stressful things in my life to date.'

Concurrent symptoms included pelvic pain and vaginal bleeding secondary to a two-centimetre posterior episiotomy, second-degree perineal laceration and a poorly-healing left labial laceration. She experienced drenching night sweats three to four times each week and a subjective sensation of feeling very hot with strong thirst. She described her energy levels as either 'low' or 'wiped out'. She experienced pain from plantar fasciitis (rated at four on a scale of one to 10) and upper back tension. The patient also described skin pallor (perceived by her and her mother) in the days following delivery, though haematocrit levels measured within the normal range.

Pregnancy history was significant for anal fissures and haemorrhoids, which were provoked by constipation and accompanied by pain and rectal bleeding. At the time of her first visit, her bowel movements were only regular with the use of a stool softener. She also complained of swelling of her ankles. Current medications included docusate sodium (100mg oral BID for constipation,) a prenatal vitamin and a calcium plus vitamin D3 supplement.

Her past medical history included a biopsy of a lump on the left breast near the areola approximately seven years prior that had been diagnosed as a fibroadenoma. The patient tended generally towards constipation and asymptomatic hypotension.

Physically, the patient appeared as a tired-looking new mother with a healthy body weight, who appeared her stated age. Her shen (visible in the eyes) was good. Her pulses were thin and weak, rooted and of moderate rate. Tongue examination revealed puffiness and scalloping, a pale body with a slightly red tip, and mildly engorged and purple sublingual veins. Her complexion was pale, as were her inferior ocular conjunctivae.

Diagnosis and treatment strategy

Based on the patient's 46-hour labour and symptoms of fatigue, night sweats, delayed lactogenesis, constipation and a slow-healing labial tear, we suspected a pattern of qi deficiency. Signs confirming this were a puffy, scalloped tongue, weak pulses and her exhausted appearance. The patient's anxiety around caregiving, tight upper back musculature and delayed lactation were symptomatic of qi stagnation. Her recent childbirth with iatrogenic and natural lacerations could easily exacerbate a pattern of blood deficiency, and we surmised that her drenching night sweats (in this case caused by qi deficiency not controlling the pores) were contributing to this pattern. We saw confirmation of the pattern of blood deficiency in the delayed and insufficient lactation, thin pulses, pale skin and conjunctivae, constipation and plantar fasciitis. To summarise, we diagnosed qi and blood deficiency, with concurrent qi stagnation. We therefore focused treatment on tonifying qi and blood while freeing the flow of qi through the channels.

Herbal treatment

Because of the limited post-partum time-frame during which lactation potential can be adjusted, we advised our patient to begin taking an easily-available Western herbal tincture in the days preceding her first visit to our clinic. Based on anecdotal reports and the time-honoured use of Western herbal galactagogues (Gabay, 2002), we recommended an alcohol-based tincture (Lactaflo, Wise Woman Herbals, Oregon, USA), to be taken at a dose of two millilitres three times daily, containing:

- bitter fennel (*Foeniculum vulgare*)
- blessed thistle (*Cnicus benedictus*)
- goat's rue (*Galega officinalis*)
- fenugreek (*Trigonella foenum-graecum*)
- fennel essential oil

At the patient's first visit we prescribed a bulk herb (Spring Wind, China) modification of *Shi Quan Da Bu Tang* (All-Inclusive Great Tonifying Decoction), to be decocted twice and imbibed as tea three times each day:

- Dang Shen (*Codonopsis Radix*) 9g
- Bai Zhu (*Atractylodis Macrocephalae Rhizoma*) 12g
- Fu Ling (*Poria*) 12g
- Zhi Gan Cao (*Glycyrrhizae Radix Preparatum*) 6g
- Dang Gui (*Angelicae Sinensis Radix*) 15g
- Chuan Xiong (*Chuanxiong Rhizoma*) 9g
- Bai Shao (*Paeoniae Radix Alba*) 15g
- Shu Di Huang (*Rehmanniae Radix Preparata*) 15g
- Rou Gui (*Cinnamomi Cortex*) 6g
- Huang Qi (*Astragali Radix*) 15g
- Tong Cao (*Tetrapanacis Medulla*) 2g

We also asked that the patient continue the Lactaflo tincture twice daily, spaced between the doses of Chinese herbal tea. *Shi Quan Da Bu Tang* incorporates two formulas appropriate for this patient's condition. *Si Jun Zi Tang* (Four-Gentlemen Decoction) is an excellent formula for tonifying qi, whilst *Si Wu Tang* (Four-Substance Decoction) is a superior formula for nourishing blood. Also included in the formula was sweet and warm Huang Qi, which tonifies qi and yang, and Rou Gui, which tonifies the yang. We modified the formula by adding Tong Cao, a feather-light herb to facilitate the upward flow of Stomach qi in order to promote lactation (Bensky, 2004).

Physical medicine treatment and lifestyle adjustment

Our primary physical medicine tools for tonifying and coursing qi were tuina massage, acupuncture and fire cupping. Initially we aimed to open the channels and move qi, and to this end we used seated rolling, plucking, kneading and percussion on the shoulders, neck, and upper back, and acupressure at Jianjing GB-21 and Tianzong SI-11.

Acupuncture was then performed using AcuTek brand (China) 0.25 x 40mm filiform needles. We applied lifting,

thrusting and twisting using even technique until deqi was elicited, and retained the needles without further stimulation for 25 minutes. The following points were selected: Jianjing GB-21, Shaoze SI-1, Tianzong SI-11, Ganshu BL-18, Pishu BL-20, Shenshu BL-23, Taixi KID-3, Taichong LIV-3, Ququan LIV-8, Hegu LI-4, Sanyinjiao SP-6, Zusanli ST-36, Qihai REN-6, Zhongwan REN-12, Tianshu ST-25, Shanzhong REN-17 and Yintang M-HN-3.

We finished treatment with moving cupping, flash cupping and massage with the warmed cups along the Bladder, Small Intestine and Gall Bladder channels of the upper back and shoulders in order to relax the musculature and unbind qi.

The patient had already received appropriate instruction from the lactation consultants at her birthing hospital regarding skin-to-skin contact with her baby, frequent feeding and the use of a breast pump. To augment this education, we instructed the patient to apply hot water compresses over her breasts in order to facilitate the flow of qi, blood and milk. We also recommended that her husband should apply nightly acupressure at Jianjing GB-21 and Tianzong SI-11. For dietary augmentation we suggested bone broth soup to nourish blood and fluid. We emphasised the importance of rest and suggested she return for weekly treatment at our clinic. Given her tendency towards feelings of inadequacy, the overwhelming emotional experience of becoming a parent, and the physical and logistical burdens of caring for a newborn, we asked that she do her best to integrate our treatment suggestions without imposing undue self-pressure (in order to avoid compounding her existing qi stagnation with a list of unattainable demands).

Outcomes

We saw this patient four times in our clinic over five weeks. Over the initial two weeks of treatment, the patient reported increasing breast fullness and nipple leakage. She was able to reduce and eventually cease supplemental feeding with formula. During the third to the fifth weeks of treatment, however, the patient reported inconsistent compliance with the herbal medicine and was unable to attend the clinic, which resulted in a two-week hiatus between visits. At this time, despite her increased milk supply, her paediatrician recommended restarting formula supplementation because of slowed weight gain in the baby. The patient's secondary symptoms of foot pain, night sweats, subjective heat sensation, constipation and vaginal bleeding had been largely resolved by this time. She noted plentiful energy and good mood. Her skin was lustrous, her tongue and conjunctivae were pink, the tongue body remained slightly puffy but was without scalloping, and her pulse had adequate volume. We gave her one more week of modified *Shi Quan Da Bu Tang*, and asked that she continue the *Lactaflow* tincture for maintenance of her supply.

At four-month follow-up, the patient reported a good milk supply, despite having returned to work. She was

pumping more often, had introduced some solid foods into her baby's diet, and continued to augment her own supply with formula. Her emotional and physical experience of nursing was generally very good. At eight months follow-up the baby measured in the 97th percentile for weight and the 100th percentile for height; his diet consisted of breast milk, solid foods and approximately one bottle per day of supplemental formula. At this visit the patient mentioned that her two prior menstrual bleeds corresponded with a decrease in her milk supply, which would then recover at cessation of bleeding. After her most recent menses, however, her milk had stopped flowing entirely. The patient was given one further acupuncture treatment and re-started on a decoction of *Shi Quan Da Bu Tang*, after which her milk supply returned to normal.

Even an uncomplicated childbirth precipitates some degree of qi and blood deficiency in the postpartum woman.

Discussion

Though the outcome for this patient was mostly favourable, we believe that the three-week postpartum delay in implementing a comprehensive intervention to boost her milk supply may have hampered her ability to breast-feed exclusively. Though we believe our treatment was beneficial to her milk supply, we recognise that in the natural course of healing from labour and delivery there can be a natural remission of symptoms and increase in lactation.

The diagnosis and successful treatment of insufficient breast milk has a long history in the Chinese medical literature (Clavey, 2003), and yet a literature review returns few reports of the use of acupuncture or herbs to benefit lactation. We found no research documenting the combined use of traditional Chinese medicine and Western herbal medicine. Based on the historical record and our clinical experience, however, we believe these therapies are under-utilised in the treatment of delayed and insufficient lactation. The case outlined here provides evidence that Chinese medicine and Western herbal medicine are safe methods to increase lactation capacity in new mothers.

According to traditional Chinese medicine theory, even an uncomplicated childbirth precipitates some degree of qi and blood deficiency in the postpartum woman. Chinese medicine considers blood to be the material basis for breast milk, and milk as transubstantiated blood (Chin, 1998). Qi is the power behind this transformation. Thus treatment of insufficient lactation must necessarily address both qi and blood deficiency. The preeminent Qing dynasty gynaecologist Fu Qingzhu summarised this as follows: 'In the newly birthed woman, blood is too depleted to look after itself. [Therefore,] how can it transform [into] milk? It is entirely due to the strength of the qi that blood is moved to

transform [into] milk.' (Fu, 1992). This quotation highlights the importance of qi for the production of blood. Blood is yin substance and takes time to produce. Thus, simply administering high doses of blood tonics after birth will not necessarily restore blood in the timeframe necessary for lactogenesis. Qi is yang in nature and can be augmented quickly. The simple structure of *Dang Gui Bu Xue Tang* (Tangkui Decoction to Tonify the Blood) - with five parts Huang Qi (Astragali Radix) to one part Dang Gui (Angelicae sinensis Radix) - suggests that qi fortification is essential to the restoration of blood. Additionally, we should take into account the *Nei Jing Su Wen* (Yellow Emperor's Classic of Internal Medicine Basic Questions) chapter five, in which it is stated, 'Shao huo sheng qi' ('Temperate physiologic fire generates qi' [author translation]). This means that yang underpins qi, and thus treatment of qi deficiency should incorporate yang tonification.

Shi Quan Da Bu Tang is a good choice for deficient postpartum patients because it emphasises qi and yang as well as blood tonification. Within it, *Si Wu Tang* (Four Substance Decoction) nourishes blood and *Si Jun Zi Tang* (Four Gentlemen Decoction) nourishes qi. The addition of Rou Gui (Cinnamomi Cortex) stokes the physiologic fire referenced in the *Nei Jing*, and Huang Qi (Astragali Radix) assures qi is sufficient so that blood is promoted from the stickier tonic herbs.

We must also note that sweat is transformed from blood. The progression from excess sweating to insufficient lactation has been recorded in the Chinese medical literature (Clavey, 2003), and this condition must be addressed in treatment. Qi tonification (where correctly applied) can regulate sweating, protect blood and subsequently increase milk production. Tangentially, the biomedical understanding that the mammary gland is a modified sweat gland supports our concern for this aspect of physiology (Mortel et al., 2013).

Qi stagnation also contributes to lactation difficulty. Zhang Congzheng wrote about this phenomenon in his Jin-Yuan dynasty text *Ru Men Shi Qin* (A Scholar's Duty to His Parents, 1994):

'儒门事亲. 卷五: 或因啼哭悲怒郁结, 气溢闭塞, 以致乳脉不行。(Ru zhi bu xia: huo yin ti ku, bei nu yu jie, qi yi bi se, yi zhi ru mai bu xing.)'

'Milk is not able to descend [i.e. there is no lactation]: reasons for this are crying, grief and anger that leads to qi stagnation, overflowing of qi, congealed qi and obstructed qi causing impediment in the breast channels' [Author translation].

Postpartum women experience heightened emotions, and insufficient milk supply can compound feelings of maternal inadequacy. Western medical literature reports that the strong determination to breastfeed is not protective against early breastfeeding problems (Dewey, 2003). This paradox

comes as no great surprise, given that high motivation is often paired with anxiety. We believe that in the context of the labile postpartum period, qi can easily bind and inhibit the let-down of milk. When considering treatment, interventions chosen for postpartum women should be attainable without adding undue stress or complication.

Complicating this treatment picture is the critical importance of the immediate postpartum window for establishing a plentiful milk supply. Interventions should be put into effect quickly for optimal outcomes. The most comprehensive strategy should include all members of a patient's health-care team as well as her family.

Conclusion

Lactogenesis is a complex process that occurs during a radically transformative period in a woman's life. Western and Chinese models of physiology and pathology of breastfeeding demonstrate remarkable congruency. Clinicians with both Chinese and biomedical perspectives can closely monitor patients with known risk factors for delayed onset of lactation and offer effective intervention. Acupuncture, physical medicine (i.e. massage, cupping, compresses etc.), Western herbs and Chinese herbal medicine can be helpful interventions for insufficient lactation. With proper diagnosis and treatment, these modalities can help boost milk supply and resolve the underlying pathologies. We suggest that by combining Chinese medicine channel theory with known biomedical risk factors for delayed OL, postpartum patients can be more effectively monitored for signs of lactation problems. We are aware of the limitations of this case study, and recommend more rigorous research to evaluate these treatment approaches. Given the preponderance of lactation problems in the population, especially among primiparas, and the myriad benefits from breast-feeding, more research into this condition will promote public health.

Biographies

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