Non-puerperal Induced Lactation: A Multidisciplinary Teamwork Case Study

Authors: Claudia Gorgati (RM, IBCLC), Claudia Germanà (RMH), Laura Rivella (RM, RN), Flavia Fuggetti (MD, IBCLC)

Abstract

It is widely recognised that breastfeeding is the healthiest and most comprehensive type of nourishment for newborns to ensure optimal health. In this article, we present a successful clinical case of induced lactation with orthodox drugs and supported with herbal medicine on a non-pregnant mother in a same-sex couple. Due to the high risk of a premature twin delivery of the pregnant mother, the non-pregnant mother was advised and supported by a multidisciplinary team of healthcare professionals to induce lactation. She was then able to obtain her own human milk, to store and use it as supplementation in addition to the pregnant mother's milk production in case of premature delivery.

Introduction

The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) highlight the importance of infants being exclusively breastfed for the first 6 months of life and in combination with solids for 2 years and beyond (*WHO, UNICEF 2018*). Paediatric associations worldwide have taken this on board (*Meek and Noble, 2022; Royal College of Paediatric and Child Health, 2022*), and parents are becoming more knowledgeable about the risks of not breastfeeding or not receiving human milk (HM) for their infants. Therefore, more parents have been interested in breastfeeding their adopted children. Breastfeeding without pregnancy is defined as induced lactation, which stimulates milk production in a non-puerperal person. (Lawrence and Lawrence, 2015b).

In the literature, there are a lot of examples of adopting mothers who induced lactation (*Szucs, Axline and Rosenman, 2010; Saari and Yusof, 2014*). In Muslim culture, breastfeeding creates a milk kinship (Mahram Relationship) between the breastfeeding person and their non-biological nursing infant (*Subudhi and Sriraman, 2021*). Therefore, this practice is primarily diffused in Muslim countries like Malaysia "to build the mahram relationship, to experience motherhood, and for the superiority of breastfeeding" (*Rahim, Sulaiman and Ismail, 2022*).

In Western countries, induced lactation is used by adopting parents and also in same-sex couples who want to share the breastfeeding journey (*Wahlert and Fiester, 2013; Juntereal and Spatz, 2019*). ›

[1] RM: Registered Midwife
[2] RMH: Registered Medical Herbalist
[3] RN: Registered Nurse
[4] MD: Medical Doctor

Claudia Carola Gorgati

Claudia Gorgati is an experienced midwife and IBCLC with over ten years of experience in three countries (Italy, Switzerland, and the United Kingdom). Claudia believes in a holistic approach to supporting families in achieving their breastfeeding goals. She is working in a multidisciplinary team of IBCLCs in London, providing Lactation Education to health care professionals and private consultation with parents.

Claudia is also a team leader in an East London birth centre. She also collaborates with the Infant Feeding Team and the Neonatal team to support complex breastfeeding cases in the hospital where she works.

Claudia Germanà

Claudia Germanà is an experienced and qualified Medical Herbalist (BSc), plant educator, maker of botanical products and a member of the National Institute of Medical Herbalists (NIHM).

Claudia is passionate about supporting and empowering clients' health holistically with herbal medicine, nutrition, and lifestyle advice. With an extensive background in clinical training and modern herbal therapies, Claudia provides herbal treatments that emphasise the human body's natural inclinations for integration, reconstruction and resilience.

Claudia is particularly interested in reproductive and women's health, breastfeeding, skin conditions, digestive disorders, mental health, and cardiovascular health.

Laura Rivella

Midwife and Nurse, specialist in pelvic floor rehabilitation, sex counsellor

Flavia Fuggetti

MD Obstetrician and Gynaecology, IBCLC, Clinical sexologist

Clinical Case

This clinical case involves two individuals who identify themselves as females. Therefore, the pronouns and language used in this article reflect their gender identity.

This is an example of a same-sex couple where the non-pregnant mother (the client) induced lactation to store her own HM for her twin daughters. The client is a midwife and nurse specialised in pelvic floor rehabilitation and sex counsellor.

The pregnant mother had an embryo transfer, the partner (the client) was the egg donor, and the sperm donor was anonymous. The pregnant mother is an Obstetrician and Gynaecologist and also an IBCLC. Due to the shortening of the cervix, a cervical cerclage was performed at 23+5 weeks. However, the risk of premature delivery remained high.

WHO and Unicef (2020) and neonatologists worldwide recognise HM's importance, especially for preterm babies (Lawrence and Lawrence, 2015b).

Due to their professional background (midwife and obstetrician/IBCLC), the couple was aware that HM is a medical intervention as it reduces the risk of severe life-threatening conditions affecting preterm infants and enhances optimal brain and gastrointestinal development for small and vulnerable infants (Wambach and Spencer, 2019b; Lawrence and Lawrence, 2015b).

Furthermore, the paediatric team counselled the couple on the use of donor HM in case of premature delivery and delay of lactogenesis II in the pregnant mother. Even if the neonatologists were enthusiastic about the client's induced lactation plan, they did not know how to support her. This emphasises the need for medical professionals to acquire more knowledge in the field.

For all these reasons and also for giving the twins both mothers microorganisms, the client decided to induce lactation. The client is a 39 y/o nullipara with no previous history of lactation. She aimed to store her milk for the twins to use after birth. She never intended to breastfeed the babies directly. That makes this case unique, as in the literature, most clinical cases presented have the final goal of directly breastfeeding the baby, knowing that one of the leading concerns of the client was the ability to lactate without direct stimulation of the breast from a baby. However, the IBCLC discussed with the client a case reported in the literature of a non-puerperal woman who relactated after 6 years to offer her milk to her godson. Despite the woman never directly breastfeeding the baby, she produced 35.06 litres of milk in 26 weeks (*Lopez-Bassols, Duke and Subramaniam, 2021*). This encouraged the client to go ahead with her induction of lactation.

The client was counselled and supported by an IBCLC during the entire journey of inducing lactation. She did not have any risk factors for insufficient milk supply, and the decision was to follow the Newman-Goldfarb Protocol for inducing lactation *(The Protocols for inducing lactation and maximising milk production, 2022)*. However, due to the risk of premature delivery, a shared decision was made to follow the accelerated protocol instead of the regular one. Both protocols use hormones present in birth control pills to mimic the pregnancy and domperidone to increase prolactin levels. However, in the accelerated one, the birth control pill is taken for only 30–60 days rather than 18 weeks (126 days) as in the regular one.

The couple received information on the non-label use of domperidone to increase milk production through the Breastfeeding Network fact sheet on domperidone (*Domperidone and breastfeeding—The Breastfeeding Network, 2024)*.

Even though oestrogen, progestin and domperidone are commonly considered safe for young, healthy women, when used in high doses and for an extended period, they have been associated with adverse drug reactions *(Thøgersen et al., 2023)*. Therefore, changes to the Newman-Goldfarb Protocol on the domperidone dosage have been made based on the side effects reported by the client.

A combined pill with a high dose of progesterone was used (ethinylestradiol 0.03 mg and drospirenone 3 mg) (*YASMIN, 2023*). The decision was made based on information from the Newman-Goldfarb Protocols and the pregnant mother's professional knowledge.

The birth control pill's active tablets were taken for 41 days without interruption, and the client's feedback was an increase in breast size. No side effects were reported.

Prior to the administration of domperidone, an ECG and a cardiological assessment had taken place due to the client's family history of heart attacks. The client did not have any medical history of heart disease, and the ECG and the cardiological assessment did not highlight any concerns. However, the client felt safer starting with a lower dose of domperidone compared to the Newman-Goldfarb Protocols. The client was keen to explore herbs to increase milk supply, so a Registered Clinical Herbalist was contacted for a therapeutic plan.

Day from the beginning of induction of lactation	Birth control pill/breast stimulation	Dosage of domperidone in 24h/ Herbal therapy	Effects and side effects reported
Day 0	Start with birth control pill	› Start with 40 mg	
Day 8	Continue birth control pill	› Increase to 60 mg	
Day 9	Continue birth control pill	› Increase to 80 mg	Breast fullness
Day 15	Continue birth control pill	› Decrease to 60 mg	Dry mouth
Day 19	Continue birth control pill	› Stopped Domperidone	Constipation and dry mouth
Day 23	Continue birth control pill	› Restart at 40 mg	Dry mouth, increased constipation and haemorrhoids
Day 27	Continue birth control pill	› Increase to 60 mg	Constipation stopped
Day 36	Continue birth control pill	› Increase to 80 mg	Constipation, Magnesium introduced
Day 41	Stopped birth control pill	› 80 mg	
Day 42	Start breast stimulation 6 × in 24 h	› 80 mg	Constipation more controlled
Day 49	Breast stimulation continued	› Increase to 100 mg › Herbs started	
Day 60	Breast stimulation continued	› Decrease at 80mg › Continue with herbs	
Day 65	Breast stimulation continued	› Decrease at 60mg › and decrease herbs	
Day 70	Breast stimulation continued	› Decrease at 40 mg	
Day 74	Breast stimulation 4 × in 24 h	› Decrease at 20 mg › and stop herbs	
Day 76	Last day of breast stimulation 2 × in 24 h	› Stopped domperidone	

Table 1: Induction protocol adapted to the requirements and needs of the client in the case study

The administration of domperidone started at the same time as the administration of the birth control pill. However, the dose was slowly increased, decreased, stopped and restarted, as shown in ***Table 1*** above. The decision to change the dosage, to stop and restart the therapy with domperidone has always been a consensus between the IBCLC and the couple, based on the side effects reported by the client.

The client started to stimulate the breast using a wearable breast pump the day after stopping the birth control pill (Day 42). On Day 43 she also added stimulation through hand expression. This wasn't the client's favourite method. However, following a discussion with the IBCLC on the efficiency of hand expressions for colostrum extraction and collection, the client found this method more efficient for milk collection and, therefore, more rewarding for her. She also used the wearable breast pump to stimulate breast expression beforehand, as per Jane Morton's studies on maximising milk production (*Morton et al., 2009*).

The client maintained the schedule of 6 breast stimulations in 24 hours with a maximum break of 5–6 hours overnight. The IBCLC discussed with the client the use of a "hospital-grade" breast pump to increase stimulation. However, this device was incompatible with the client's lifestyle as she worked and travelled often by car. The wearable breast pump was the more efficient way to guarantee 3 hours of breast stimulation during the day.

Domperidone was increased slowly up to 100 mg in 24 hours. This is a higher dosage compared to the Newman-Goldfarb Protocols. However, another clinical case reported in literature of a non-puerperal relactation without infant stimulation used an even higher dosage of domperidone, 120 mg daily (*Lopez-Bassols, Duke and Subramaniam, 2021*). Therefore, after a discussion with the client and her partner, in view of the latter medical background, the decision was made to use 100 mg of domperidone daily for a short period of time. The use of magnesium helped to decrease constipation and to avoid the return of haemorrhoids (*Mori, Tack and Suzuki, 2021*).

On day 49, herbs were introduced, and the client reported a positive impact on milk production. The herbal protocol was made by a Registered Herbalist and it is described below.

The first drops of colostrum were seen on the day after stopping the birth control pill.

Even though the client never reported signs and symptoms of lactogenesis II, from day 59 to day 70, the client was able to express 80 to 100 ml of HM in 24 hours.

The client reported that with the addition of the herbs, she could see an increase in her milk production. ›

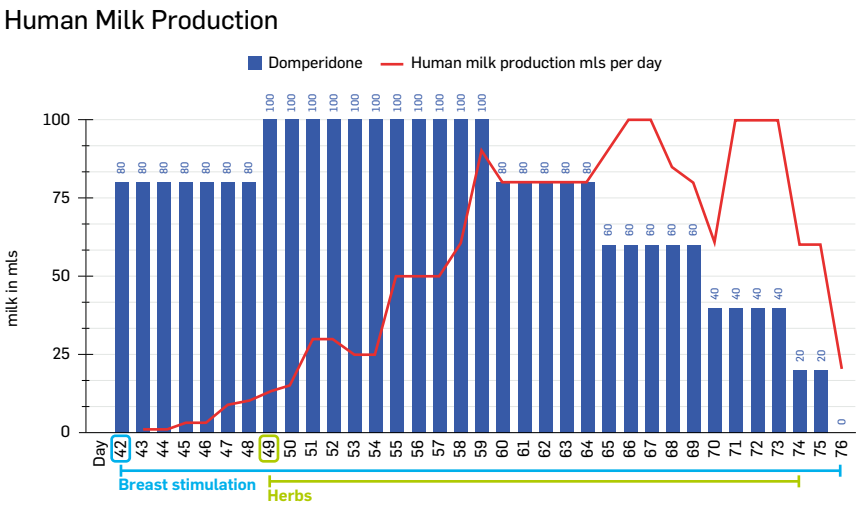

Figure 2: Milk production increase following increase in domperidone and introduction of herbs whilst pumping.

Figure 2 shows how the increase in domperidone dosage and the introduction of herbs helped increase milk production while maintaining 6 breast stimulations a day.

The main steps of this clinical case have been highlighted in the timeline below (***Figure 3***). From day 42 to day 73, the client maintained breast stimulation with a wearable breast pump and hand expression 6 times in 24 hours. On days 74 and 75, she decreased breast stimulation to 4 times in 24 hours. The last day of breast stimulation was day 76, 2 times in 24 hours.

Herbal protocol

Once lactation was established, on day 49, the client was introduced to a herbal protocol to maintain and increase breast milk production.

As the client was prescribed orthodox medication to induce lactation, the need to work with a multidisciplinary team of qualified practitioners, including a medical herbalist, was paramount to assess the client holistically and to determine possible contraindications between herbs and conventional drugs. Additionally, as stated by Graffigna et al. (2015), a holistic and comprehensive process that involves a systematic and multidisciplinary approach is essential to promote an integrative approach to care, ensure client engagement and achieve a positive outcome of the therapeutic plan.

Scientific evidence on the use of herbal medicine in breastfeeding is scarce. As Budzynska et al. (2013) state, the ethical concerns associated with researching mothers and newborns, the expense, and the difficulty of determining the chemical makeup of breast milk before and after herb administration all contribute to the limitations of human studies. Further research is required to prove galactagogues' safety and efficacy to support evidence-based practices and enhance breastfeeding outcomes.

Despite the lack of research, the benefits of herbal medicine in assisting breastfeeding are globally widespread among many cultures and have been employed for centuries. Herbs effectively enhance breast milk production (*Ryan et al., 2024*). Furthermore, by passing through breast milk, herbs provide a valuable way to nourish and sustain holistically the well-being of the mother and baby (*Sibeko et al., 2021*).

During the 1.5 h herbal consultation, a thorough case history of the client was taken, including the following:

- Presenting complaint
- Previous medical, family, orthodox drugs, social history
- Allergies/intolerances/sensitives
- Body system exploration
- Physical examination
- Nutrition

The information collected from the case history was meticulously analysed and interpreted to formulate a bespoke herbal treatment plan that aligns holistically with the client's specific medical history and requirements. Consequently, the herbs and their dosages were selected accordingly. The method of administering the herbs was determined based on the client's preferences to ensure patient-centred therapy. The main aims of the herbal treatment plan are to boost breast milk production and improve the client's digestive function. The latter was compromised by a late diagnosis of lactose intolerance and constipation as a side effect induced by domperidone.

Figure 3: Timeline of Induced Lactation

Day 0	Day 41	Day 42	Day 49	Day 74	Day 76
› Start birth control pill › Start domperidone	› Stop birth control pill › Domperidone 80 mg/24 h	› Start breast stimulation 6 times › Domperidone 80 mg/24 h	› Breast stimulation continued › Increase daomperidone 100 mg/24 h › Start herbal protocol	› Breast stimulation 4 times in 24 h › Decrease domperidone 20 mg/24 h › Stop Herbal protocol	› Stop domperidone › Last day of breast stimulation 2 times in 24 h

Therefore, the formula included galactagogue herbs to increase HM production, carminative and nourishing herbs to restore digestive function homeostasis, and bulk-laxative herbs to relieve the client's constipation. Taking that into consideration the following herbs were prescribed to the client.

***Galega officinalis*, Goat's Rue**

May increase milk production by stimulating prolactin secretion, promoting the development of mammary cells and glands and encouraging both the production and flow of breast milk. In a randomised clinical trial conducted on mothers of preterm babies, *G. officinalis* was found to increase milk production up to 200 ml/day (*Zecca et al., 2016*). However, the randomization method was not stated. Although, *G. officinalis* has long been used as a galactagogue worldwide, scientifically valid clinical trials are lacking (*Drugs and Lactation Database, 2021*).

***Trigonella foenum-graecum*, Fenugreek**

May stimulate HM flow. Research showed that following *T. foenum-graecum* intake, breastfeeding mothers could pump more milk in a 15-minute session than the placebo (*Bazzano et al., 2018*). Overall, evidence for a galactagogue effect is mostly anecdotal (*Drugs and Lactation Database, 2024*).

The herb is a nutritive tonic rich in vitamins A, B and C, calcium and iron. The phytochemical galactomannans is a mucilaginous compound that coats the intestinal mucosa and soothes irritation and inflammation and is a gentle laxative relieving constipation by adding fibre (*Winston and Kuhn, 2008*).

***Foeniculum vulgare*, Fennel**

F. vulgare seeds were used as a galactagogue in ancient Greece (1100–146 BC). Two small studies found an increase in some parameters such as milk volume, fat content and infant weight gain, whilst no increase in serum prolactin levels were found (*Drugs and Lactation Database, 2024*). The herb improves digestion by increasing the production of digestive enzymes, relieving spasms in the intestine, and reducing flatulence. It is helpful in spasmodic conditions such as colic, as the active ingredients are transferred to the baby through breast milk (*Savino et al. 2005*).

***Vitex agnus castus*, Chasteberry**

At low dosages of *V. agnus castus*, a positive effect on milk production was observed by increasing serum prolactin (*Erarslan and Kültür, 2024*). However, scientifically valid clinical trials are lacking (*Drugs and Lactation Database, 2024*)

***Asparagus racemosus*, Shatavari**

Its usage as a galactagogue herb in Ayurvedic medicine is traditionally widespread. In a postpartum double-blind, prospective, randomized, controlled clinical study (39 persons in the control and 39 in the study group), *A. racemosus* resulted in a mean total milk volume expressed that was larger (p=0.008) than the placebo (49.69 ml). *A. racemosus* caused a shorter time to breast fullness (30.49 hours) than placebo (38.09 hours) (*Birla et al., 2022*). *A. racemosus* is a supreme adaptogen and nutritive herb. It is an antispasmodic to help and soothe digestion (*Yance, 2013*).

***Avena sativa*, Oat**

The potential galactagogue action of *A. sativa* was researched in a postpartum double-blind, prospective, randomized, controlled clinical study (39 persons in the control and 39 in the study group), *A. sativa* resulted in a mean total milk volume expressed that was larger (p=0.008) than the placebo (49.69 ml). *A. sativa* caused a shorter time to breast fullness (30.49 hours) than placebo (38.09 hours) (*Birla et al., 2022*).

Rich in fibre and mucilage, helps relieve constipation and relaxes and tones the nervous system, supporting the body during moments of stress that can arise during breastfeeding (*Winston and Kuhn, 2008*).

***Urtica urens fol*, Stinging Nettle leaves**

Nutritive tonic is rich in iron and minerals. Hypothetically, the galactagogue action of *U. urens* might be due to the binding of sex hormone-binding globulin causing elevated serum oestrogen levels, by histamine-induced prolactin release, or by serotonin-induced release of thyrotropin-releasing hormone (*Drugs and Lactation Database, 2024*).

***Taraxacum officinale radix*, Common Dandelion root**

A gentle bulk-laxative and bitter digestive that supports digestion and increases the flow of gastric juices, thus helping the absorption of food. Inulin, one of the primary active constituents found in the roots, stimulates gastrointestinal and immunomodulatory activity (*Ganora, 2009*). Street et al. (2013) observed the inulin content aims to fortify the client's gut microbiota. Several studies have evidenced the importance of a healthy gut microbiota during breastfeeding as it significantly influences the composition of the gut microbiome in infants, potentially impacting function *(Granger et al., 2021).* ›

Outcome

During the 77 days of induced lactation, the client collected 1.8 litres of HM. The twins were born at 36+3 weeks gestation; they both immediately latched at the breast, and both mothers were able to stay with them until discharge from the hospital. As often happens with late preterm infants (*Genna, 2016*), the twins needed supplementation due to their immature breastfeeding skills. The couple was able to supplement their daughters with the client's HM for the first 10 days of life via finger feeding. The pregnant mother's lactogenesis II happened within 72 h from induced vaginal delivery, despite a postpartum haemorrhage. However, on medical recommendation, supplementations with formula were used from the 10th to the 30th day of life until maternal milk production fully reached the twins' needs and they could exclusively breastfeed directly at the breast.

Conclusion

Even though the accelerated Newman-Goldfarb Protocol for Induced Lactation was not strictly followed, lactation was induced in a non-puerperal woman with no previous history of pregnancy or lactation. The use of high doses of domperidone and galactagogues herbs tailored to the client's need supported and maintained HM production in the client.

The client was satisfied with her result and felt in control of the whole process, including when to stop the stimulation. After 30 days of stimulation, the client felt that she reached her goal of having her own HM to offer to the twins in case of premature delivery while waiting for lactogenesis II from the pregnant mother. Even if the client had some doubts about the induction, especially at the beginning of the breast stimulation, she reported that the support from her partner and the continued follow-up by the IBCLC helped her during the whole process. This is in line with what is reported in the literature. Health professionals (in this case, the IBCLC) need to have enough knowledge on induced lactation to personalise the Newman-Goldfarb Protocols to the client's specific needs (*Cazorla-Ortiz et al., 2020*) and professional and family support are crucial to overcoming difficult times during the process. Inducing lactation requires dedication, motivation and physical and mental effort (*Lopez-Bassols, Duke and Subramaniam, 2021*). Combining work and daily activity was a challenge for the client, who, however, managed to fit frequent breast expression in her daily life for 34 days. This case study is an excellent example of how maternal determination, knowledge, clinical skills and multidisciplinary teamwork are the keys to a successful induced lactation journey, even without having direct breast stimulation from an infant.

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