Raynaud's phenomenon of the nipple during breastfeeding: A case series

Alfredo Eymann^a , Julieta Pontoriero Daroni^a , Mabel Brinci^b, Soledad Cámera^c

ABSTRACT

Raynaud's phenomenon consists of excessive contraction of the blood vessels in response to various stimuli; although it usually affects the extremities, other locations are less frequently involved. This study focused on describing the characteristics of a series of women with Raynaud's phenomenon of the nipple.

Through medical record review and direct communication with patients, data from 12 women diagnosed with Raynaud's phenomenon of the nipple between 2016 and 2023 were collected and analyzed. The following variables were assessed: age, symptoms, triggering factors, treatment, and duration of symptoms.

In this case series, Raynaud's phenomenon of the nipple in breastfeeding women was more common among primiparous women around 10 days after delivery; pain was severe and, in most cases, improved with local and/or drug treatment, and did not limit the duration of breastfeeding.

Keywords: Raynaud's disease; vasoconstriction; breastfeeding; nipples; pain.

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^a Department of Clinical Pediatrics; ^b Department of Neonatology; ^c Department of General Medicine Hospital Italiano de Buenos Aires, City of Buenos Aires, Argentina.

Correspondence to Alfredo Eymann: alfredo.eymann@hospitalitaliano.org.ar

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INTRODUCTION

Raynaud's phenomenon was described by Maurice Raynaud in 1862; it consists of excessive contraction of blood vessels in response to various stimuli.¹ It predominantly affects women; its prevalence among women of child-bearing age is up to 20%.²⁻⁴ Its diagnosis is based on clinical history and physical examination, and although it usually occurs in the extremities, it may also affect other distal vascularized areas, such as the nose, pinnae, nipples, etc.⁵

Nipple vasospasm, described in the 1970s by Gunther, was not linked to Raynaud's phenomenon until 1992.^{6,7} Symptoms include changes in nipple color, followed by numbness or pain, triggered by cold, emotional stress, or local stimulation. In addition, there is a possible relationship with drugs (e.g., labetalol) and a history of breast surgery.^{8,9}

In Argentina, the prevalence of breastfeeding is 88% at 6 months old.¹⁰ Nipple soreness is one of the main reasons why women discontinue breastfeeding in the first month.¹¹ While problems with the breastfeeding technique, infections, or skin lesions should be ruled out, Raynaud's phenomenon of the nipple should also be considered in these women.

We did not find publications of studies about this condition in our country, so we set out to describe the clinical characteristics and therapeutic strategies of a series of patients with Raynaud's phenomenon of the nipple.

POPULATION AND METHODS

This study had a retrospective cohort design in patients with Raynaud's phenomenon of the nipple seen between 2016 and 2023 at a community teaching hospital. Electronic medical records were reviewed and the information was completed via direct communication with patients.

Raynaud's phenomenon of the nipple was defined as the onset of severe pain and transient whitish discoloration of the nipple in women during breastfeeding.

The following variables were analyzed: age; ethnicity; gravidity; time to onset of postpartum pain; pain during and/or after breastfeeding; cold as triggering factor; white nipple; history of Raynaud's phenomenon; history of thyroid disease; assessment by childcare specialist; use of local treatment, regulated non-steroidal antiinflammatory drugs (NSAIDs), and nifedipine; treatment perceived as most effective; duration of drug treatment; adverse effects; duration of Raynaud's phenomenon; persistent Raynaud's after breastfeeding discontinuation; duration of breastfeeding; perceived motivation for breastfeeding (1: minimum motivation to 5: maximum motivation); perceived reduction in breastfeeding duration; transient discomfort up to 3 months after breastfeeding discontinuation; subsequent development of rheumatic disease; pain severity (1: minimum severity to 10: maximum severity); clinical follow-up duration.

Categorical variables were described as absolute and relative numbers, while continuous variables, as median and interquartile range.

The study was approved by the Ethics Committee for Research Protocols of our site (PRIISA [Platform for Electronical Registration of Health Research in Buenos Aires] file number 10594) and all patients gave their consent for study participation.

RESULTS

A total of 12 women with Raynaud's phenomenon of the nipple in the postpartum period were analyzed. The last patient in the series was included in the study in 2022. Patients' median age was 33 years; all were Caucasian, primiparous, and showed a high motivation for breastfeeding; only 1 patient perceived that Raynaud's phenomenon was a limiting factor for breastfeeding. The average breastfeeding duration was 13.5 months; the average clinical follow-up of patients was 30.5 months; the other clinical characteristics are described in *Table 1*.

Regarding the characteristics of Raynaud's phenomenon, the median onset occurred 10 days after delivery and, in all cases, pain was accompanied by nipple pallor (*Figure 1*). Pain was described as severe, with a median of 8 points in the numeric pain rating scale. In almost all women, pain occurred both between breastfeeds and during breastfeeding, and, in most cases (83.3%), cold was identified as the main triggering factor.

All women received local treatment. Although most patients had a favorable response to treatment, others required regulated painkillers and/or nifedipine. Of all study patients, 5 (41.7%) required nifedipine, and only 2 reported side effects. One patient experienced mild headache limited to the first day of treatment, while another had dizziness with a 30 mg dose and tolerated a lower dose adequately. In average, patients required treatment with nifedipine for 5 months.

TABLE 1	Characteristics	of women	with Ray	'naud'e	nhonomonon	of the	ninr	مام
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n = 12	
Age in years, median (IQR)	33 (30.5–35.5)
Primiparous women	12
History of Raynaud's phenomenon	1
History of thyroid disease	2
No rheumatic disease	12
Assessment by childcare specialists	10
Maximum motivation for breastfeeding, median (IQR)	5 (5-5)
Perceived reduction in breastfeeding	1
Duration of breastfeeding in months, median (IQR)	13.5 (9.5-25.5)
Clinical follow-up in months, median (IQR)	30.5 (9-42.5)

n: number; IQR: interquartile range.

After breastfeeding discontinuation, only 2 women continued with less severe symptoms; 1 of them even until a subsequent pregnancy. One third of patients were still breastfeeding at the time of data collection. None developed rheumatic disease. Only 1 patient referred a transient reduction in breast sensitivity. The characteristics of Raynaud's phenomenon of the nipple and its course are described in *Table 2*.

DISCUSSION

This study found that all women who experienced Raynaud's phenomenon of the nipple were primiparous. Reported symptoms were nipple pain and pallor. Pain was not limited to breastfeeding, but was also reported in other situations, especially in response to external stimuli, such as cold. Most women were assisted by childcare specialists at the onset of symptoms to resolve any difficulties encountered in the breastfeeding technique. Although most patients experienced severe pain, only 1 perceived that this limited her ability to breastfeed. This result may be related to the high motivation for breastfeeding reported in this study. Although it is not known why this condition is more frequent among primiparous women, a reoccurrence of symptoms in the second pregnancy has been described, as observed in 1 of our patients.¹²

Raynaud's phenomenon has been associated with rheumatic or endocrine disease, although it may also be a primary phenomenon.¹³ In our study, only 2 patients had hypothyroidism, 1 of whom had Raynaud's phenomenon, and only 2 women, both with no history of this condition, had persistent symptoms of vasospasm once breastfeeding was discontinued.

Although the exact cause of Raynaud's phenomenon of the nipple has not been elucidated, it is assumed to be related to an exaggerated vasomotor response associated with elevated



FIGURE 1. Spasm secondary to Raynaud's phenomenon of the nipple

n = 12		
Onset of nipple pain in days after delivery, median (IQR)	10 (6.5-17)	
Pain scale, median (IQR)		8 (7-8.5)
Nipple pain during breastfeeding	10	
Nipple pain between breastfeeds	12	
Triggered by cold		10
The nipple turned white		12
Use of local treatment		12
Use of regulated NSAIDs		3
Use of nifedipine		5 (41.7)
Duration of treatment with nifedipine in months, median (IQR)		5 (3-5)
Treatment perceived as most effective	Warm environment	5
	Reduced breastfeeding	2
	Nifedipine	3
	Physical activity	1
Duration of Raynaud's phenomenon in months, median (IQR)		4 (3-10.5)
Persistent Raynaud's phenomenon after breastfeeding discontin	uation	2

TABLE 2. Clinical	characteristics	of Raynaud's	phenomenon of	of the	nipple
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n: number; IQR: interquartile range; NSAIDs: non-steroidal anti-inflammatory drugs.

estrogen levels and the stress associated with breastfeeding. Estrogen increases the expression of adrenergic receptors in the vessels, which causes vasoconstriction of cutaneous arterioles in response to various stimuli. This explains why cold was the main triggering factor of symptoms. In addition, although it was not assessed in our study, emotional stress has also been considered a trigger.¹⁴

Treatment includes non-pharmacological methods —based on preventing exposure to cold and avoiding vasoconstrictor substances, such as nicotine or caffeine— and pharmacological methods. In our study, all patients implemented these strategies: they practiced breastfeeding in warm places, used thermal insulation, or applied warm compresses to the breasts; most showed a favorable response. One patient reported that the most effective treatment was physical activity. There are no reports of the use of other interventions, such as supplementation with calcium, magnesium, or vitamin B6, or topical application of rosemary or fish oil in the nipples.¹³

At least half of the patients required drug treatment. While some women responded to NSAIDs, 5 required vasodilators. Nifedipine was the drug of choice given its effectiveness and safety profile during breastfeeding. All of them reported symptom improvement with nifedipine and acceptable tolerance. These findings are compatible with those reported in other studies.¹⁵

The main limitations of this study are that data were retrieved from electronic medical records and the fact that it was conducted in a single site. However, this study provides necessary information to understand Raynaud's phenomenon and highlights the importance of a multidisciplinary approach to nipple pain, with the support of childcare specialists.

CONCLUSION

In this study, we observed that Raynaud's phenomenon of the nipple in breastfeeding women was more common among primiparous women around 10 days after delivery. Pain was severe; most cases improved with local and/or drug treatment; and the condition did not limit the duration of breastfeeding. ■

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