

# Outcomes of breast abscesses during lactation: a retrospective study

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## Abstract

**Introduction:** During breastfeeding one of the most common problems which can encounter is breast abscess. Our retrospective study aimed to assess the outcomes of breast abscesses among a cohort of lactating mothers.

**Methods:** A single-centre retrospective study was carried out. Randomly selected 2000 medical records of mothers, referred as outpatients and hospitalized from 2002 to 2022 were retrieved. There were 32 breastfeeding mothers with breast abscesses. The diagnosis of lactational breast abscess was made by documented signs of a localized inflammatory, palpable breast lump confirmed with an ultrasound findings. From the retrieved database, data on maternal, perinatal, and breastfeeding features, ultrasound scan reports, methods of interventions and outcomes and microbiological testing reports were evaluated. Ethics Committee Approval was received from Nawaloka Research and Education Unit. No conflict of interest.

**Results:** The mean age of the 32 patients was  $28.7 \pm 5.7$  years. There were 85% primiparous and 15% multiparous. Exclusive breastfeeding at diagnosis was present in 20/32 (63%). Most of the women developed breast abscesses during the initial 40 days ( $36.3 \pm 1.4$  days) after delivery. The majority of 26/32 (81.3%) of the breast abscesses were <5cm in diameter in the ultrasound examination. The majority of the patients 28/32 (87%) underwent ultrasound-guided aspiration while on antibiotic coverage according to the standard clinical guidelines. Four patients had repeated ultrasound-guided aspiration. Four patients who had abscesses >5cm, with overlying skin necrosis underwent incising and drainage. None of the patients developed mammary fistulae or sinuses. All of the incision and drainage abscesses were healed within 3 to 5 weeks with repeated wound dressings. Ninety-one percent of the cultures revealed *S. aureus* positive. None of the patients stops breastfeeding during the acute phase.

**Conclusion:** Our retrospective study showed that needle aspiration may be performed, regardless of the size of the breast abscesses in most instances.

**Key words:** breast abscess, aspiration, microbiology, lactation, surgery

*Sri Lanka Journal of Obstetrics and Gynaecology* 2023; **45**: 125-129


DOI: <https://doi.org/10.4038/sljog.v45i3.8084>

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Received 29<sup>th</sup> March 2023

Accepted 26<sup>th</sup> October 2023



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## Introduction

Lactation or breastfeeding is very important to mother and child for many reasons, it bonds the mother and child psychologically and physically, provides important nutrients which contain bioactive and immunological substances that are not found in formula feeding and increases oxytocin production, stimulates the uterine contractions and reducing post-delivery bleeding. During breast feeding one of the most common problems which can occur is breast abscess. Unless attended promptly, this can give rise to severe morbidity in lactating women leading to breast feeding interruptions, which will invariably cause adverse consequences to both the mother and child<sup>1-9</sup>.

Breast abscesses are defined as localised areas of infection with a walled-off collection of pus that may or may not be associated with mastitis. The incidence of breast abscesses ranged from 0.1% to 3% among breastfeeding women. The most commonly reported microbe has been *Staphylococcus aureus*<sup>10,11</sup>. Our retrospective study aimed to assess the outcomes of breast abscesses among a cohort of lactating mothers.

## Methods

A single-centre retrospective study was carried out. Randomly selected 2000 medical records of mothers referred as outpatients and hospitalized from 2002 to 2022 were retrieved. There were 32 breastfeeding mothers with breast abscesses. The diagnosis of lactational breast abscess was made by the documented, presence of inflammatory signs with a localized, palpable breast lump confirmed with an ultrasound finding of a localised area of a walled-off collection of pus. From the retrieved each patient's record, data on maternal, perinatal and breastfeeding features were recorded. From the retrieved ultrasound scan reports, it was established 5cm was the cut-off to differentiate between small and large abscesses<sup>11-13</sup>. In all our patient records, the microbiological testing reports were evaluated. Furthermore from the patient records, the methods of management of each patient were evaluated individually. Ethics Committee Approval was received from Nawaloka Research and Education Unit.

## Statistical analysis

Social Science Statistical Package (SPSS Inc., Chicago, IL, USA) computer software was used for the statistical analysis. The descriptive data were presented as mean, standard deviation and range.

## Results

The mean age of the 32 patients was  $28.7 \pm 5.7$  years. There were 27/32 (85%) primiparous and 5/32 (15%) multiparous. Vaginal birth was reported as 18/32 (56%) and there were 14/32 (44%) caesarean sections in this group of patients. Exclusive breastfeeding at diagnosis was present in 20/32 (63%) while the rest were breastfeeding with supplementary feeding on 9/12 and the 3/12 others were exclusively on formula feeding. Most of the women developed breast abscesses during the initial 40 days ( $36.3 \pm 1.4$  days) after delivery and 12 needed hospitalization. Thirty women had fissures, and 1 had bilateral abscesses.

The majority 26/32 (81.3%) of the breast abscesses were <5cm in diameter in the ultrasound examination. The majority of the patients 28/32 (87%) underwent ultrasound-guided aspiration as the mode of treatment while on oral 20/28 (71.4%) or intravenous 08/28 (25.0%) antibiotic coverage according to the standard clinical guidelines. Four 4/8 patients who had ultrasound-guided aspiration went on to have another two repeated aspirations. Four patients who had abscesses >5cm, also had overlying skin necrosis. Hence all of them underwent incision and drainage with the administration of intravenous antibiotics. None of the patients developed mammary fistulae or sinuses. None of the patients were in need of Bromocriptine treatment to suppress lactation. All of the incision and drainage abscesses were recorded to heal within 3 to 5 weeks with repeated wound dressings. Ninety-one percent of the cultures revealed *S. aureus* positive whilst the rest were MRSA positive. There were no reported special clinical instructions found to withhold breast feeding in the acute phase of the management.

**Table 1. The characteristics of the study sample (N=32)**

Variable	N(%) or Mean ( $\pm$ SD)
Age (years)	28.7 $\pm$ 5.7
Parity	
Primiparous	27/32 (85)
Multiparous	5/32 (15)
Mode of delivery	
Vaginal	18/32 (56)
Caesarean section	14/32 (44)
Breast feeding at diagnosis	
Exclusive	20/32 (63)
Complementary	12/32 (37)
Size of the abscess	
<5cm	26/32 (82)
>5cm	06/32 (18)
Number need hospitalization	12/32 (37)
Days between delivery and diagnosis	36.3 $\pm$ 1.4
Number of patients underwent ultrasound guided aspiration of abscess	28/32 (87)
Number of patients underwent incision and drainage of abscess	04/32 (13)
Pus culture results	
<i>S. aureus</i> <sup>1</sup>	29/32 (91)
MRSA <sup>2</sup>	03/32 (09)

<sup>1</sup>Methicillin-resistant *Staphylococcus aureus* (MRAS)<sup>2</sup>*Staphylococcus aureus* (*S. aureus*)

## Discussion

According to previous studies, primiparity appears to be associated with the development of breast abscesses<sup>14,15</sup>. In our study, the mean age of the 32 patients was 28.7  $\pm$  5.7 years and the majority were 27/32 (85%) primiparous. This may be due to the initial difficulties faced by the primiparity mothers during lactation.

Antibiotics and I and D were considered the treatment of choice for breast abscesses in the past. However, at present US-guided interventions became the preferred approach. But there is still no consensus regarding the best management of large and multilocular breast abscesses. Prospective studies showed that all I and D patients were treated successfully, but 70% of them were not satisfied with the cosmetic outcome.

Furthermore, studies showed that a group of patients who had >5cm breast abscesses who had initial needle aspiration, 41% of them did not resolved. Therefore an abscess size larger than 5 cm was identified as a risk factor for failure of the procedure<sup>13-16</sup>. However, prospective studies on breast abscesses treated by needle aspiration, oral antibiotics with repeated aspirations showed the overall cure rate was, 82%. However, data and randomized trials in the literature are limited to determine whether needle aspiration is a more effective option than I and D for lactational breast abscesses<sup>14-17</sup>. BMJ Best Practice published in 2017 suggests that incision and drainage should be reserved for patients in whom aspiration failed and/or for large abscesses (>5cm in diameter)<sup>6</sup>. According to the literature, the average duration of breast feeding at the time of developing a breast abscess was first 4 to 6 weeks and the main pathogen was *S. aureus* (90%). Furthermore, most of the literature did not support the withholding of breast feeding during the acute phase<sup>13-17</sup>.

In our study, most of the women developed breast abscesses during the initial 40 days ( $36.3 \pm 1.4$  days) after delivery and 12 needed hospitalization. Thirty women had fissures, and 1 had bilateral abscesses. Majority 26/32 of the breast abscesses were <5cm in diameter in the ultrasound examination. In most of the patients, 87% underwent ultrasound-guided aspiration as the mode of treatment while on oral or intravenous antibiotic coverage according to the standard clinical guidelines. Four 4/8 patients who had ultrasound-guided aspiration went on to have another two repeated aspirations. Four patients who had abscesses >5cm, also had overlying skin necrosis. Hence all of them underwent incising and drainage with the administration of intravenous antibiotics. None of the patients developed mammary fistulae or sinuses. None of the patients had bromocriptine treatment to suppress lactation. All of the incision and drainage abscesses were healed within 3 to 5 weeks with repeated wound dressings. Ninety-one percent of the cultures revealed *S. aureus* positive. Finally our clinical experience showed that the needle aspiration of breast abscesses during breast feeding is more cost-effective than that of incision and drainage since it is an outpatient procedure, easily repeatable, no cosmetic damage, lower risk of recurrences, is cheaper because it can be done as an outpatient, less painful and immediately can restart the breast feeding.

## Conclusion

Our retrospective study showed that needle aspiration may be performed, regardless of the size of the breast abscesses in most instances unless there is overlying skin necrosis, and avoid the surgical procedure of I and D. These primary observations require confirmation by a randomized controlled study.

## Acknowledgements

We acknowledge the staff of the Medical Record Unit and Nawaloka Research and Education Foundation for supporting us in this study.

## Authors' contributions

VA, HD and LG formulated the concept and design of the study, acquisition of data and analysis, and drafted the article. All authors reviewed the manuscript.

## Funding

None declared.

## Availability of data and materials

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

## Data collection and ethical approval

Nawaloka Research and Education Foundation, Nawaloka Hospital PLC, Colombo.

## Competing interests

The authors declare that they have no competing interests.

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