

Original Article

# Incision and drainage versus ultrasound guided needle aspiration in the management of lactational breast abscess.

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## Abstract

**Background:** Lactational breast abscess is attributed to higher morbidities among women, specifically from developing countries. Though many treatment options are available, still consensus regarding the modality yielding the best outcome is scarce. The study's objective was to compare the outcome of lactational breast abscess following incision & drainage (ID) versus ultrasound-guided needle aspiration (USGNA).

**Methodology:** This prospective comparative investigation was carried upon a sample of 59 female patients with lactational breast abscess (chosen via non-probability, consecutive sampling), presenting to the Department of Surgery at Liaquat University Hospital, Hyderabad. The patients were divided into two groups, namely Group A (ID) and Group B (USGNA). Data was documented using a structured questionnaire, including inquiries related to sociodemographic details, disease specifics, and treatment outcomes (mainly abscess resolution, uninterrupted breastfeeding and fistula formation).

**Results:** The results showed that 3 patients (5.08%) from group A developed mammary fistula, 26 (44.06%) with complete resolution, and only 1 (1.69%) patient attained uninterrupted breastfeeding. In group B, there was full resolution in 28 (47.45%) patients, and the abscess of 2 (3.38%) patients did not completely resolve, while 28 (47.45%) attained uninterrupted breastfeeding.

**Conclusion:** It can be concluded that USGNA yields a better outcome in the treatment of lactational breast abscess in terms of lesser incidence of fistula development, the better probability of complete resolution and a significantly higher rate of attainments of the ability to breastfeed uninterrupted.

## Keywords

Mammary Fistula, Incision & Drainage, Lactational Breast Abscess, Uninterrupted Breast Feeding, Ultrasound Guided Needle Aspiration.



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## Introduction

During pregnancy and lactation, a significant number of women become prone to a variety of breast problems. These complications can be serious as breast malignancy or relatively milder like lesions<sup>1</sup>, sore nipples, mastitis, galactocoele or lactational breast abscess. Defined as a localized collection of pus in a lactating breast, the "lactational breast abscess" can be a source of higher morbidity in up to 11% of all lactating women<sup>2</sup>.

Lactational Breast Abscess has a reasonably high incidence (85%) among women with primary parity who lack adequate knowledge on nipple hygiene and breastfeeding practices<sup>3</sup>. Most prevalent in the initial 6 months of lactation<sup>4</sup>, the condition is known to have a variety of predisposing factors, explicitly, increasing maternal age, post-term pregnancies, having cracked nipples, mastitis and occupations of the mother that doesn't leave much time for careful breastfeeding practice<sup>5</sup>. Mothers that smoke cigarettes are also very likely to experience milk stasis and can develop an abscess in breasts<sup>3</sup>.

The presenting complaints usually include swollen, tender and erythematous breasts with the decreased outflow of milk. Fever-like symptoms are also not uncommon<sup>6</sup>. The clinical examination via palpable axillary lymph node may indicate fluctuant swelling in the affected breast<sup>6</sup>. A lactational breast abscess can be diagnosed clinically, but confirmatory ultrasound is always recommended to evaluate the nature of collected puss and cystic swelling<sup>7</sup>. Along with antibiotics, the standard routine therapy in managing lactational breast abscesses entails either open incision drainage or a close ultrasound-guided needle aspiration approach. Pus may be sent for culture and sensitivity (c/s) in both instances<sup>8</sup>.

Routinely, incision and drainage merits anesthesia during the process, needs hospitalization immediately after the procedure and care of dressing (daily) for an extended period if a good cosmetic outcome is desired. Moreover, the pain

and the open wound may prevent the mother from feeding the baby as well. However, one advantage of the incision and drainage procedure is complete breakage of loculi that also consequently lowers the risk of recurrence<sup>1</sup>. However, the USGNA does not merit hospitalization and can be performed as an outpatient procedure. There is always a better cosmetic outcome, early resumption of breastfeeding, and a less painful experience favouring USGNA<sup>9-11</sup>. Still, the disadvantage of the need for re-attempts is there<sup>6</sup>.

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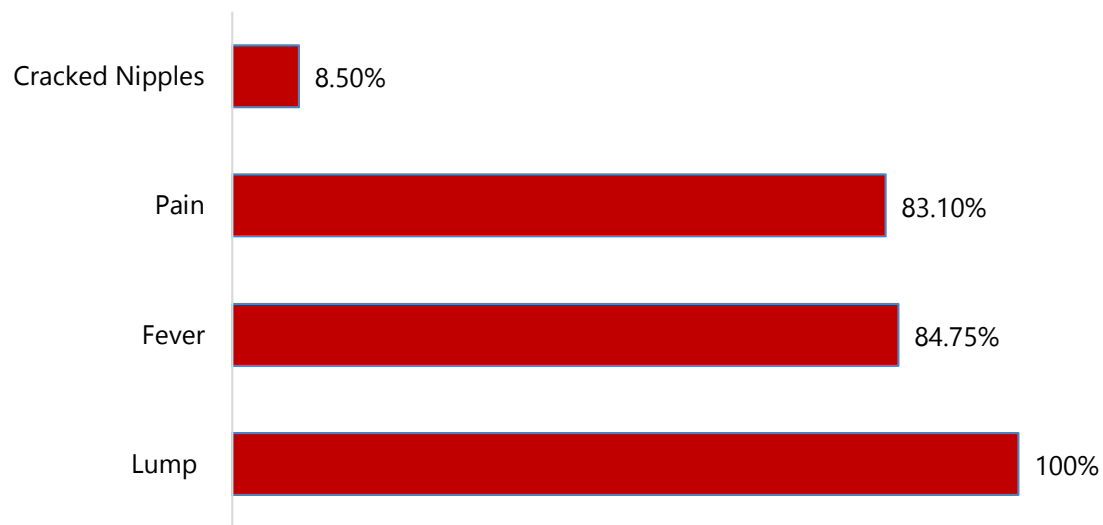
## Methodology

This prospective comparative study was carried out from January 2017 to December 2017 involving a sample of 59 female patients chosen via non-probability, consecutive sampling, visiting Dept. of Surgery – Unit II at Liaquat University Hospital, Hyderabad, with lactational breast abscess. Women who developed breast abscess first in their current lactation period and had clinical diagnoses of lactational breast abscess with cavity 2 to 10 cm on ultrasonography were included in the study. In contrast, patients with non-lactational breast abscess, recurrent or chronic breast abscess, breast abscess antibioma or already drained / burst abscess were excluded from the study. Patients were divided into groups, namely Group A (ID) and Group B (USGNA). Data was documented using a structured questionnaire, including inquiries related to sociodemographic details, disease particulars, and treatment outcomes like abscess resolution, uninterrupted breastfeeding and fistula formation. The data was analyzed using SPSS version 22.0. Chi square test was applied to find the associations between categorical variables and a p-value less than 0.05 was considered significant.

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## Results

The mean age of the participants was  $25.90 \pm 4.67$  years. The presenting complaints and clinical features are tabulated below. Lumps were the commonest presenting complaint present among all the patients, followed closely by fever and pain (each in more than 4/5<sup>th</sup> of the patient population). Cracked nipples were seen seldom and in less than 1/10<sup>th</sup> of the patients.



**Figure 1: Clinical complaints reported among the enrolled patients at presentation.**

Resumption of uninterrupted breastfeeding post-procedure was present in 96.33% of all patients undergoing USGNA, while all (but one) of the patients undergoing ID could not resume uninterrupted breastfeeding. It was also found that both the procedures yielded complete resolution in a majority of the patients, and the fistula was a rare occurrence following ID, and no fistulas were noted following USGNA.

**Table 2: Outcomes of lactational breast abscess following incision & drainage vs. ultrasound-guided needle aspiration.**

Treatment Outcomes		Group A	Group B	p-value
<b>Uninterrupted Breast Feeding</b>	Present	01(3.45)	28(96.33)	< 0.01
	Absent	28(96.55)	02(6.66)	
<b>Complete Resolution</b>	Present	26(89.66)	28(93.33)	> 0.05
	Absent	03(10.34)	02(6.67)	
<b>Mammary Fistula</b>	Present	03(10.34)	-	> 0.05
	Absent	26(89.66)	30(100)	

Values are given as n(%).

## Discussion

The lactational breast abscess incidence has decreased across the world from 39.5% to 11% reported in recent years due to improved hygiene, early antibiotic administration and timely care<sup>14</sup>. A majority of the patients enrolled in this study faced many predisposing factors like lower socioeconomic class, poor host resistance, incorrect nursing technique, and delay in treatment provision<sup>4</sup>. A thought-provoking observation noted in this research was that in 84.75% of the patients, fever was among the chief presenting complaints, hinting at an underlying infection

(mastitis). However, literature is alienated on the matter, with some reporting a high incidence of fever<sup>4</sup>, while other more recent evidence suggesting otherwise<sup>12</sup>.

The rate of achieving a good outcome is reported in the literature to be up to 100% with aspiration without ultrasound guidance<sup>13</sup>. In this research, USGNA was shown to be an effective treatment for lactational breast abscess, and no confounder showcased any statistically measurable effect on regression. Our results support the stance by Somani et al. that whenever and wherever the facility of ultrasound is available, needle aspiration

may be tried as the first line of therapy<sup>14</sup>. Current study showcased that abscesses diameter ranged from 2-10 cm, which is somewhat smaller in comparison to previous research reported to be up to 15 cm. Our research revealed (as already established) that USG-guided catheter treatment of large and recurrent abscesses is safe, tolerated well and treated with ease<sup>15</sup>.

The adverse events encountered during and following "incision and drainage" include painful breast wounds, recurrent mastitis, open wounds needing regular dressing, breastfeeding inability, probable injuries to the milk duct that may result in "milk fistula," and resultant unsightly scars<sup>10</sup>. Our research, too, showed that adverse events are more common following treatment using this modality. USGNA manifests smaller, less prominent scars, affects breastfeeding to a very limited extent, and seldom necessitates the use of general anesthesia or merits hospitalization for long periods. Additionally, USGNA is more cost-effective. The risk of formation of fistula too is lesser with this minimally invasive procedure<sup>8</sup>. Our study also emphasized that there was no account of patients developing mammary fistula following USGNA as well focused on the functional outcomes like uninterrupted breastfeeding rather than just complete resolution. When compared between groups, USGNA had better functional outcomes. Also reflected in previous researches that patients always accept this modality over others due to the better functional progression it yields<sup>16,17</sup>.

The strength of this research lies in the fact that it yields direct comparative evidence from a similar set of surgeons at a uniform study setting, thus minimizing confounders, effect modifiers and sources of bias. However, the small sample size and limited follow-up was a weakness. Additionally, the surgeons' preference and their input regarding which technique they consider best were not inquired.

## Conclusion

After careful consideration, it can be concluded USGNA yields a better outcome in treating lactational breast abscess in terms of lesser

incidence of adverse outcomes such as fistula formation. The complete resolution and early resumption of uninterrupted breastfeeding are more promising in this procedure.

## Conflicts of Interest

The authors have declared that no competing interests exist.

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