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Original Research Article

A COMPARATIVE STUDY OF THE OUTCOME OF NEEDLE ASPIRATION VERSUS INCISION AND DRAINAGE IN THE TREATMENT OF LACTATIONAL BREAST ABSCESS

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ABSTRACT

Background: *Lactational breast abscess is a common complication of puerperal mastitis and remains an important cause of morbidity among breastfeeding women, particularly in low and middle-income countries. Conventional incision and drainage has traditionally been regarded as the standard treatment; however, ultrasound-guided needle aspiration has emerged as a minimally invasive alternative with potential advantages related to recovery, cosmesis, and wound morbidity.* ***Objective:*** *To compare the clinical outcomes of ultrasound-guided needle aspiration and conventional incision and drainage in the management of lactational breast abscess.* ***Study Design:*** *Randomised controlled trial.* ***Settings:*** *Aziz Bhatti Shaheed Teaching Hospital, Gujrat, Pakistan.* ***Duration of Study:*** *March 3, 2025, to June 3, 2025.* ***Methods:*** *A total of 102 lactating women with clinically and ultrasonographically confirmed breast abscesses were enrolled and randomly assigned to incision and drainage (Group A, n = 51) or ultrasound-guided needle aspiration (Group B, n = 51). Cure, defined as complete clinical resolution with ultrasonographic confirmation, was the primary outcome in the aspiration group. Secondary outcomes included procedure duration, need for repeat intervention, post-procedural complications, and conversion to incision and drainage. Statistical analysis was performed using SPSS version 25, with p-values <0.05 considered statistically significant.* ***Results:*** *Baseline demographic and clinical variables were comparable between groups. The mean procedure time was significantly shorter in the needle aspiration group (9.6 ± 3.2 minutes) compared with the incision and drainage group (18.9 ± 4.3 minutes) (p < 0.001). Definitive cure was achieved in 94.1% of patients undergoing incision and drainage and 80.4% of those treated with needle aspiration (p = 0.04). Repeat procedures were required in 56.9% of patients in the needle aspiration group, whereas none were necessary in the incision and drainage group (p < 0.001). Wound infection and delayed wound healing were significantly more frequent following incision and drainage, while residual abscess on follow-up ultrasonography was more common after needle aspiration. Conversion to incision and drainage was required in 13.7% of patients initially managed with needle aspiration.* ***Conclusion:*** *Incision and drainage provide higher definitive cure rates in lactational breast abscesses but are associated with increased wound-related morbidity. Ultrasound-guided needle aspiration offers shorter procedure time and fewer wound complications, but is limited by lower cure rates and a higher rate of repeat interventions. Management should be tailored to the characteristics of the abscess, available resources, and patient preferences.*

Keywords: Lactational Breast Abscess, Ultrasound-Guided Needle Aspiration, Incision And Drainage, Randomized Controlled Trial, Breastfeeding Complications

INTRODUCTION

Lactational breast abscess is a common complication among breastfeeding women, resulting from untreated mastitis and often leading to significant morbidity. The condition manifests as a localised collection of pus due to bacterial infection and is typically associated with factors such as nipple trauma and inadequate breastfeeding techniques (1). Globally, the incidence of lactational breast abscess ranges from 0.4% to 11%, with notable prevalence in developing countries where socio-economic factors exacerbate hygiene and healthcare access issues (2,3). The challenge of managing this condition has necessitated exploring a range of therapeutic interventions, including traditional incision and drainage (I&D) and more contemporary approaches such as ultrasound-guided needle aspiration (UGNA).

Incision and drainage have long been considered the gold standard treatment for breast abscesses. This method involves surgically opening the abscess to allow pus drainage, which, while effective, is often associated with significant postoperative pain, longer healing times, and disruption of breastfeeding due to wound care (4-6). In contrast, ultrasound-guided needle aspiration has emerged as a less invasive alternative that can reduce recovery time and lead to better maternal satisfaction (7). Studies have evidenced that UGNA not only minimises physical trauma but also preserves the structural integrity of the breast, which is crucial for breastfeeding women (8,9).

Several empirical studies have assessed the outcomes of these two modalities. For instance, Dar et al. reported a statistically significant reduction in healing time for patients undergoing UGNA compared with those treated with I&D, with a mean difference of 3.5 days (2). Similarly, Fardhus et al. reported that patients undergoing needle aspiration had lower pain levels and fewer complications than those undergoing surgical drainage (3). The recurrence rate also provides a critical lens through which to evaluate these techniques: studies indicate that the likelihood of recurrent abscess formation varies significantly with treatment modality, with some reports suggesting that I&D carries a recurrence rate of up to 25%, compared to a markedly lower rate of 10% associated with UGNA (4,10).

Emerging evidence is compelling healthcare providers to reflect on the traditional approach to treating lactational breast abscesses. While historical practices emphasized I&D, contemporary research underscores the effectiveness and acceptability of UGNA as a first-line treatment. Hence, this study aims to compare outcomes of needle

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aspiration versus incision and drainage for treating lactational breast abscesses, focusing on healing time, pain levels, complication rates, and patient satisfaction.

In Pakistan, the context for managing lactational breast abscesses presents unique challenges. High rates of poverty and lack of maternal education influence healthcare-seeking behavior, often leading to delays in presenting with breast issues (11,12). This delay further complicates management and may increase the risk of abscess development and recurrence. The findings of this study, which benchmark UGNA's effectiveness against I&D, could inform clinical practice guidelines and ultimately improve maternal health outcomes in Pakistan, particularly in underserved urban and rural areas.

The rationale for this comparative study is rooted in the urgent need to optimize clinical practices for treating lactational breast abscesses among Pakistani women. With breastfeeding being culturally significant, any systemic improvement in management may enhance maternal well-being and reduce complications associated with breastfeeding. Understanding treatment efficacies through a localized lens is essential, particularly as health disparities in Pakistan persist due to various socio-economic factors (13,14). This study could additionally provide a platform for innovation in breast healthcare within developing contexts.

METHODOLOGY

This randomized controlled trial was conducted in the general surgical emergency department of Aziz Bhatti Shaheed Teaching Hospital, Gujrat, Pakistan, over 3 months, from 3 March 2025 to 3 June 2025, following formal approval of the study synopsis and ethical clearance from the institutional review board. The study population comprised lactating women presenting with clinically and ultrasonographically confirmed breast abscess. A total of 102 participants were enrolled using a non-probability, consecutive sampling technique. The sample size was calculated based on previously reported cure rates of approximately 97 percent for incision and drainage and 82 percent for needle aspiration, with a confidence level of 95 percent and adequate statistical power to detect a clinically meaningful difference between the two intervention groups. Written informed consent was obtained from all participants prior to enrollment, and confidentiality of patient information was ensured throughout the study period.

Eligible participants were lactating mothers aged 18 years and above with a diagnosis of breast abscess confirmed on clinical examination and ultrasonography. Clinical diagnosis was based on the presence of localized breast pain, swelling, erythema, warmth, and a fluctuant mass. At the same time, ultrasonography was used to confirm the presence of an abscess cavity, measure the abscess size, and identify loculations. Patients with non-lactational breast abscesses, those with significant comorbid conditions such as diabetes mellitus or bleeding disorders, and those with clinical or radiological suspicion of malignancy or chronic inflammatory breast conditions such as tuberculosis were excluded to minimize confounding and ensure homogeneity of the study population. After enrollment, participants were randomly assigned to two treatment groups using a lottery to ensure equal probability of assignment. Group A underwent conventional incision and drainage, while Group B received ultrasound-guided needle aspiration. All procedures were performed by consultant surgeons or, under their direct supervision, by postgraduate residents, in accordance with standardized institutional protocols. Incision and drainage were carried out under local anesthesia or sedation when required, with the abscess cavity opened adequately and the wound left open to heal by secondary intention. Needle aspiration was performed under local anesthesia with proper aseptic precautions, and correct needle placement within the abscess cavity was confirmed by aspiration of purulent material. Repeat aspiration was performed when a residual cavity or fluid collection was detected on follow-up ultrasonography.

Baseline demographic and clinical data were recorded on a predesigned proforma, including age, duration of lactation, duration of symptoms, abscess size, abscess location, presence of loculations, and volume of pus aspirated. Procedural details, including the type of anesthesia used, procedure time, the number of aspirations required, and any immediate complications, were documented. All participants received appropriate antibiotic therapy according to institutional guidelines and were provided standardized supportive care, including analgesia and breastfeeding counseling where applicable. Patients were followed weekly for 3 consecutive weeks, with clinical assessment and ultrasonographic evaluation to assess resolution of the abscess cavity, persistence of inflammation, wound-healing status in the incision-and-drainage group, and the presence of any residual collection in the needle-aspiration group.

The primary outcome measure was cure, defined as complete resolution of clinical signs and symptoms, including pain, swelling, erythema, tenderness, and fever. In the needle aspiration group, cure required additional ultrasonographic confirmation of the absence of a residual cavity. In contrast, in the incision and drainage group, cure was defined as the presence of healthy granulation tissue in the wound and clinical resolution of infection. Secondary outcomes included procedure time, number of interventions required, residual abscess on ultrasonography, and procedure-related complications, such as wound infection, delayed healing, or the need for conversion to incision and drainage, in the needle aspiration group. To minimize bias and control for potential confounders, stratification was performed by age, abscess size greater than 4 cm, and the presence of loculations on ultrasonography.

All collected data were entered and analyzed using SPSS version 25. Quantitative variables, such as age, abscess size, symptom duration, and procedure time, were reported as means and standard deviations. In contrast, qualitative variables, including cure rates, complication rates, type of anesthesia used, and need for repeat procedures, were reported as frequencies and percentages. Comparisons between the two treatment groups were performed using appropriate inferential statistical tests: the chi-square test for categorical variables and independent-samples t-tests or nonparametric equivalents for continuous variables. A p-value of less than 0.05 was considered statistically significant. The methodology was designed in accordance with international reporting standards for randomized controlled trials to ensure methodological rigor, reproducibility, and suitability for publication in high-impact surgical and breastfeeding-related journals.

RESULTS

The mean age of participants was comparable between the two groups, with women in the incision and drainage group having a mean age of 28.1 ± 4.7 years and those in the needle aspiration group having a mean age of 27.6 ± 4.5 years. The proportion of women aged 30 years or younger was slightly higher in the needle aspiration group (68.6%) compared with the incision and drainage group (62.7%). Primiparous women constituted 41.2% of Group A and 37.3% of Group B. The mean duration of lactation was 9.8 ± 3.1 weeks in Group A and 10.1 ± 3.4 weeks in Group B, while the mean duration of symptoms was 5.4 ± 1.8 days and 5.2 ± 1.6 days, respectively. The mean abscess size was 4.6 ± 1.1 cm in the incision and drainage group and 4.4 ± 1.2 cm in the needle aspiration group, with abscesses larger than 4 cm observed in 56.9% and 52.9% of patients, respectively. Ultrasound loculations were present in 35.3% of Group A and 31.4% of Group B, with no statistically significant difference between groups, indicating comparable baseline characteristics. The mean procedure time was significantly longer in the incision and drainage group (18.9 ± 4.3

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minutes) than in the needle aspiration group (9.6 ± 3.2 minutes). Local anesthesia was used in 86.3% of patients undergoing incision and drainage, whereas all patients in the needle aspiration group received local anesthesia. The mean volume of pus evacuated was higher in the incision and drainage group (38.4 ± 9.7 ml) than in the needle aspiration group (31.6 ± 8.9 ml). More than one procedure was required in 56.9% of patients treated with needle aspiration. In contrast, none of the patients in the incision and drainage group required repeat intervention, reflecting procedural efficiency, whereas the minimally invasive approach required repeated sessions.

Cure was achieved in 94.1% of patients treated with incision and drainage, compared with 80.4% of those treated with needle aspiration, demonstrating a significantly higher definitive cure rate with the surgical approach. Treatment failure was observed in 5.9% of the incision and drainage group and 19.6% of the needle aspiration group, indicating a greater likelihood of incomplete resolution in patients managed with aspiration alone within the three-week follow-up period.

Post-procedural complications differed between the two treatment modalities, with wound infection occurring more frequently in the incision and drainage group (17.6%) compared with the needle aspiration group (3.9%). Delayed wound healing was also more common after incision and drainage (21.6% vs 5.9%). In contrast, residual abscess on follow-up ultrasound was observed more often in the needle aspiration group (25.5%) than in the incision and drainage group (7.8%). Conversion to incision and drainage was required in 13.7% of patients initially managed with needle aspiration, highlighting the need for surgical intervention in a subset of cases.

Table 1: Baseline Demographic and Clinical Characteristics of Study Participants (n = 102)

Variable	Group A: I and D (n = 51)	Group B: Needle Aspiration (n = 51)	p-value
Age (years), mean ± SD	28.1 ± 4.7	27.6 ± 4.5	0.54
Age ≤ 30 years, n (%)	32 (62.7)	35 (68.6)	0.52
Primiparous women, n (%)	21 (41.2)	19 (37.3)	0.69
Duration of lactation (weeks), mean ± SD	9.8 ± 3.1	10.1 ± 3.4	0.63
Duration of symptoms (days), mean ± SD	5.4 ± 1.8	5.2 ± 1.6	0.58
Abscess size (cm), mean ± SD	4.6 ± 1.1	4.4 ± 1.2	0.41
Abscess > 4 cm, n (%)	29 (56.9)	27 (52.9)	0.68
Loculations on ultrasound, n (%)	18 (35.3)	16 (31.4)	0.67

Table 2: Procedural Characteristics in the Two Treatment Groups

Variable	Group A: I and D (n = 51)	Group B: Needle Aspiration (n = 51)	p-value
Procedure time (minutes), mean ± SD	18.9 ± 4.3	9.6 ± 3.2	<0.001
Local anesthesia used, n (%)	44 (86.3)	51 (100)	0.01
Mean pus aspirated (ml), mean ± SD	38.4 ± 9.7	31.6 ± 8.9	0.002
More than one procedure required, n (%)	0 (0)	29 (56.9)	<0.001

Table 3: Comparison of Cure Rates Between Treatment Groups

Outcome	Group A: I and D (n = 51)	Group B: Needle Aspiration (n = 51)	p-value
Cure achieved, n (%)	48 (94.1)	41 (80.4)	0.04
Treatment failure, n (%)	3 (5.9)	10 (19.6)	

Table 4: Post-procedural Complications in the Two Groups

Complication	Group A: I and D (n = 51)	Group B: Needle Aspiration (n = 51)	p-value
Wound infection, n (%)	9 (17.6)	2 (3.9)	0.03
Delayed wound healing, n (%)	11 (21.6)	3 (5.9)	0.02
Residual abscess on ultrasound, n (%)	4 (7.8)	13 (25.5)	0.01
Need for conversion to I and D, n (%)	–	7 (13.7)	–

DISCUSSION

versus needle aspiration for the management of lactational breast abscesses. Our findings indicated a higher definitive cure rate and procedural efficiency in the I&D group, yet notable complications were observed with this approach. These results align with and differ from those of several prior studies, shedding light on the complexities of managing breast abscesses. Our study revealed a cure rate of 94.1% in the I&D group compared with 80.4% in the needle aspiration group, with a statistically significant difference (p = 0.04). Previous research by Pal et al. and Dar et al. corroborates these findings, showing superior I&D success rates for treating breast abscesses (15,16). Pal et al. noted that I&D not only facilitates complete drainage of the abscess but also offers rapid symptom resolution, which is crucial for lactating women (15). Conversely, our results align with those of Dayal and Lal, who observed that while needle aspiration may initially seem less invasive and consequently preferred by patients, it often necessitates multiple procedures, resulting in a higher treatment failure rate (17).

In our study, 56.9% of patients in the needle aspiration group required more than one procedure, underscoring the challenges associated with this technique. The procedural times reflect significant differences, with I&D taking longer (18.9 min) than needle aspiration (9.6 min) (p < 0.001). This observation is consistent with earlier work by Afzal et al., who noted similar trends in procedural efficiency favoring minimal-intervention techniques, while also pointing out that the shorter duration should not compromise the treatment's thoroughness (18,19).

It is noteworthy that, while I&D demands more time, the need for subsequent procedures in needle aspiration likely increases its overall time burden. Interestingly, complications highlight the trade-offs between the two approaches. Our findings indicated a 17.6% incidence of wound infections following I&D and a 3.9% rate for needle aspiration (p = 0.03). Delayed wound healing was observed in 21.6% of the I&D group compared to 5.9% in the needle aspiration group (p = 0.02). These results are consistent with those of Chen et al., who reported that traditional I&D approaches are associated with a higher incidence of complications and prolonged recovery times

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(20). On the contrary, residual abscesses were more common in the needle aspiration cohort (25.5% vs 7.8% in I&D), consistent with previous reports highlighting the risk of insufficient drainage with aspiration techniques (21, 22).

The clinical implications of our findings are substantial. Given the high definitive cure rates and the absence of repeat interventions in the I&D cohort, this approach is warranted in selected cases, especially for larger abscesses. However, the increased incidence of wound complications necessitates careful patient selection and adequate counseling about potential risks. The findings underscore the need for tailored management strategies that account for abscess size, loculations, and patient factors, including age and parity, as indicated by our baseline demographic comparisons (23). Looking ahead, further research should explore the potential to advance minimally invasive techniques, such as ultrasound-guided therapies, to bridge the efficacy-safety dichotomy observed with traditional methods. Research by Li et al. discusses the promise of integrating ultrasound guidance in aspiration techniques to increase precision and effectiveness, thereby potentially improving outcomes while minimizing complications (24).

Ultimately, establishing standardized management protocols that encompass patient-centered care, procedural preferences, and clinical outcomes will enhance treatment effectiveness for lactational breast abscesses. In conclusion, our study elucidates critical insights into the management of lactational breast abscesses, reinforcing the effectiveness of I&D in achieving higher cure rates. However, it also highlights the importance of balancing efficacy with safety, raising the question of optimal treatment strategies tailored to individual patient needs. Future investigations should aim to optimize existing methodologies and explore emerging techniques that could offer the best of both worlds: efficacy and minimal invasiveness.

CONCLUSION

In this randomized controlled trial, incision and drainage demonstrated superior definitive cure rates compared with ultrasound-guided needle aspiration in the treatment of lactational breast abscess, albeit at the cost of higher wound-related morbidity and prolonged recovery. Ultrasound-guided needle aspiration, while less invasive and associated with fewer wound complications, required multiple sessions and showed a higher rate of residual disease. These findings support a tailored treatment approach, with incision and drainage reserved for larger or loculated abscesses and ultrasound-guided aspiration considered for selected patients seeking minimally invasive management, particularly in resource-constrained settings.

DECLARATIONS

Data Availability Statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned. (IRBEC-MASHGJ-329-25)

Consent for publication

Approved

Funding

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

USMAN RAZA

Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, and final approval of manuscript.

Manuscript drafting.

ABID NAZIR

Manuscript revisions, critical input.

RABIA ASHRAF

Data entry, data analysis, and drafting an article.

MEHWISH RAZA

Conception of Study, Final approval of manuscript.

Study Design, Review of Literature.

REFERENCES

1. Fardhus M, Sharfuzzaman A, Dewan M, Kirttania D, Hasan A, Rab J. Comparison between aspiration and incision and drainage of breast abscess. J Surg Sci. 2020;22(1):11-15. https://doi.org/10.3329/jss.v22i1.44008
2. Hussain N, Khan I, Ahmad T, Parveen S, Malik M, Khan M. Comparison of the restoration of breastfeeding after percutaneous aspiration vs incision and drainage for management of breast abscess. J Liaquat Univ Med Health Sci. 2018;17(1). https://doi.org/10.22442/jlumhs.181710548
3. Chan X, Allen J, Gudi M, Lim G. A comparison of the outcomes of a novel technique of mini-incision and self-express for breast abscess with conventional techniques: a retrospective comparative cohort study. Ann Med Surg. 2023;85(5):1546-1549. https://doi.org/10.1097/MS9.0000000000000658
4. Chorma A, Pargi A, Yadav R. A comparative study of drainage of breast abscess by conventional incision and drainage versus suction drainage versus ultrasound-guided needle aspiration. Asian J Pharm Clin Res. 2022;15(11):29-31. https://doi.org/10.22159/ajpcr.2022.v15i11.45696
5. Thakral A, Prasad D. Comparative study between incision and drainage and sono-guided aspiration for the management of deep-seated breast abscess. J Evol Med Dent Sci. 2018;7(50):5343-5346. https://doi.org/10.14260/jemds/2018/1183
6. Ghunaim H. Percutaneous ultrasound-guided needle aspiration for management of breast abscesses: a review. J Med Radiat Sci. 2023;70(3):327-337. https://doi.org/10.1002/jmrs.682
7. Rathi C, Yeola M. Comparative study between open surgical drainage and closed technique of percutaneous aspiration under image guidance for management of breast abscess. J Pharm Res Int. 2021;33(33A):1-7. https://doi.org/10.9734/jpri/2021/v33i33a31765
8. David M, Handa P, Castaldi M. Predictors of outcomes in managing breast abscesses: a large retrospective single-center analysis. Breast J. 2018;24(5):755-763. https://doi.org/10.1111/tbj.13053
9. Ranjeesh V, Kotha S. A prospective comparative study of needle aspiration vs incision and drainage of lactational breast abscess. Int J Contemp Med Res. 2018;5(5). https://doi.org/10.21276/ijcmr.2018.5.5.37
10. Li Y, Ma X. Risk factors for failure of ultrasound-guided fine-needle aspiration therapy for lactational breast abscess. Breastfeed Med. 2021;16(11):894-898. https://doi.org/10.1089/bfm.2021.0060
11. Abeysuriya V, Dodampahala S, Chandrasena L. Outcomes of breast abscesses during lactation: a retrospective study. Sri Lanka J Obstet Gynaecol. 2023;45(3):125-129. https://doi.org/10.4038/sljog.v45i3.8084

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12. Hassan S, Hiraj T, Nadeem A. Comparison of outcome in terms of recurrence of incision and drainage versus aspiration of breast abscess. Biol Clin Sci Res J. 2024;2024(1):783. https://doi.org/10.54112/bcsrj.v2024i1.783
13. Subramanianathan K, Euvalingam D, Reddy E. Diagnostic considerations in breast disorders and secondary bacterial infection. Indian J Public Health Res Dev. 2020;11(9). https://doi.org/10.37506/ijphrd.v11i9.10983
14. Ali M, Hannan M, Shahid S, Kubba T, Roy D. Ultrasound-guided needle aspiration of breast abscess as an alternative to surgical incision and drainage. Taj J Teach Assoc. 2020;33(1):1-4. https://doi.org/10.3329/taj.v33i1.49817
15. Pal B, Shaikh O, Vijayakumar C, Prakash S, Balasubramanian G, Kumbhar U. A randomized controlled trial comparing ultrasonography-guided needle aspiration and surgical drainage for the management of breast abscess. Cureus. 2023. https://doi.org/10.7759/cureus.50956
16. Dar S, Siddique S, Qureshi U, Nawaz S. Ultrasound-guided needle aspiration versus incision and drainage for lactational breast abscess: a randomized controlled trial. Prof Med J. 2022;29(7):938-942. https://doi.org/10.29309/tpmj/2022.29.07.6723
17. Dayal P, Lal M. A comparative study of outcomes in management of breast abscess by ultrasound-guided needle aspiration against incision and drainage. Int J Med Biomed Stud. 2019;3(4). https://doi.org/10.32553/ijmbs.v3i4.201
18. Afzal S, Bashir A, Shahzad H, Masroor I, Sattar A. Ultrasound-guided percutaneous aspiration for the treatment of breast abscess at a tertiary care center in the developing world. Cureus. 2022. https://doi.org/10.7759/cureus.30865
19. Patil S, Vagger V. To compare the effectiveness of conventional incision and drainage versus USG-guided percutaneous needle aspiration in the treatment of breast abscess. J Evol Med Dent Sci. 2019;8(17):1358-1361. https://doi.org/10.14260/jemds/2019/302
20. Chen C, Luo L, Gao D, Qu R, Guo Y, Huo J, et al. Surgical drainage of lactational breast abscess with ultrasound-guided Encor vacuum-assisted breast biopsy system. Breast J. 2019;25(5):889-897. https://doi.org/10.1111/tbj.13350
21. Kataria R, Singh S, Ahmad F, Kumar S, Parihar A. A randomized controlled trial comparing repeated ultrasound-guided aspiration versus suction catheter drainage in breast abscess. Int Surg J. 2019;6(9):3165. https://doi.org/10.18203/2349-2902.isj20193682
22. Zhang V, Gao Y, Qin J, Li X, Jiang F, Cai Y, et al. Breast microecology improvement using probiotics following needle aspiration in patients with lactational breast abscess: a multicenter randomized double-masked controlled trial. Sci Rep. 2022;12(1). https://doi.org/10.1038/s41598-022-20756-w
23. Chandak U, Araujo P, Mitra A. A comparative study of liver abscess: therapeutic aspiration versus continuous catheter drainage. Int Surg J. 2019;6(3):922. https://doi.org/10.18203/2349-2902.isj20190825
24. Li Y, Ma X, He X. Clinical characteristics of lactational breast abscess caused by methicillin-resistant *Staphylococcus aureus*: a hospital-based study in China. Int Breastfeed J. 2021;16(1). https://doi.org/10.1186/s13006-021-00429-6.

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