

Needle Aspiration vs Incision and Drainage of Lactational Breast Abscess: A comparative study

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ABSTRACT

Aim: To compare the Needle Aspiration vs Incision and Drainage of Lactational Breast Abscess.

Methods: This prospective study was conducted on 100 patients with the primary diagnosis of lactational breast abscess were included in this study. The patients were then divided into two treatment groups A and B with 50 patients in each group. Patients with abscesses of size < 5cm and lactational breast abscess were included in the study. Patients with co-morbid conditions were excluded from the study.

Results: Our study reported a total of 60 abscesses in the lower quadrant. Even if the abscess was located in more than one quadrant, we had considered that quadrant of the abscess which had the maximum diameter. In the study 54% of the patients were primipara and 46% were multipara. Maximum number of patients (62) had Lower Segment Caesarean Section. In our study more number of patients were presented within the first 6 weeks (86%). In our study we had noticed 64% of the abscesses grow Methicillin resistant *Staphylococcus aureus* (MRSA). This is followed by *Staphylococcus aureus* (24%). Other organisms identified in the culture are *Corynebacterium diphtheria*, *S.agalactea* and *S.epidermidis*. The mean duration of healing in group A and group B was 19 days and 30 days respectively. Out of 50 patients in group A only 43 were successfully treated by aspiration. In group B all the 50 patients were treated by incision and drainage. The failure rate of aspiration was 14%.

Conclusion: We concluded that the breast abscess in patients with diameter of less than 7 cm can be treated with needle aspiration successfully and with a good cosmetic outcome.

Keywords: Needle aspiration, Breast abscess

Introduction

Periperal or lactational breast abscess is a common problem in lactating mothers causing significant morbidity. The incidence of breast abscesses in lactational mastitis ranges from 0.4 to 11% in Indian subcontinent.¹ Risk factors for lactational breast abscess are primipara, gestational age >40 weeks and history of mastitis. A stage of mastitis precedes abscess formation. Sonography became an important diagnostic modality in the diagnosis of breast abscess which differentiates between mastitis and abscess.²

Breast abscess is one of the commonest form of abscess surgical emergencies usually seen in lactating woman.^{3,4} The frequency of occurrence is highly related to pregnancy and mainly caused due to nipple piercing by a child during feeding and bacterial colonization due to improper nursing technique and incomplete emptying of the breast.^{5,6} Immediate diagnosis and treatment is necessary if breast feeding is to be continued and for the prevention of further complications.⁷

Treatment of breast abscesses is a difficult clinical problem.⁸ At an early stage, acute mastitis may be treated by the use of appropriate antibiotics. Once an abscess is established, management involves incision and drainage by providing general anesthesia however this is associated with regular dressing, prolonged healing time, difficulty in breast feeding, , possible unsatisfactory cosmetic outcome, rupture and recurrent breast abscess.⁹ Hence now-a-days treatment of breast abscess by repeated needle aspiration with or without ultrasound guidance gained importance.^{10,11} This procedure has been used successful and is associated with less recurrence, excellent cosmetic result and has less costs.¹²

Material and methods

This prospective study was conducted on patients with the primary diagnosis of lactational breast abscess were included in this study. Data of 100 patients with clinical features suggestive of puerperal breast abscess (fever, pain, swelling, redness of breast associated with localized tenderness) were studied. The diagnosis was confirmed by ultrasound evidence of liquefaction with long axis diameter for consideration of size. The patients were then divided into two treatment groups A and B with 50 patients in each group. Patients with abscesses of size <5cm and lactational breast abscess were included in the study. Patients with co-morbid conditions were excluded from the study.

Group A: Patients with group A, underwent percutaneous needle aspiration as an outpatient basis using 18 gauge needle attached with 20 cc syringe. All the patients were encouraged for breast feeding. Further aspirations if needed were done at an interval of 5-7 days till the resolution of signs and symptoms. There are two end points in the management, when no further pus is aspirated and confirmation of absence of residual abscess by ultrasound done after 2-3 days after 1st endpoint. Failure of treatment in group was declared on the basis of persistence of symptoms and signs after 5 aspirations. Amoxicillin + Clavulanic acid was given to all the patients till culture sensitivity report. Antibiotic is stepped up if the culture shows resistance to amoxicillin clavulanate.

Group B: Patients with group B underwent open surgical drainage under general anaesthesia as an inpatient basis. Injection Amoxicillin + clavulanic acid was given to the patient on the day of surgery and shifted to oral medication on discharge. All the patients stayed for 1 day in the hospital. Daily dressing with packing gauze was done till the resolution of sign and symptoms and complete healing of wound as end point of management. All patients were encouraged for breast feeding from opposite side with expression of milk on the same side. Pain is measured by Visual pain analog scale.¹³

Statistical analysis

Statistical analysis of the data was carried out with the help of SPSS 24.0 for Windows package (SPSS Science, Chicago, IL, USA). P value < 0.05 was considered significant.

Results

In our study maximum number of patients were in above 30 years and the smallest abscess was of size 2 cm and the largest was 5cm (table-1 and 2). In our study there were 42 right sided and 58 left sided abscesses. Our study reported a total of 60 abscesses in the lower quadrant. Even if the abscess was located in more than one quadrant, we had considered that quadrant of the abscess which had the maximum diameter (table-3). In the study 54% of the patients were primipara and 46% were multipara. Maximum number of patients (62) had Lower Segment Caesarean Section. In our study more number of patients were presented within the first 6 weeks (86%) (table-4). In our study we had noticed 64% of the abscesses grow Methicillin resistant Staphylococcus aureus (MRSA). This is followed by Staphylococcus aureus (24%). Other organisms identified in the culture are Corynebacterium diphtheria, S. agalactea and S. epidermidis (table-5). The mean duration of healing in group A and group B was 19 days and 30 days respectively. Out of 50 patients in group A only 43 were successfully treated by aspiration. In group B all the 50 patients were treated by incision and drainage. The failure rate of aspiration was 14%.

Table 1. Age distribution of patients in group A and group B

Age in years	Group A	Group B	Total
Below 25	10	8	18
25-30	22	15	37
Above 30	18	27	45

Table 2 Size of abscess between Group A and Group B

	Group A	Group B	Total
2 cm	3	0	3
3 cm	16	4	20
4 cm	17	9	26
5 cm	14	37	51

Table 3. Comparison of the quadrant of abscess in group A and group B

	Group A	Group B	Total
UIQ	11	5	16
UOQ	13	11	24
LIQ	13	13	26
LOQ	13	21	34

UIQ – Upper Inner Quadrant; UOQ – Upper Outer Quadrant; LIQ – Lower Inner Quadrant; LOQ – Lower Outer Quadrant

Table 4 Comparison of onset of symptoms in group A and group B

	Group A	Group B	Total
Below 6 weeks	40	46	86
7-10	7	3	10

Above 10	3	1	4
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Table 5 Comparison of organism isolated in group A and group B

	Aspiration	I and D	Total
S.aureus	12	12	24
MRSA	29	35	64
Sterile	6	2	8
Other	3	1	4

Discussion

In our study the youngest patient was 21 years and the oldest was 36 years old. The mean age of all the patients in the study was 29 years. The mean age was different in different studies.¹⁴⁻¹⁸ Ulitzsch et al¹⁶ from Sweden and AF Christensen et al¹⁷ from Denmark had reported 32 years of mean age in their study. This implies the age of pregnancy in the European countries is above 25 years. In Gojen Singh et al he considered non lactating patients which was the reason for the mean age of 32 years in his study.¹⁸

In our study the smallest abscess was of size 2cm and the largest was 5cm. Based on success rate with respect to size of abscess in multiple studies around the world we had decided the cut off point for maximum size to be 5cm.¹⁸⁻²¹ Site of abscess

Our study reported a total of 60 abscesses in the lower quadrant. Studies of Singh et al¹⁸ and Chandika et al²² reported most of the breast abscesses in the upper outer quadrant. The reason for the observation in our study might be because the milk from the lower quadrant of the breast would have to move against the gravity and has more chance of stasis of the milk in the ducts of lower quadrant. Mastitis and abscesses occurs when there is milk stasis. Secondly the sample size is too small to reach a conclusion, so it might be just an observation in our study which requires further evaluation.

In our study 54% of the patients were primipara. This observation of our study very well corroborates with the data of different studies.²² Kamal Kataria²³ et al from said that the risk factors for the formation of breast abscess were first pregnancy, mastitis, pregnancy more than 41 weeks. The reason was in primipara because of the lack of experience regarding the positioning of the baby, nipple areola care and poor hygiene predisposes for the formation of breast abscesses. This was collaborated from the data around the world. % of the patients in my study underwent caesarean section as against 38% of normal vaginal delivery. High percentage of breast abscesses in their group can be explained by the fact that operative procedure with anaesthesia, post operative analgesia and drowsiness, difficulty in sitting up to breast feed, delay in initiation of breastfeeding. No study had reported any relation between the mode of delivery with the development of breast abscesses.

In our study more number of patients were presented within the first 6 weeks(86%). Kamal Kataria et al²³ said that most of the lactational abscesses occurs during 2 periods within first 4 weeks of breast feeding due to inexperience and secondly after 6 months due to trauma to the nipple by the teeth of the infant. Dieter Ulitzsch et al²⁰ reported a mean time of 5.4 weeks for the development of abscess after delivery.

In our study we noticed 64% of the abscesses grow Methicillin resistant Staphylococcus aureus(MRSA). This is followed by Staphylococcus aureus(24%). All the previous studies reported that Staphylococcus aureus was the most common organism found in the cultures of breast abscess. Many other studies also confirmed that the most common organism obtained in culture was S.aureus.²⁴⁻²⁷ Residual abscess

Kaushal S et al²⁰ in their study found 3 patients with recurrence of the abscess.

Chandika et al²² in their study noticed no recurrence in the patients treated with aspiration but he noticed recurrences in incision and drainage group.

Sarhan HH in their study said the importance of ultrasound in the follow up to see for residual abscess in the absence of clinically evident abscess.²⁸ Elagili et al²⁵ concluded multiloculated abscess associated with approximately 50% failure to cure by aspiration. Hook²⁹ et al in his study concluded that abscess of size > 3cm is difficult to treat by aspiration. Kaushal S et al²⁰ and many others¹⁵ noticed a failure rate of 17%. Smaller size of the abscess can be treated by aspiration and larger sized abscesses needed incision and drainage²⁶

Imperiale et al³⁰ in their study said the cosmetic result was optimal in all cases. Kaushal S et al²⁰ said that all the patients who underwent incision and drainage complained of an ugly scar. Dieter Ullitzsch et al¹⁶ and Singh et al¹⁸ in their study reported 96% of patients treated by aspiration were satisfied by the cosmetic results.

According to Chandika et al²² needle aspiration was a highly accepted modality. The high acceptance rate may be because of the convenience of the procedure which was an outpatient procedure and had no wound to nurse on and absence of scar.

The success rate of needle aspiration in our study is 86%. This correlated with the success rate of certain studies. JM Dixon¹⁴ and Tewari M³¹ noticed a 100% success rate in their study. Many studies reported a success rate of 80 – 90%²⁰

Conclusion

We concluded that the breast abscess in patients with diameter of less than 7 cm can be treated with needle aspiration successfully and with a good cosmetic outcome.

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