

Original article;

COMPARATIVE STUDY BETWEEN USG GUIDED ASPIRATION AND INCISION AND DRAINAGE IN BREAST ABSCESS.

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BSTRACT

Background: Breast abscess is defined as an acute inflammatory lump frequency of occurrence is highly related to pregnancy and caused due to nipple piercing by a child during feeding and bacterial colonization due to improper nursing technique and incomplete emptying of the breast.The present study compares the outcome and effectiveness of traditional treatment incision and drainage against needle aspiration in the treatment of breast abscess.

Methods: This is a comparative study carried out in department of general surgery,smt SCL HOSPITAL, affiliated with s.m.t.N.H.L.Medical college,AHMEDABAD for a period of 1 years (june 2018 – may 2019). 50 female patients of age between 18-45 years were included in the study after taking written consent form. Of these 28 had undergone usg guided aspiration of the breast abscess (group A) and 22 had undergone incision and drainage of the breast abscess (groupB).

Results: The mean age of the female patients in the study were 23.9years.The mean healing time and cosmetic outcome was significantly very good in patients treated with needle aspiration compared to incision and drainage.

Conclusions: Breast abscess in patients with diameter of less than 5cm can be treated with needle aspiration successfully and with a good cosmetic outcome.

Keywords: Needle aspiration, Incision and drainage, Breast abscess.

INTRODUCTION

- ❖ Breast abscess is one of the commonest form of surgical emergencies usually seen in lactating woman^{1,2} 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^{3,4} Immediate diagnosis and treatment is necessary if breast feeding is to be continued and for the prevention of further complications⁵
- ❖ Treatment of breast abscesses is a difficult clinical problem⁶ 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 abscess⁷

- ❖ Hence now-a-days treatment of breast abscess by repeated needle aspiration with or without ultrasound guidance gained importance^{8,9} This procedure has been used successful and is associated with less recurrence, excellent cosmetic result and has less costs¹⁰

AIMS AND OBJECTIVES

- ❖ To compare the outcome and effectiveness of traditional treatment incision and drainage against usg guided needle aspiration in the treatment of breast abscess in terms of:
 - 1)time required for the procedure.**
 - 2)duration of hospital stay.**
 - 3) healing time.**
 - 4) cosmetic outcome .**



CLINICAL PICTURE OF BREAST ABSCESS.

MATERIAL AND METHODOLOGY

- ❖ A comparative study was carried out in department of general surgery in smt SCL HOSPITAL,affiliated with smt N.H.L MEDICAL COLLEGE for the period of 1 years (JUNE 2018- MAY 2019) and were followed up to a period of five months.

INCLUSION CRITERIA:

- 1) Patients diagnosed with breast abscess.
- 2) 50 female patients of age between 18-45 years.
- 2) patients give consent for procedure.

Exclusion criteria

- 1) Patients below 18 years and above 45 years of age.
- 2) suspicious lesions/malignancy esp. inflammatory carcinoma of breast
- 3) Immunocompromised patients.
- 4) breast abscess size greater than 10cm on ultrasonography.

- ❖ Patients taking participation in study were explained about the procedures, complications, cosmetic outcomes, healing time of incision and drainage and ultrasonography guided aspiration.
- ❖ Of these 50 patients 28 given consent for aspiration of the breast abscess (group A) and 22 given consent for incision and drainage of the breast abscess (group B).
- ❖ General examination including pulse rate, blood pressure and body temperature were recorded.
- ❖ Detailed examination of breasts was carried including increased temperature, tenderness, and discharge from the nipple, fluctuation and axillary lymphadenopathy.
- ❖ Blood investigation for complete blood count, random blood sugar, renal function test, and liver function test was done.
- ❖ ultrasonography, x-ray chest was done.
- ❖ The patients were treated with broad spectrum antibiotics (.amoxicillin + clavulanic acid) initially then with antibiotics according to the antibiotic sensitivity report of the pus, and with adequate analgesics.
- ❖ Clinical assessment of the patients about resolution of the abscess was then performed. For the incision and drainage group, dressing of the wound was done every day till the wound healed. For the aspiration group, re-aspiration was performed if abscess had not subsided.
- ❖ **Failure of aspiration in three episodes was regarded as failure of the procedure and abscess was incised.**
- ❖ The healing time was calculated from the day of intervention till the day the abscess was completely healed.
- ❖ **Complete healing was defined to be complete resolution of abscess on follow up ultrasonography scan in the aspirated group and that the incised group was from the day of intervention till the wound healed.**
- ❖ . The patients were assessed cosmetically on the basis of scar present or absent and the cosmetic acceptability of the scar was not studied.
- ❖ The postoperative pain was graded according to the numeric rating scale on every alternate day as **0-no pain, 1-3 mild pain, 4-6 moderate pain and 7-10 severe pain⁽¹⁵⁾.**

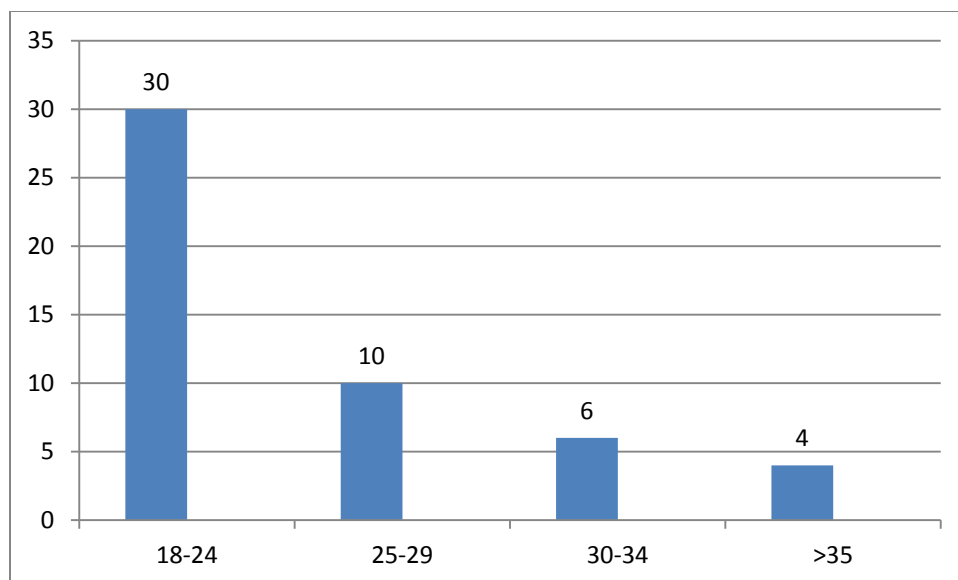


- ❖ **Needle aspiration:** An 18 G needle and a 20 ml syringe were used in each case. The breast was stabilized with the index finger and the thumb. The abscess was localized and needle was inserted in to the abscess from the area of normal skin without using any anesthesia under usguidence. Abscess was aspirated and the syringe was detached, pus aspirated was sent for culture and antibiotic sensitivity. The syringe was again attached to the needle, which was placed in the abscess. Similar procedure was carried out until no pus was aspirated. Aspiration was repeated if required until the mass had completely resolved or **until three needle aspirations** had been performed. If the abscess had not resolved by this time, this result was accepted as a treatment failure and the incision and drainage procedure was then implemented. The time required for the procedure in aspiration was calculated as soon as the surgeon has started the procedure of aspiration by stabilizing the abscess till no pus is aspirated. The puncture site is sealed with tincture benzoin application. ⁽¹³⁾⁽¹⁴⁾

- ❖ **Incision and drainage:** The abscess was localized and incised by radial breast incision under general anesthesia. All pus was evacuated, and loculi were broken down digitally or by using the artery forceps. The pus drained was sent for culture sensitivity. The wounds were left open to drain and dressed until the wound was clean and granulated. The healing time in this group was the time from incision and drainage to wound closure by secondary intention. The time required for the procedure in incision and drainage is calculated when the surgeon stabilizes the breast for incision to be taken till the final dressing application. ⁽¹¹⁾⁽¹²⁾

RESULTS

Figure no:1)Age distribution of patients in study.



- ❖ 66% (30) of patients found in 18 to 24 year age group. The mean age of patients in this study is 23.9 year.

Table 1) Association of lactating and non-lactating between two groups.

	GROUP A		GROUP B	
	NUMBER OF PATIENTS	PERCENTAGE	NUMBER OF PATIENTS	PERCENTAGE
LACTATING	25	91%	19	85%
NON LACTATING	3	9%	3	15%
TOTAL	28	100%	22	100%

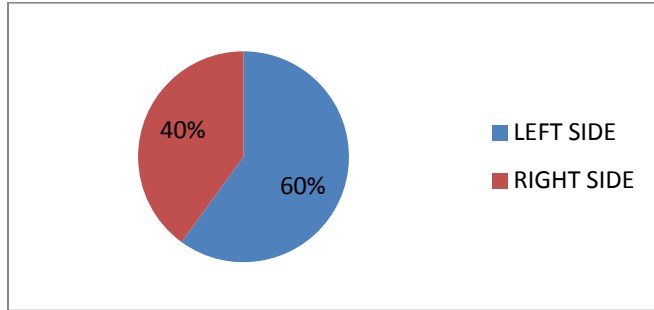
- By the time of treatment 91% of patients were lactating in group A while 9% were non lactating and in group B 85% were lactating while 15% were non lactating.

Table:2) Mean parity distribution was compared between the two groups.

	GROUP A	GROUP B	TOTAL
PRIMIPARA	19 (67%)	12 (54%)	31 (62%)
MULTIPARA	9 (33%)	10 (46%)	19 (38%)
TOTAL	28 (100%)	22 (100%)	50 (100%)

- According to our study 31 (62%) patients were primipara which is more compared to 19 (38%) patients were multipara.

Figure no 2)Distribution of breast abscess according to site.



- The distribution of breast abscess was more on the left side (60%) than on the right side in our study shown in above pie chart.

Table :3) Comparison of clinical features between two groups.

	SYMPTOMS			SIGNS	
	SWELLING	PAIN	FEVER	AXILLARY LYPHDENOPATHY	CRACKED NIPPLES
NUMBER OF PATIENTS	50(100%)	31(62%)	35(70%)	5(10%)	21(42%)

In our study the most common symptoms was swelling in the breast (100%),and the second most common symptom with which patients present was fever(70%).

Table no 4)Comparison of mean volume of pus between two groups.

	Mean Size of abscess
Group A	5.58cm
Group B	4.5cm

Ultrasonography was used to diagnose the breast abscess and to measure the accurate dimensions of the abscess and site. The mean USG size was 5.58 cm among group A and 4.50 cm seen among group B patients.

Table:5) Comparison of mean duration time taken for procedure and duration of stay in hospital between groups.

	Mean time taken for procedure	Mean duration of stay in hospital
GROUP A	10min	1day
GROUP B	30min	3days

Table:6) Comparison of culture-sensitivity between two groups.

	Group a	Group b	TOTAL
S. aureus	7(24%)	7(30%)	14(28%)
S.payogenus	3(10%)	5(25%)	8(16%)
No growth	18(66%)	10(45%)	28(56%)

Pus culture and sensitivity reports shows that 66% patients show no growth in group A while 45% patients in group B shows no growth. **Staphylococcus aureus** is the most common organism encountered (28%.)

Table :7) Comparison of mean healing time between two groups.

	MEAN HEALING TIME(days)
GROUP A	5
GROUP B	12

The mean healing time was 5 days among group A that was significantly less as compared to 12 days among group B.

Table :8)Comparison of cosmetic outcome between two groups.

	Scar	No scar
GROUP A	7	21
GROUP B	15	7

Cosmetic outcome was assessed at the time of follow up after the abscess was completely healed. The outcome was assessed as patients having scar over the breast or not.

Table no :9)Comparission of patients between two groups in terms of post operative pain.

	No pain	Mild pain	Moderate pain	Severe pain
GROUP A	3	20	3	2
GROUP B	1	1	15	5

In group A maximum patients(20) had mild pain while in group B maximum patients (15) had moderate pain.

Table12) attempts of usg guided aspiration in patients

1 attempt	8
2 attempt	12

Out of 28 patients taken for usg guided aspiration group 17 patients required more than one attempt of aspiration. Incision and drainage was required in 3 patients from group a after 3rd attempt of usg guided aspiration.

DISCUSSION

- In our comparative study, we compared two groups, aspiration and incision and drainage of the breast abscess in the management of it without control group.
- In our study all the patient's undergone ultrasonography to assess the size and location of breast abscess and to confirm the diagnosis of breast abscess, though it was diagnosed clinically.
- In the current report, breast abscesses most commonly affects women aged 18-24 year age group. similar results are found in rajiv et al study⁽¹⁶⁾
- Although breast abscess generally has been associated with mastitis and breast feeding, the results of our study and others like Martin JG et al⁽¹⁾ study indicate that abscess was also found in non-lactating women.
- In our study 31(62%) patients were primiparae and 19 (38%) were multiparae. Primiparous women was found to be at a greater risk for the development of breast abscess during lactation than multiparous women which is in accordance with the rajiv et al study⁽¹⁶⁾ in which 58% patients were primiparae and 42% were multiparae.
- Breast abscess is frequently located in the upper and outer quadrant, which fits with the fact that most of the breast parenchyma is located in this quadrant⁽¹⁰⁾ In our study, 60% of breast abscess was located in the left breast. Similar results found in erylimaz study⁽¹⁵⁾ in which 62% breast abscess located in left breast.
- The mean time required for both the procedures was assessed. From the results it was observed that patients undergoing aspiration required 10 minutes which was significantly less as compared to the mean time required for the procedure for patients undergoing incision and drainage, which was 30 minutes confirming that needle aspiration is very feasible, less time consuming, simple procedure which is also found in rajiv et al study⁽¹⁶⁾ in which mean time required for aspiration of breast abscess was 9 minutes
- We have 28% patients who had S. aureus positive reports. S. pyogenes which was present in only 16% patients. In rajiv et al study⁽¹⁶⁾ 56% patients had S. aureus positive reports. the difference between the two results can be due to different sample size, institution and epidemiological factors.
- healing was significantly faster in the aspirated group than in the incised group, similar results found in Martin JG et al⁽¹⁾ study.

- In the present study the cosmetic outcome was evaluated according to patient's satisfaction and scar mark. Patients underwent with aspiration, were satisfied with the cosmetic outcome, as there were no scars present after the treatment which is also found in rajiv et al study⁽¹⁶⁾.
- in our study out of 28 patient assigned to usg guided aspiration group 3(10%) patient were treated by incision and drainage after 3rd failed attempt of usg guided aspiration. In rajiv et al study⁽¹⁶⁾ failure rate was 13% which is not significantly different.

CONCLUSION

- The observation of our study shows that needle aspiration of the abscess with ultrasonographic guidance combined with antibiotics has a great value in the treatment of breast abscess even in abscess with large volume; although repeated aspiration are needed to obtain complete resolution, it is a feasible and easy procedure and does not require any mode of anesthesia and can be done on out-patient department basis.
- Breast abscess in selected group of patients with diameter of less than 5cm can be treated by aspiration successfully and with a good cosmetic outcome and less duration of hospital stay.
- Aspiration of the breast abscess can be successfully done as initial mode of management in the treatment in appropriately selected patients but incision and drainage remains the final resort for cure.

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Conflict of interest : NIL