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Original article

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

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Key words: USG GUIDED ASPIRATION, INCISION AND DRAINAIGE , BREAST ABSCESS.

ABSTRACT

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,SCL HOSPITAL,AHMEDABAD for a period of 2 years (june 2017 - june 2019). 50 female patients of age between 18-45 years were included in the study after taking written consent form. Of these 25 had undergone usg guided aspiration of the breast abscess (group A) and 25 had undergone incision and drainage of the breast abscess (group B).

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 complications[5]
- Treatment of breast abscesses is a difficult clinical problem[6] 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[7]
- 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 costs[10]

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 .

MATERIAL AND METHODOLOGY

- A comparative study was carried out in department of general surgery in SCL HOSPITAL,AHMEDABAD for the period of 2 years (JUNE 2017- JUNE 2019)

- Data was collected from all patients attending the surgical outpatient department with pain and swelling over the breast within a defined study period.

CLINICAL PICTURE OF BREAST ABSCESS.

INCLUSION CRITERIA:

1)50 female patients of age between 18-45 years and diagnosed breast abscess.

2)patients give consent for procedure.

Exclusion criteria

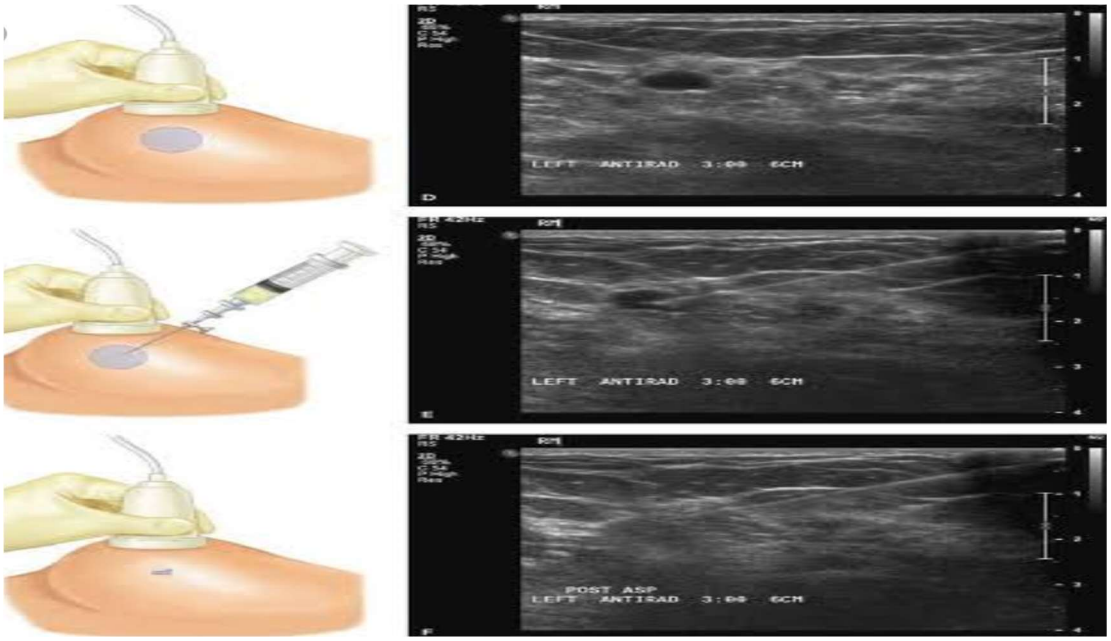
1)Patients below 18 years and above 45 years of age.

2)suspicious lesions/malignancy esp. inflammatory carcinoma of breast

3)Immunocompromised patients.

- Of these 50 patients 25 had undergone aspiration of the breast abscess (group A) and 25 had undergone 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 cout,random blood sugar,renal function test,and liver function test was done.

- ultrasonography,xray chest was done.

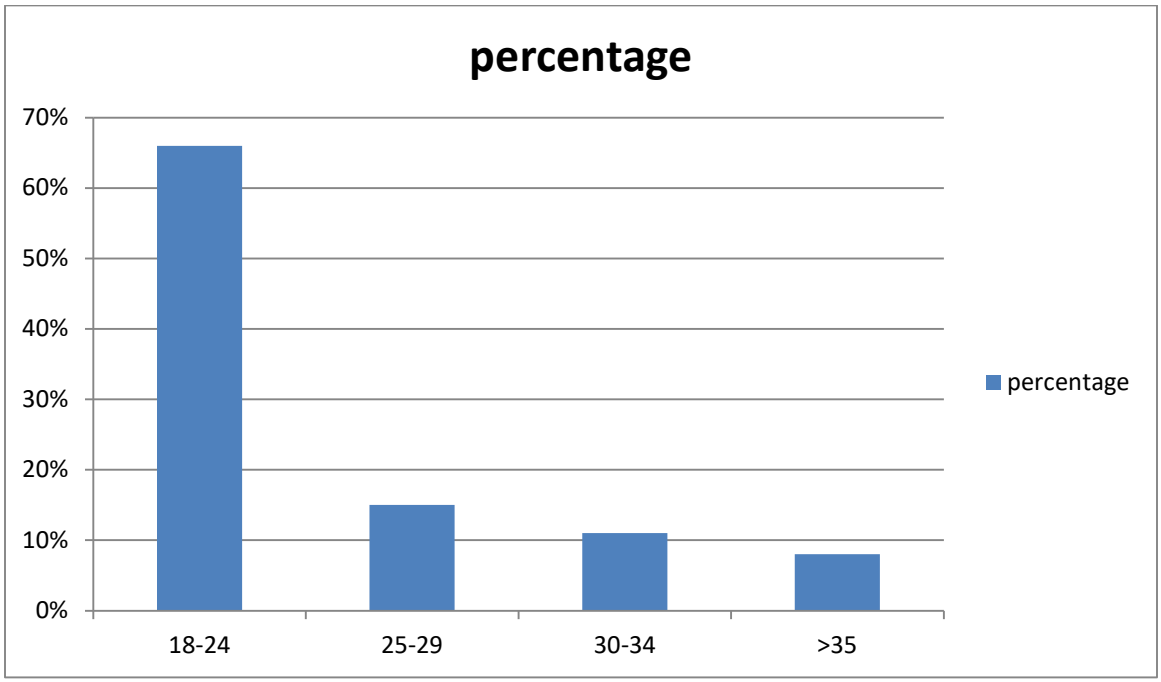


- **Needle aspiration:** An 18 G needle and a 20 ml syringe were used in each case. The breast was stabilized with the index finger and the thumb. The abscess was localized and needle was inserted in to the abscess from the area of normal skin without using any anesthesia under usg guidence. Abscess 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.

- **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.
- After the procedure, the patients were treated with antibiotic amoxicillin-clavulanate (625 mg) orally and analgesic diclofenac (50 mg) and tab. pantoprazole (40 mg).
- 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.

RESULTS

Table:1)Age distribution of patients in study.



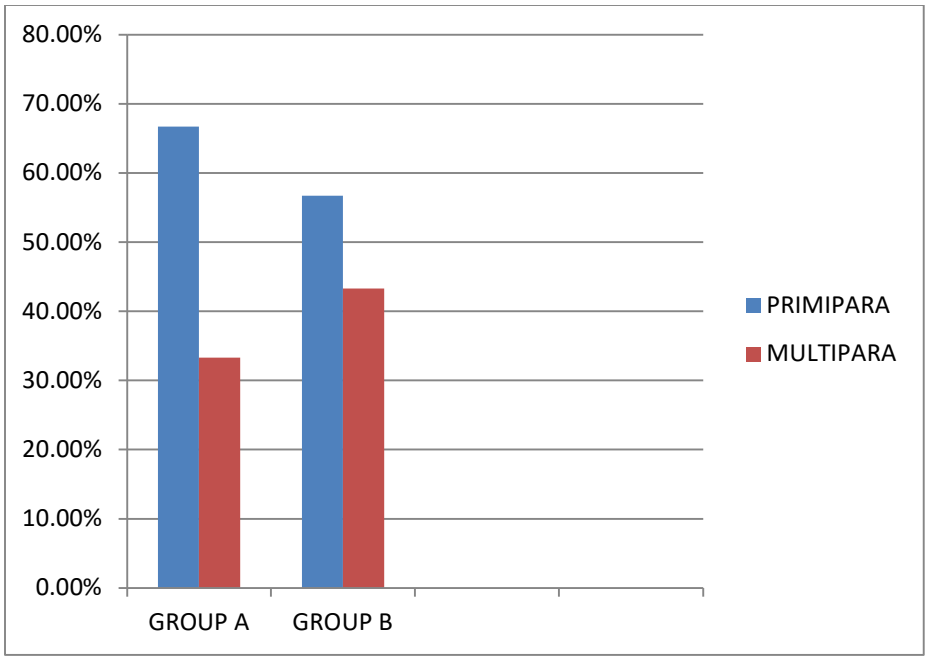
- 66% of patient found in 18 to 24 year age group.The mean age of patients in this study is 23.9 year.

Table 2) Association of lactating and non-lactating between two groups.

	LACTATING	NON LACTATING
GROUP A	**90%**	**10%**
GROUP B	**90%**	**10%**

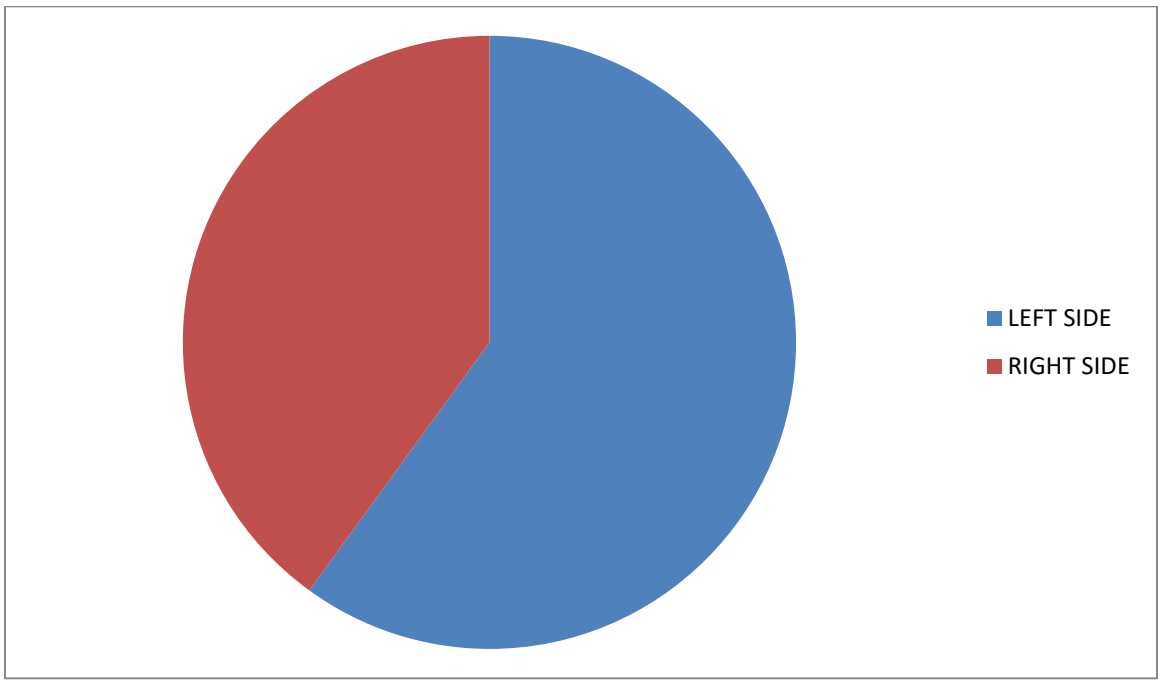
- By the time of treatment 90% of the cases were lactating and non-lactating are 10% in both the groups hence the difference was not significant.

Table:3)Mean parity distribution was compared between the two groups.



- 66.7% cases in group A were primipara, which was more as compared to 56.7% of the cases among group B, but difference was not statistically significant.

Table:4)Distribution of breast abscess according to quadrants.



. Table reveals that the distribution of breast abscess was more on the left side (60%) than on the right side(40%).

Table :5) Comparison of clinical symptoms between two groups.

		PAIN	FEVER	AXILLARY LYPHDENOPATHY	CRACKED NIPPLES
GROUP A	YES	66%	71%	10%	40%
	NO	34%	29%	90%	60%
GROUP B	YES	61%	68%	12%	45%
	NO	39%	32%	88%	55%

The difference between two groups in terms of clinical signs and symptoms was not significant as shown in table no.5

Table :6) 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 as compared to 4.50 cm seen among group B patients.

Table:7) Comparison of culture-sensitivity between two groups.

	Group a	Group b
S. aureus	24%	30%
S.payogenus	10%	25%
No growth	66%	45%

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.

Table:8) 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

The mean duration of time taken for procedure and duration of stay was compared between the groups and the difference between them was statistically significant .

Table :9) 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 :10) Comparison of cosmetic outcome between two groups.

	Scar	**No scar**
GROUP A	**25%**	**75%**
GROUP B	**68%**	**32%**

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 and overall patients satisfaction as shown in table and difference between the groups were significant with each other.

Table11) attempts of usg guided aspiration in patients

1 attempt	**8**
2 attempt	**12**
3 attempt	**2**

Out of 25 patients taken for usg guided aspiration group 17 patients required more than one attempt of aspiration.3 patient requires incision and drainaige after failed third 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 the current report, breast abscesses most commonly affects women aged 18-24 year age group.[11]
- Although breast abscess generally has been associated with mastitis and breast feeding, the results of our study and others indicate that abscess was also found in non-lactating women.[12,13]
- In our study 66.7% patients were primiparae and 33.3% were multiparae. Primiparous women to be at a greater risk for the development of breast abscess during lactation than multiparous women[14]
- 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[15] In our study, 60% of breast abscess was located in the left breast.
- In our study the culture-sensitivity reveals the presence of S. aureus and S. pyogenes. We have 54% patients who had S. aureus positive reports. S. pyogenes which was present in only 35% patients.
- 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.
- 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.

- Wound healing was significantly faster in the aspirated group than in the incised group.
- 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.
- in our study out of 25 patient assigned to usg guided aspiration group 3(8%) patient were treated by incision and drainage after three failed attempts of usg guided aspiration.

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, this therapy is a well-accepted alternative to surgical treatment.
- Aspiration of the breast abscess through a wide bore cannula is thus a feasible and easy procedure, but may require multiple aspirations for cure. It 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.
- **Aspiration of the breast abscess can be successfully done as initial mode of management in the treatment, but incision and drainage remains the final resort for cure**.

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Conflict of Interest NIL