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BREAST ABSCESS;

COMPARISON OF RECURRENCE RATE BETWEEN INCISION DRAINAGE AND MULTIPLE NEEDLE ASPIRATION

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ABSTRACT… Objectives: To compare the recurrence rate between incision drainage and multiple needle aspiration for breast abscess treatment. **Study Design:** Randomized Controlled Trial. **Setting:** Department of General Surgery, Bahawal Victoria Hospital, Bahawalpur. **Study Duration:** 29th September 2015 to 29th June 2016. **Materials & Methods:** A total of 60 female patients with breast abscess of <2 cm in size and of duration <2 weeks between 20 to 40 years of age were included. Patients with multiple breast abscesses, recurrent breast abscesses and complicated abscesses were excluded. The patients were randomized into Group A (incision and drainage) & Group B (needle aspiration), by using lottery method. Follow up was done for up to 7 days and recurrence was noted. **Results:** The mean age of patients in group A was 30.83 ± 5.67 years and in group B was 31.53 ± 5.73 years. Mean duration of disease was 7.58 ± 2.83 days. Mean size of abscess was 0.86 ± 0.43 cm. Recurrence was found in 07 (23.33%) patients in group A (incision drainage) while in 21 (70.0%) patients in group B (multiple needle aspiration) with p-value of 0.000 which is statistically significant. **Conclusion:** The recurrence rate is less after incision & drainage as compared to multiple needle aspirations for treating breast abscess.

Key words: Breast abscess, incision, drainage, needle aspiration, recurrence

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INTRODUCTION

Breast abscess is commonly seen in lactating women.[1] Mastitis and proliferation of glandular tissue during lactation are predisposing fectors.[2,3] Out of total breast diseases, the incidence of breast abscess is 10.2%.[4,5] The commonest presentation is fever, pain, swelling and redness.[6] Diagnosis is confirmed by ultrasound and aspiration of pus.[7]

Staphylococcus aureus, entering through cracked nipple is the commonest microorgonism.[8] Breast abscess associated with methicillin-resistant *S. aureus* (MRSA) has also been reported.

The clinical situation demands accurate assessment as early cellulitic phase doesn't require surgery and continued antibiotic therapy in the presence of an abscess may lead local destruction and systemic infection.[9] Hence the treatment of breast abscess ranges from conservative treatment to surgical intervention.[10,11] Local measures like breast support and heat fomentation along with antibiotics is the main treatment in the early stage of the disease.[12] At the stage of pus formation, the drainage of it is necessary.[13]

The traditional and time tested management of breast abscess is "Incision and Drainage" followed by antibiotics according to culture and sensitivity.[14,16] This strategy potentially interferes with lactation and associated with poor cosmetic results.

There has been number of reports of treating breast abscesses by repeated aspiration under ultra-sonographic guidance with claims of excellent cosmetic results and less cost.[15,17,18,19] However the recurrence rate in these studies have been higher than the conventional approach.[20]

Breast abscesses are commonly encountered in our clinical practice. This study has been

designed to scientifically compare the efficacy of incision and drainage with that of repeated needle aspiration as management of breast abscess. This study is of importance, as the authors could not find any local study addressing this topic. The results of the study may provide evidence to help adopting the technique with better clinical results and less recurrence for the management of this commonly occurring ailment.

OBJECTIVES

The objective of the study was:
"To compare the recurrence rate between incision drainage and multiple needle aspiration for breast abscess treatment."

OPERATIONAL DEFINITIONS:

1. **Breast abscess:** collection of pus in breast tissue diagnosed clinically by presence of all of these i.e. fever (>101 F), breast pain and fluctuant (movable and compressible) tender (painful) breast swelling and on ultrasound (ill-defined, central hypo echoic areas with septations and posterior enhancement) was taken as positive.
2. **Recurrence:** it was measured on 7th day and considered as positive if there will be presence of all of these i.e. fever (>101 F), breast pain and fluctuant (movable and compressible) tender (painful) breast swelling and on ultrasound (ill-defined, central hypo echoic areas with septations and posterior enhancement), otherwise considered as negative.

MATERIAL AND METHODS

This randomized controlled trial was conducted under the permission of ethical review committee, in Department of General Surgery, Bahawal Victoria Hospital, Bahawalpur, using Non-probability, consecutive sampling. The calculated sample size was 60 i.e. 30 cases in each group, with 5% level of significance, 80% power of study and taking recurrence rate after incision drainage as 20.0%[20] and after multiple needle aspirations as 74.0%.[20]

All females between the age 20-40 years with breast abscess (as per-operational definition) of <2 cm in size and of duration <2 weeks were included in the study.

Patients with multiple breast abscesses (assessed on palpation), recurrent breast abscess (assessed on history and medical record). complicated breast abscess (having necrotic patch on skin with underlying malignancy) as assessed on ultrasonography, immune-compromised patients (diabetes mellitus, on chemotherapy as assessed on history and medical record) and unwilling patients were excluded from the study.

DATA COLLECTION PROCEDURE

A total 60 patients who presented in Department of Surgery, Bahawal Victoria Hospital, Bahawalpur, fulfilling the inclusion/exclusion criteria were selected. After informed, written consent, the patients were randomized into Group A and B, using the lottery method.

In group A patients, incision drainage was done. In group B patients, needle aspiration was done on presentation, day 2 and day 5 if required. All procedures were performed by the same surgeon (with at least 3 years post-fellowship experience). All patients were followed regularly by the researcher for up to 7 days and recurrence (as per-operational definition) was noted. This data was recorded on a specially designed Performa which contained two parts. Part 1stincluded the patient's bio-data while part 2nd contained the study variables i.e. recurrence.

STATISTICAL ANALYSIS

All the data was entered and analyzed by using SPSS version 20.0. The quantitative variables like age, size of breast abscess and duration of disease were presented as mean and standard deviation. The qualitative variables like parity, marital status (married/unmarried), lactation status (lactating/non-lactating) and recurrence of abscess (yes/no) were presented as frequency and percentage. Chi square was applied to compare the recurrence rate of both groups and p-value ≤ 0.05 was considered as significant.

Effect modifiers like age, size of breast abscess, duration of disease, parity, marital status (married/unmarried) and lactation status (lactating/non-lactating) were controlled through stratification and post-stratification chi square was applied to see their effect on recurrence. P-value ≤ 0.05 was considered as significant.

RESULTS

Age range in this study was from 20 to 40 years with mean age of 31.23 ± 5.72 years. The mean age of patients in group A was 30.83 ± 5.67 years and in group B was 31.53 ± 5.73 years. Majority of the patients 35 (58.33%) were between 31 to 40 years of age as shown in Table I.

Mean duration of disease was 7.58 ± 2.83 days. The mean duration of disease in group A was 7.54 ± 2.96 days and in group B was 7.76 ± 2.87 days. Majority of the patients 36 (60.0%) were between 8-14 days of duration of disease. Mean size of abscess was 0.86 ± 0.43 cm. The size of abscess in group A was 0.84 ± 0.36 cm and in group B was 0.86 ± 0.47 cm. Majority of the patients 31 (51.67%) were ≤1 cm of size of abscess.

Percentage of patients according to parity is shown in Table I; women with 0-2 children had a p-value of 0.001 and those with 3-4 children had that of 0.058 (Table I). 21 (35.00%) patients were unmarried whereas 39(65.00%) patients were married (Table I). Off the total women, 19(31.67%) were lactating and 41(68.33%) were non-lactating (Table I).

Recurrence was found in 07 (23.33%) patients in group A (incision drainage) while in 21 (70.0%) patients in group B (multiple needle aspiration) with p-value of 0.000 which is statistically significant (Figure 1).

Stratification of recurrence with respect to age groups, duration of disease, size of abscess, parity, marital status and lactation is collectively shown in Table I.

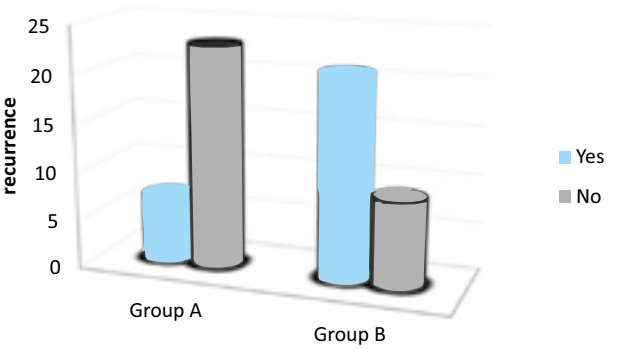

Figure-1. Percentage of patients with recurrence in both groups
P-value = 0.000 which is statistically significant

Factors studied		Group A (n=30) Recurrence		Group B (n=30) Recurrence		P-value
		yes	no	yes	no	
Age in years	**20-30**	02 (15.38%)	11 (84.62%)	06 (50.0%)	06 (50.0%)	**0.064**
	31-40	05 (29.41%)	12 (70.59%)	15 (83.33%)	03 (16.67%)	**0.001**
Duration of disease	**1-7 days**	01 (9.09%)	10 (90.91%)	10 (76.92%)	03 (23.08%)	**0.001**
	8-14 days	06 (31.58%)	13 (68.42%)	11 (64.71%)	06 (35.29%)	**0.047**
Size of abscess	**≤1 cm**	02 (12.50%)	14 (87.50%)	12 (80.0%)	03 (20.0%)	**0.000**
	>1 cm	05 (35.71%)	09 (64.29%)	09 (60.0%)	06 (40.0%)	**0.191**
Parity	**0-2**	03 (18.75%)	13 (81.25%)	12 (75.0%)	04 (25.0%)	**0.001**
	3-4	04 (28.57%)	10 (71.43%)	09 (64.29%)	05 (35.71%)	**0.058**
Marital status	**Married**	04 (21.05%)	15 (78.95%)	15 (75.0%)	05 (25.0%)	**0.001**
	Unmarried	03 (27.27%)	08 (72.73%)	06 (60.0%)	04 (40.0%)	**0.130**
Lactation status	**Lactating**	02 (22.22%)	07 (77.78%)	07 (70.0%)	03 (30.0%)	**0.037**
	Non-lactating	05 (23.81%)	16 (76.19%)	14 (70.0%)	06 (30.0%)	**0.003**

Table-I. Result of study in terms of Stratification of recurrence with respect to factors studied

DISCUSSION

Treatment of breast abscesses is a demanding clinical problem. The classical treatment of breast abscess is incision and drainage under general anesthesia. The cavity is packed with gauze and kept open with subsequent dressing changes for up to 6 weeks till wound heals through granulation.[10] Cosmetic results are usually not good due to scar formation. The recurrence rate even with this aggressive approach is between 10% and 38%.[21]

Ultrasonography is found to be effective in detecting abscesses in patients with mastitis[22] and to guide for needle aspiration of the abscess. A study from Scandinavia[23] showed the management of breast abscesses using the same technique as applied for sub-cutaneous abscesses using polyethylene pigtail catheters, with good cosmetic results and no abscess recurrences. The group reported a similar study with more number of patients, after three years with similar results.[24] In a similar study from Britin,[25] blind needle aspiration of breast abscesses without an pigtail catheter was evaluated. The study showed that repeated attempts of aspirations are required before complete healing, if cather in not placed in.

In our study, recurrence was found in 07 (23.33%) patients in group A (incision drainage) while in 21 (70.0%) patients in group B (multiple needle aspiration) with p-value of 0.000 which is statistically significant. These results are comparable with a similar randomized controlled trial by Gaspari RJ et al.[20]

Studies by Garg et al[26] Faisal Elagili et al[27] and Alphonce et al[28] reported recurrence rate of 44%, 33.3% and 93.1% respectively. In our study recurrence rate of 70.0% in the group managed by repeated aspiration co-related with studies which correlates with similar studies by Markuset al.[29] and Srauss et al.[30]

The literature support the placement of suction drainage catheter in breast abscess for 3–7 days when incision and drainage is not done by open method. It is effective, results in better cosmetic yield and is without any complication. The breast feeding may be continued with catheter in the cavity. Large abscesses require suction catheter rather than ordinary drains.[31,32]

We share the findings of Sharma who emphasized in use of early ultrasonography for breast abscess so that proper strategy can be formulated.[33]

Although there are reports of better cosmetic results yet despite of many studies using repeated aspiration as management of breast abscess, our study produced an evidence against repeated aspiration of breast abscess as a preferred strategy over standard incision and drainage. This is mainly because of higher incidence of recurrence in the group treated with repeated aspiration as compared to those treated by incision and drainage. The higher recurrence rate overweighs the perceived cosmetic advantages. Our argument is supported by similar studies conducted at various centers[26-30].

CONCLUSION

This study concluded that the recurrence rate is less after incision drainage for treating breast abscess compared to multiple needle aspirations. We therefore advocate the incision and drainage as a preferred strategy to manage the breast abscesses.

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PREVIOUS RELATED STUDY

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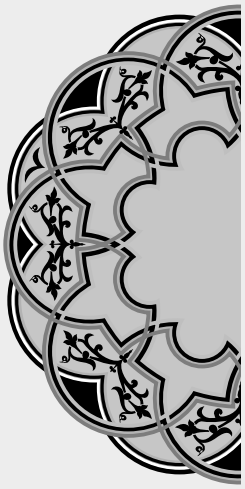

"A friend is someone who knows all about you and still loves you."

Elbert Hubbard

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. M. Umar Javed	Compiled the data and did drafting	
2	Dr. Sidra Aleem	Conducted the study	
3	Dr. Sheraz Jamil Asif	do	
4	Dr. Javed Iqbal	Supervised the study	