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Analysis Of Demographic, Clinical and Laboratory Profile Among Breast Abscess Patients

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ABSTRACT

Background: Breast abscesses are a common clinical condition, primarily affecting lactating women as a result of mastitis. It can also occur in non-lactating women due to a variety of factors such as diabetes, immunosuppression, and trauma. This study evaluates the demographic, clinical and microbiological findings among breast abscess women in a tertiary care hospital.

Methods: A total of 100 women diagnosed with breast abscess were divided into two groups. Group A underwent incision and drainage (N=57) and group B underwent needle aspiration (N=43). Demographic data, clinical findings and laboratory profile were extracted from both the groups. Specimens were processed for culture and sensitivity testing.

Results: Majority of the women (68.4% in group A and 51.2% in group B) belonged to 21-30 years age group. The common clinical manifestation was breast pain (100%), swelling (100%), fever (66.7% & 76.7%) and tenderness (57% % 100%) in both the groups Majority of the women had primiparous (40.4% in group A and 51.2% in group B) and lactating (78.9% in group A and 95.3% in group B). Staphylococcus aureus was most commonly isolated organism among both the groups (47.4% in group A and 51.2% in group B).

Conclusions: Breast abscesses were common in younger lactating women. Pain, swelling, tenderness and fever were the most common clinical findings. Methicillin resistance Staphylococcus aureus was the most common pathogen found in the breast abscess.

Keywords *Breast abscess, needle aspiration, incision & drainage, staphylococcus aureus*

1. INTRODUCTION

One of the most prevalent clinical disorders seen in women is a breast abscess [1]. A small accumulation of pus inside the breast tissue is a sign of a breast abscess. During pregnancy and after, breast infections is the most frequent benign condition impacting the breast. Mastitis is the most prevalent kind of infection, and if left untreated, it can develop into an abscess [2]. Compared to the general population, breast abscesses are more common in young women, women from low socioeconomic backgrounds, obese patients, smokers, women with diabetes mellitus, and women with HIV-related conditions [1,3]. Because of its high likelihood of recurrence and the functional impairment it creates in these individuals, it is a major cause of mortality [4]. Abscesses are mostly linked to lactation in women of reproductive age, while older premenopausal women can also develop non-lactational abscesses. Diabetes and smoking seem to be linked to this disorder. Most frequently, the infections are mixed infections involving both anaerobic and aerobic skin flora [5]. One consequence of lactational mastitis is lactational breast abscess. First, there is generalized cellulitis, which, if not treated quickly, develops into suppuration and the formation of an abscess. Crucially, early nursing discontinuation is frequently caused by lactational breast abscess [6]. Mastitis is the primary risk factor for the development of breast abscesses. The progression of lactational mastitis, age, primiparity, gestational age greater than 41 weeks, obesity, and tobacco use are additional risk factors that contribute to breast abscess [7]. A noticeable, fluctuating mass inside the affected breast (though it might not always be palpable if it is

deep within the breast tissue), breast pain, and symptoms of inflammation, such as warmth, tenderness, firmness, swelling, and redness, are all part of the clinical presentation of a breast abscess. Other symptoms include muscle soreness, fever, and difficulties feeding. Tender, swollen axillary nodes may be linked to it. [8]. Breast abscesses are often treated with a surgical incision, digital septal disruption, contents drainage, occasionally surgical drain insertion, and systemic antibiotic administration. This approach frequently necessitates general anesthesia, can result in unsightly scarring, is less economical than aspiration, necessitates frequent dressing changes after surgery, and disrupts lactation [9]. Another treatment option for breast abscess is repeated needle aspiration, either with or without ultrasound guidance. This procedure has been linked to reduced recurrence, superior cosmetic results, and cheaper expenses. As a result, this technique has benefits like better cosmetic results, faster recuperation, and no need for general anesthesia. Consequently, needle aspiration can be utilized as a first line of treatment for breast abscesses, whether or not it is guided by ultrasound.

AIMS AND OBJECTIVES

The aim of this study is to assess the demographics, etiological, clinical and microbiological profile in breast abscess patients in tertiary care hospital, central India.

2. MATERIAL AND METHODS

Study design: This prospective, observational, comparative study was carried out in the Department of General Surgery, Sanjay Gandhi Memorial Hospital, associated with Shyam Shah Medical College, Rewa (M.P.)

Study Duration: 1st September 2022 to 30th November 2023. (15 months)

Sample size: 100 Cases

Inclusion Criteria:

- Patients aged <60 years
- Patients who attended surgical OPD and casualty department/emergency or transfer from other department with a breast abscess
- Patients who provided consent for study

Exclusion criteria:

- Patient indicated for particular procedure at the time of presentation as per standard protocol.
- Patient of age more than 60 year.
- Patients who were not willing to provide consent for study.

The patients were divided and studied under two groups:

Group A: underwent incision and drainage of breast abscess (N=57).

Group B: underwent needle aspiration of breast abscess (N=43).

A physical examination was conducted, and the number, site, size, shape, and consistency of palpable breast mass /lump as well as mobility were noted. Routine laboratory investigations and pus culture and sensitivity of aspirate, USG (bilateral breast and axilla), X-ray, and fine needle aspiration cytology (FNAC) were conducted, collected, and recorded.

The procedure of incision and drainage was done under anesthesia. All aspirate samples were sent for culture and sensitivity, and co amoxycillin was prescribed empirically according to the weight of the patient. USG breast was done previously, and in follow-up, ultrasound was done on the third day of needle aspiration. The time taken for the resolution of symptoms (point tenderness, erythema, and fever), recurrence of breast abscesses, and healing time were recorded and followed until eight weeks. All relevant information will be collected on a prescribed proforma.

Statistical analysis: Data were analysed by using SPSS-21. Quantitative data was presented by the mean and standard deviation. Qualitative data was presented with frequency and percentage. The association among the study groups is assessed with the help of the student t test and the chi-square test. A 'p' value less than 0.05 is taken as significant.

3. RESULTS

Out of total 100 patients 57 (group A) were underwent incision & drainage and 43 (Group B) were underwent needle aspiration of breast abscess. Majority of them (68.4% subjects of group A and 51.2% subjects of group B) belonged to 21-30 years age group. Most of them (95.5% of group A and 100% of group B) were married. Maximum subjects (35% in group A & 32.6% in group B) were educated till secondary. 82.5% in group A and 93% women in group B was Homemaker. Majority of the breast abscess patients (61.4% of group A and 67.5% of group B) belong to middle socio-economic class, it

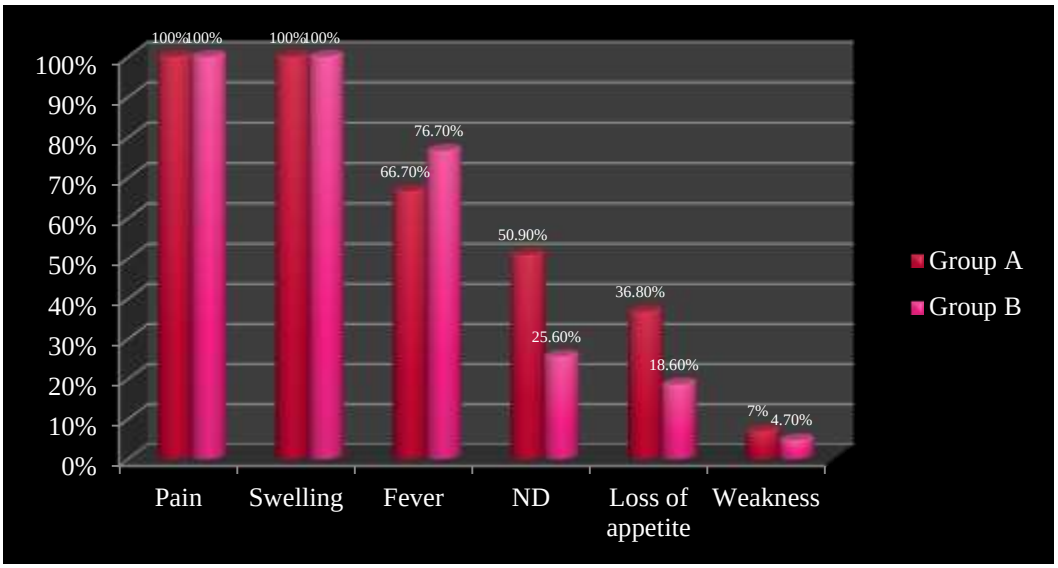
was found statistically significant (P<0.01)

Table 1: Socio Demographic distribution of study subjects in the groups

Socio Demographic		Group A (N=57)	Group B (N=43)	P-Value
Age group (years)	0-20	3 (5.3%)	5 (11.6%)	0.326
	21-30	39 (68.4%)	22 (51.2%)	
	31-40	11 (19.3%)	11 (25.6%)	
	41-50	4 (7%)	5 (11.6%)	
Marital Status	Married	55 (96.5%)	43 (100%)	-
	Unmarried	2 (3.5%)	0 (0%)	
Education	Illiterate	20 (35.1%)	11 (25.6%)	0.308
	Primary	4 (7%)	3 (7%)	
	Secondary	20 (35%)	14 (32.6%)	
	Higher Sec.	12 (21.1%)	10 (23.2%)	
	Graduate	1 (1.8%)	5 (11.6%)	
Occupation	Farmer	1 (1.8%)	1 (2.3%)	-
	Homemaker	47 (82.5%)	40 (93%)	
	Laborer	9 (15.8%)	1 (2.3%)	
	Student	0 (0%)	1 (2.3%)	
Socio Economic status	Lower	21 (36.8%)	5 (11.6%)	P<0.01
	Lower Middle	1 (1.8%)	9 (20.9%)	
	Middle	35 (61.4%)	29 (67.4%)	

The common clinical manifestation was breast pain (100%), swelling (100%) and fever (66.7% & 76.7%) in both the groups.

Graph 1: Presenting complaints-wise distribution of study subjects in the groups



Three subjects in group A and no subject in Group B were diabetics, whereas, 2 subjects in group A, and one subject in group B was hypertensive. Most of the women were primiparity

Majority of the women had primiparous (40.4% in group A and 51.2% in group B), statistically not significant (P> 0.05). Most of them were lactating (78.9% in group A and 95.3% in group B), which was found to be statistically significant (P<0.01)

Table 2: Variables wise distribution of study subjects in the groups

Variables		**Group A (N=57)**	**Group B (N=43)**	**P-Value**
Past Medical History	Diabetes	3 (5.3%)	0 (0%)	-
	Hypertension	2 (3.5%)	1 (2.3%)	
	Not Significant	52 (91.2%)	42 (97.7%)	
Parity	0 (Nulliparity)	2 (3.5%)	0 (0%)	0.502
	1 (Primi)	23 (40.4%)	22 (51.2%)	
	2	22 (38.6%)	15 (34.9%)	
	3	6 (10.5%)	5 (11.6%)	
	4	4 (7%)	1 (2.3%)	
Lactation	Lactating	45 (78.9%)	41 (95.3%)	P<0.01
	Non Lactating	12 (21.1%)	2 (4.7%)	

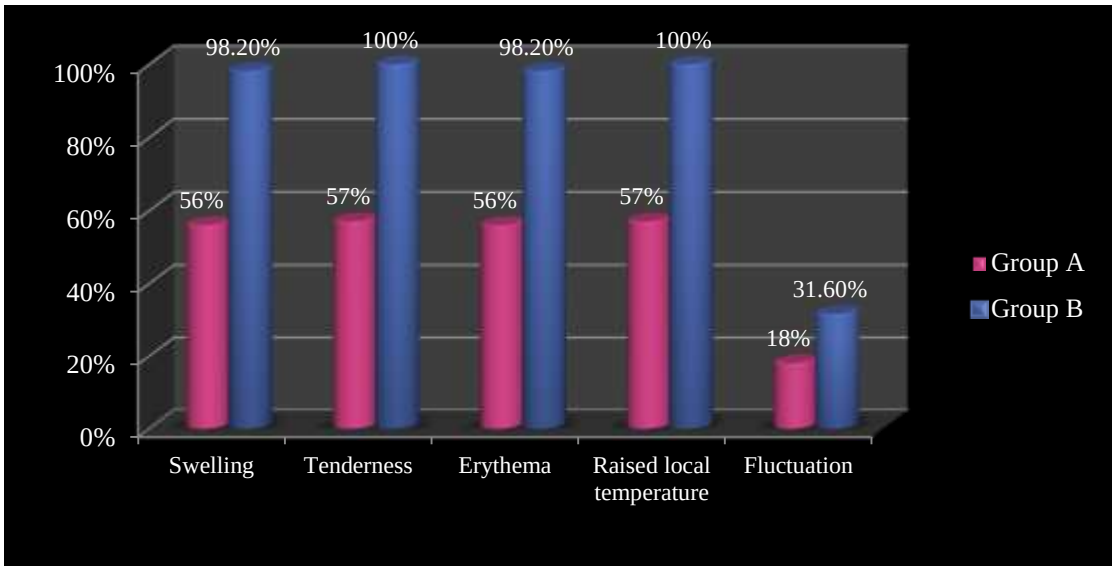
Staph aureus was most commonly isolated organism among both the groups (47.4% in group A and 51.2% in group B). No statistical significant difference in isolated microorganisms in both the groups (P>0.05)

Table 3: Pus c/s- wise distribution of study subjects in the groups

Isolated organism	**Group A (N=57)**	**Group B (N=43)**	**P-Value**
CoNS	11 (19.3%)	4 (9.3%)	0.253
MRSA	14 (24.6%)	9 (20.9%)	
P.aeruginosa	5 (8.7%)	8 (18.6%)	
S.aureus	27 (47.4%)	22 (51.2%)	

On local examination the common clinical findings were swelling, tenderness, erythema, raised local temparature and fluctuation, these findings were significantly higher in group B (P<0.05)

Graph 2: Clinical signs among study subjects in both the groups



4. DISCUSSION

Breast abscesses is broadly classified into lactational and non-lactational breast abscess. In lactating women, acute puerperal mastitis is typically the first step indicating the beginning of breast abscess. Lactational breast abscess develops within first 12 weeks of childbirth or while weaning and are associated with considerable morbidity. The etiology of lactational Knowledge and information of current trends in the bacteriology are valuable in choosing the correct antibiotics, in the management of breast abscess [10].

The majority of female patients in our study were aged 21–30 years, followed by 31–40 years in both groups, which was similar with the Randhawa SR, et al [11] and Fardhus M, et al [12]. This increase in incidence of breast abscess in young women can be attributed to the increased incidence of breast abscess in lactating mothers.

In the present study most of the women were married, homemaker, education upto secondary and belong to middle socio-economic class among needle aspiration and I &D group, our result were collaborative with the Pileri P, et al [13].

We have found that most of the patients were Primipara, no statistically significant ($p>0.05$) difference w.r.t. parity among the groups, in agreement with the Karvande R et al [14].

Primiparous women as being at a greater risk for the development of breast abscess during lactation than multiparous women.

In this study, Lactational breast abscess was predominant as compared to non-lactational breast abscess, there was a statistically significant difference ($P<0.01$) between group A (incision and drainage) and group B (aspiration group) in terms of lactation abscess, consistent findings reported by Ramakrishnan R, et al [15] and Fardhus MD et al [12]. The reason for this high incidence in lactational breast abscesses among young mothers can be ascribed to high rates of breastfeeding, lack of awareness, education, poor hygiene, poor socioeconomic status, poor breastfeeding techniques and decreased accessibility to health care facilities.

In current study, the common presenting complaints among all patients were breast pain, swelling, Fever and nipple discharge was noted in both the groups, accordance with the Shankar A, et al [16].

Analyzing the various risk factors, in our study, diabetic and hypertension were common in group A as compared to group B. A study done by Hussain N, et al [17] reported that obesity and smoking elevate the chance of developing primary and recurring breast abscesses.

Staphylococcus aureus was the predominant microorganism found in both lactating and non-lactating cases among both the groups in the present research; our results were comparable with the many other studies done by Antonello VS, et al [18] and Desai RN, et al [19].

Majority of the isolates were Methicillin-resistant *Staphylococcus aureus* (MRSA) strains have been specifically discovered, primarily in infections acquired within hospital settings in this study, our finding correlates with the Al Benwan K, et al [20].

5. CONCLUSION

We have concluded that breast abscesses common in younger lactating primiparous women. Breast pain, swelling, tenderness and fever were the common clinical manifestation. Staphylococcus aureus mainly MRSA was the most common pathogen found in the breast abscess isolates. Breast abscess should be treated with antibiotics started in the emergency department, as well as, prompt onsite consultation for needle aspiration under ultrasound guidance or taken to surgery for incision and drainage.

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