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CLINICAL STUDY OF PATIENTS WITH BREAST ABSCESS AT A TERTIARY CARE HOSPITAL

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Abstract

Background: Breast abscess is a collection of pus in breast tissue. Staphylococcus aureus is the most common cause. It is more prevalent in breast feeding women. Bacteria gain access via skin laceration and proliferate in lactiferous ducts, leading to pus accumulation.

Objective: To study clinical features of patients with breast abscess at KR hospital.

Methods: The cases presented with symptoms of breast abscess in KR hospital Mysuru attached to Mysore medical college and research institute, Mysuru from January 2020 to June 2021 will form subjects of this study. During this period the patients either admitted or on outpatient basis presented in various surgical units will be selected.

Results: Breast abscess most commonly occurs in postpartum period. Pain was present in all cases. Swelling is the most consistent symptom. Staphylococcus Aureus is the most common isolated organism. Fine needle aspiration with antibiotics is safe and effective for small breast abscess. Incision and drainage was effective for large breast abscess. Percutaneous placement of suction drain is an effective alternative method.

Conclusion: Breast abscess is a common condition in India. Occurs more commonly in postpartum period. Small breast abscess are best treated with percutaneous aspiration with antibiotics. Large breast abscess are treated with incision and drainage. Percutaneous placement of suction drain is an alternative for incision and drainage with better cosmetic appearance. Staphylococcus aureus is the most common causative organism

Keywords: Puerperal breast abscess, Incision and drainage, percutaneous placement of suction drain, Percutaneous needle aspiration.

INTRODUCTION

Lactational infections of the breast arise from entry of bacteria through the nipple into the duct system¹. The intermediary is usually the infant as 50% of infants harbour S.aureus in the nasopharynx². They may present as cellulitis with inflammatory changes of the breast parenchyma termed as mastitis, or abscesses¹.

Breast abscesses in the postpartum period usually occur within the first few weeks of breast feeding and present with point tenderness, erythema and hyperthermia³. Presence of pus can be confirmed by needle aspiration². Preoperative ultrasonography helps to delineate the extent of drainage required³.

It used to be recommended that all breast abscesses have to be incised and drained². This can lead to prolonged healing time, difficulties in breastfeeding, and unsatisfactory cosmetic outcome³. Hence, conventional incision and drainage has been replaced by less invasive procedure of repeated needle aspirations under antibiotic cover² and the former is reserved for those cases in which repeated needle aspiration has failed or there is other indication, such as, thinning and necrosis of overlying skin³. However, drainage of breast abscesses by ultrasound guided needle aspiration mandates the availability of an interventional radiology department⁴.

Percutaneous placement of suction drain in treatment of breast abscess is an alternative method of drainage of breast abscess. It is scar less and preserves function of breast feeding⁴.

The present study includes various treatment modalities such as needle aspiration, incision and drainage and percutaneous placement of suction drain.

MATERIALS AND METHODS

The cases presented with symptoms of breast abscess at KR Hospital Mysuru, attached to Mysore Medical College and Research Institute from January 2020 to June 2021 will form subjects of this study. During this period the patients either admitted or got treated on outpatient basis are included in study.

METHOD OF DATA COLLECTION

The selection for this study were those who were admitted with the primary diagnosis of breast abscess. Based on detailed history, thorough clinical examination and needle aspiration, the diagnosis of breast abscess was made. These patients were subjected to the required preoperative investigations. Patients underwent various modes of treatment.

Antibiotic with amoxicillin and clavulanate combination 625 mg was given 8th hourly for 2 days empirically, following which antibiotic was changed according to the culture and sensitivity report. Injection paracetamol was given intravenously 8th hourly for the first 2 days following which oral paracetamol was given.

An ultrasound scan of the operated breast was done on the 3rd and 7th day to rule out residual abscess.

Each patient was analysed with reference to post operative pain (based on visual analog scale), residual abscess (based on USG), time required for complete healing.

Each patient was followed up in outpatient department at 1 week, 2 weeks, 4 weeks and 8 weeks after discharge.

40 cases with the following inclusion and exclusion criteria were selected for the study and were allocated in the study.

Inclusion Criteria

1. Female Patients with diagnosis of breast abscess confirmed by clinical or radiological method
2. Female patients with age more than 18 years.

Exclusion Criteria

1. Female patients less than 18 years of age.
2. Patients who were not willing for surgical intervention
3. Patients with other benign breast diseases.

A proforma was used to document relevant information (patient data, clinical findings, laboratory investigations, follow-up events, etc.) from all the selected patients. All required investigation was done

Needle aspiration

An 18 G needle and a 20 ml syringe were used in each case. The breast was stabilized with index finger and thumb. The abscess was localized and needle was inserted after giving local anaesthesia. The abscess was aspirated, syringe was detached and pus was sent for culture and sensitivity. Another syringe of same size was again attached to the needle and pus was aspirated. The procedure is carried out until no pus was aspirated. Aspiration was repeated every alternative day if required until the mass completely resolved or until three needle aspirations performed. If the abscess cavity had not resolved by this time, this result was accepted as a treatment failure

Percutaneous Placement of Suction Drain

18F perforated catheter with the curved needle was introduced from one side of the abscess and then brought out through the opposite side of the abscess and the perforated end of the catheter was left in the abscess cavity. The entry site was closed with silk. Hydrogen peroxide and povidone iodine wash was given through the catheter which was fixed at the exit wound and then connected to the suction apparatus. The catheter was irrigated daily with hydrogen peroxide and povidone iodine and was removed between 3 and 5 days or when discharge is less than 10ml.

RESULTS

The following observations were made during the course of the study. In the present study most commonly affected age group was 25-30 years, with 30 cases(73.3%) >25 years, with 10 cases less than 25 years(26.6%). The youngest patient in my study was 19 years and the oldest is 33 years

TABLE 1: COMPARISON OF AGE WISE DISTRIBUTION OF CASES

Age range [years]	I&D		PCSD		PCNA		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%
<25	4	26.6	2	20	4	26.6	10	25
25-30	6	40	6	60	8	53.3	20	50
>30	5	33.3	2	20	3	20	10	25
Total	15		10		15		40	
Mean ± SD	27.7±4.3		26.1±3.8		25.9±3.9		26.6±4	

TABLE 2: COMPARISON OF SIZE OF ABSCESS

SIZE	I&D		PCSD		PCNA		TOTAL	
	NO.	%	NO.	%	NO.	%	NO.	%
<4 cm	2	13.3	2	20	8	53.3	12	30
4-5 cm	5	33.3	6	60	5	33.3	16	40
>5 cm	8	53.3	2	20	2	13.3	12	30
Total	15		10		15		40	
Mean±SD	5.8± 2.2		4.8 ±1.6		3.8± 1.4		4.8± 1.9	

In the present study 12 patients had breast abscesses of size less than 4cm and 16 patients had breast abscess of size 4-5cm and 12 patients had breast abscesses of size greater than 5 cm.

TABLE 3: COMPARISON OF POSTOPERATIVE PAIN

POST OPERATIVE PAIN (VAS)	I&D		PCSD		PCSA		TOTAL	
	No.	%	No.	%	No.	%	No.	%
G1					8	53.3	8	20
G2			8	80	7	46.6	15	37.5
G3			2	20			2	.05
G4	7	46.6					7	.17
G5	8	53.3					8	20
TOTAL	15		10		15		40	

Chi-square = 55.11, P<0.000, HS

In this present study VAS grade for the group that underwent percutaneous placement of suction

drain group was G2 for 8 patients (80%) and G3 for 2 patients (20%). VAS grade for the group that underwent incision and drainage was G4 for 7 patients (46.6%) and G5 for 8 patients (53.3%). VAS grade for PCSA was G1 for 8 patients (53.3%) and G2 for 7 patients (46.6%).

TABLE 4: COMPARISON OF DURATION OF COMPLETE HEALING(DAYS)

Healing time	I&D	%	PCNA	%	PCSD	%
<14 days	2	13.3	4	26.6	2	20
15-21 days	5	33.3	9	60	4	40
22-28 days	4	26.6	2	13.33	4	40
29-35 days	4	26.6	0		0	
Total	15		15		10	

Healing time	I&D	PCNA	PCSD
N	15	15	10
Mean	21.6	17.8	18.5
SD	6.8	4.4	5.7

In the present study the mean duration of complete healing in patients who underwent incision and drainage was 21.6 ± 6.8 days and patients who underwent percutaneous placement of suction drain was 18.5 ± 5.7 days and for PCNA 17.8 ± 4.4 days.

In this study, S.aureus was the causative organism in 10 cases of I&D, 11 cases of PCNA and 6 cases of PCND. Pseudomonas was the organism in 2 cases of I&D, 3 cases of PCNA and 2 cases of PCND. Proteus was the organism in 2 cases of I&D, 1 case of PCNA and 1 case of PCND. There was no growth in 3 cases.

There was no drain dislodgement in any patient. No drain replacement was required until it was removed. The drain was removed in majority of the patients on 3rd postoperative day.

TABLE 5 : COMPARISON OF CAUSATIVE ORGANISM

Etiology	I&D	%	PCNA	%	PCND	%
S.Aureus	10	66.66	11	73.3	6	60
Pseudomonas	2	13.3	3	20	2	20

Proteus	2	13.3	1	6.66	1	10
No growth	1	6.66	0		1	10
Total	15		15		10	

A sample of pus was sent for culture and sensitivity in each patient. The result was reported as Staphylococcus aureus for 27 patients, Pseudomonas in 7 patients, Proteus species in 4 patients and no growth was seen in 2 patients. Most of the organisms were sensitive to ampicillin, amoxicillin cefotaxime and linezolid.

DISCUSSION

This study is a prospective study of 40 patients at KR Hospital with primary diagnosis of lactational breast abscesses from January 2020 to June 2021. These patients were alternatively treated by incision and drainage. Percutaneous placement of suction drain, Percutaneous needle aspiration.

The efficacy of all three modes were compared in terms of postoperative pain and time required for complete healing. A comparison is made between the present study and studies conducted by different authors as well.

The incidence of mastitis in lactating women is 2% to 3%⁵. The WHO review of mastitis (2000) concluded that 11% of women with mastitis develop breast abscess in the puerperal period from a study conducted by Devereux WP et al⁶. Amir et al conducted a study of 1183 women, out of which 0.4% (5/1183) developed breast abscess²¹. Marshall et al estimated the rate of breast abscess in women with mastitis as 4.6% (3/65)⁷.

Majority of the breast abscesses are lactational. According to a study conducted by Ramakrishnan et al, 78% of breast abscess were lactational. Efem et al, in his study of 299 breast abscess patients observed that majority of the patients had lactational breast abscess similar to the present study.⁸

Breast abscesses are most common in women of childbearing age, with a mean age of

6.6 years. Non-lactating breast abscesses have a wider range, with a peak incidence in the fourth decade of life.⁵

In a study conducted by Tewari et al on 30 patients with lactational breast abscesses, the age of incidence ranged between 18 and 34 years⁴.

In a study conducted by Faisal et al on 30 patients on aspiration of breast abscesses under ultrasound guidance, the mean age of incidence was 31.93 years. A study conducted by Aslam et al on benign breast diseases concluded that the mean age of incidence of breast abscess is 30.77 ± 8.77 years.

Chuha et al conducted a study on MRSA abscesses in postpartum women and observed that the median age of incidence was 31.5 years.⁹ Another study conducted by Kastrup et al on acute puerperal breast abscesses concluded that the mean age of incidence was 29 years, ranging from 21-39 years.¹⁰ A study by Dener et al on breast abscesses in lactating women showed that the

mean age of incidence of breast abscess was 26 years.¹¹

In the present study, the mean age of incidence of breast abscess was found to be 26.65 years (range- 19 to 33 years).

In this study it was observed that 57.5% (23 patients) were primipara and 32.5% (13 patients) were para 2 and 10% (4 patients) was para 3. In a study conducted by Tewari et al on 30 patients with lactational breast abscess, 15 (50%) were primipara,

10 (33.3%) were para 2 and 5 (20%) were para 3⁴. The study conducted by Chuwa et al on 15 patients with lactational breast abscesses showed that majority of the patients were primipara (80%, 12 patients) and the rest were para 2 (20%, 3 patients)⁹. The study conducted by Dener et al on 128 patients with lactational breast abscesses, also showed that majority were primiparous (62.5%) and the rest were multiparous.¹¹

In the present study, the average size of the abscess was 4.8cm ranging from 2cm to 10cm. In the study conducted by Chuwa et al, the average size of the abscess was 4.3cm ranging from 2cm to 10cm.⁹ A study conducted by Kastrup et al on 19 patients with lactational breast abscesses showed a average abscess diameter of 5.9cm, ranging from 3 to 14cm.¹⁰ Both lactational and non-lactational breast abscesses were included in a study conducted by Dahiphale et al and showed an average abscess size of 3.5cm.¹² Similar results were observed by Christensen et al (3.5cm) and Chandrika et al (3.49cm).^{13,14}

In the present study, VAS grade for patients who underwent incision and drainage was G5 for 8 patients (53.3%) and G4 for 7 patients (46.7%). The VAS grade for majority of the patients who underwent percutaneous placement of suction drain was G2 (8 patients, 80%) and G3 (2 patients, 20%). VAS grade for patients who underwent percutaneous needle aspiration was G1 (8 patients 53.3%) and G2 (7 patients 46.6%). It is obvious that patients who underwent incision and drainage had more pain as compared to patients who underwent percutaneous placement of suction drain and percutaneous needle aspiration.

In the present study the mean duration of complete healing was 18.5 days for the group that underwent percutaneous placement of suction drain and was 21.2 days for the group that underwent incision and drainage and 17.8 for the group that underwent needle aspiration. In the study conducted by Chuwa et al., the mean time for complete healing in patients who underwent incision and drainage of breast abscess was 21 days (range, 5–28 days).⁹ Mean time taken for complete healing in patients who underwent incision and drainage of breast abscesses in a study conducted by Karvande et al. was days.¹⁵

CONCLUSION

Staphylococcus aureus is the most common causative organism for breast abscess most common symptoms of breast abscess are pain and swelling. Percutaneous needle aspiration is more suitable for small breast abscess <4 cm and has got better cosmetic outcome. Percutaneous suction drain is suitable for both small and large breast abscess [>5 cm], it has got better cosmetic outcome and less duration of healing compared to incision and drainage

Incision and drainage is more appropriate in large breast abscess, It can be performed in remote areas. But it has got more post operative pain and longer duration of healing.

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