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RESEARCH ARTICLE

INCISION DRAINAGE OR ULTRASOUND GUIDED NEEDLE ASPIRATION FOR THE MANAGEMENT OF BREAST ABSCESS - A PROSPECTIVE OBSERVATIONAL STUDY.

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ABSTRACT

Breast abscess is an acute inflammatory condition of the breast. Once an abscess is established, management involves incision and drainage. Where an abscess has formed, aspiration of the pus, preferably under ultrasound guidance, has now supplanted open surgery as the first line of treatment.¹**Aims and objectives:** To study ultrasound guided percutaneous needle aspiration v/s incision drainage in breast abscess in terms of: Operative time, Post-operative pain, Hospital stay, Healing time and Cosmetic outcome. **Material and methods:** Patients with clinical features suggestive of breast abscess were divided in two groups. The patients in Group A underwent needle aspiration using 18 gauge needle attached with 10cc syringe. Patients in Group B underwent Incision and drainage. Patients in both the groups were put on broad spectrum antibiotics till reports of culture and sensitivity were collected. All patients were followed up regularly. Patient satisfaction with treatment was also recorded. **Results:** The mean age of patients in our study was 27.90 years. The mean age in incision and drainage group was 27.35yrs with a std. deviation of 7.788 and in needle aspiration group, it was 28.15yrs with standard deviation of 8.437. Group A patients (USG guided needle aspiration) procedure was completed in a mean operative time of 12.5 while group B patients (incision and drainage) were done in a mean operative time of 28.0. Mean pain score in I & D group was 3.95 and Needle aspiration group was 1.35. Patients who underwent needle aspiration were not admitted. However those who underwent incision drainage had to be kept for a duration ranging from 12-24hours. Most of the patients from I&D had a mean healing time of 2.7 weeks and std. deviation of 0.979 while as the patients from usg guided aspiration group had mean healing time of 2.45 weeks and std. deviation of 0.826. **Conclusion:** USG guided aspiration is simple, painless, day care procedure and effective alternative treatment to incision and drainage in properly selected patient.

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INTRODUCTION

Breast abscess is defined as accumulation of pus within the breast, due to untreated mastitis or complication of mastitis. Breast abscess is less common in developed countries due to improved puerperal hygiene, nutrition, early administration of antibiotics and standard of living, breast abscess remains a morbid condition among lactating women in developing countries.² Nonlactating breast abscess are uncommon in India, when compared to western countries. Lactational breast abscess occurring during breast feeding is the result of Staphylococcus infection, affecting 0.4 - 11% of lactating females. Risk factors for lactational breast abscess formation include the first pregnancy at maternal age over 30 years, pregnancy more than 41 weeks of gestation, and mastitis. It is relatively common for lactating women to develop a breast abscess as a complication of mastitis. Early diagnosis and treatment of mastitis will prevent the complications of breast abscess like milk fistula, scarring, etc.³

Ultrasonography is a means of diagnosing and evaluating the extent, site, size and internal characteristics of breast abscesses. Traditional treatment of breast abscess is by surgical incision and drainage, however this is associated with regular dressing, prolonged healing time, and, difficulty in breast feeding, possible unsatisfactory cosmetic outcome, rupture and recurrent breast abscess, mammary fistula etc⁴. Treating breast abscesses in lactating women by aspiration is not new⁵. Imaging guided percutaneous needle aspiration of purulent collections is a known alternative to standard treatment which has become more popular as it is less invasive, cosmetically better and can be managed entirely on outpatient basis as compared to incision and drainage⁶.

METHODOLOGY

This observational study was conducted in the Postgraduate Department of Surgery, Government Medical College, Srinagar over

last one and a half year after obtaining the ethical clearance from the Institutional Ethical Committee. Patients with clinical features suggestive of breast abscess were divided in two groups

Group A (underwent ultrasound guided aspiration) and Group B (underwent incision drainage). Along with detail clinical examination all the necessary investigations were done according to need.

Inclusion Criteria

- Age 18-65 years
- Abscess <5cm

Exclusion Criteria

- Comorbidities like diabetes mellitus, renal failure, pulmonary tuberculosis.
- Suspected malignancy.
- Steroid therapy.
- Recurrent breast abscess.
- Patients with bleeding disorders.

The procedure of USG guided percutaneous aspiration was explained in detail to patients. Informed written consent was obtained in all cases. With ultrasound, the initial size of these abscesses along with whether they were uni/multi loculated was noted. Percutaneous drainage under aseptic condition with ultrasound guidance was carried out after the sonographic diagnosis of breast abscess was made. Ultrasound guided needle aspiration was performed by using an 18-G needle and a 20-ml syringe in each case. Amount of pus aspirated was recorded. Some aspirate was sent for culture and sensitivity. These patients were given oral Amoxicillin clavulanic acid 625mg BD daily for 7 days. Patients in the incision and drainage group were admitted in the surgical ward and prepared for surgery in emergency theatre. Post operatively the patient was put on analgesics and antibiotics, Diclofenac 50 mg orally for 3 days and Amoxicillin Clavulanic acid 625 mg 8hry for 7 days respectively. All the patients were followed up regularly and the healing time, recurrence rate and any complication was noted.

RESULTS

Majority of patients were within the age group ranging from 20-30 years, 45% in the needle aspiration group and 40% in the incision and drainage group. The mean age of patients in our study was 27.90 years. The mean age in incision and drainage group was 27.35yrs with a std. deviation of 7.788 and in needle aspiration group, it was 28.15yrs with std deviation of 8.437. Bilateral breast abscess was found in 2 patients (0.5%). Right (42.5%; 34 patients) and left (55%; 44 patients) breasts were almost equally affected. In I&D group 34 patients (42.5%) were lactating and 6 patients (7.5%) were non-lactating. In needle aspiration group, 32 patients (40%) were lactating and 8 patients (10%) were non-lactating. A mean operative time of 12.5 in Needle aspiration group while incision and drainage was done in a mean operative time of 28.0. Mean pain score in I & D group was 3.95 and Needle aspiration group was 1.35. Patients who underwent needle aspiration were not admitted. However those who underwent incision drainage had to be kept for a duration ranging from 12-24hours. P Value was calculated to be 0.000 which is significant. In our study most of the patients from I&D had a mean healing time of 2.7 weeks and std. deviation of 0.979 while as the patients from usg guided aspiration group had mean healing time of 2.45 weeks and std. deviation of 0.826

DISCUSSION

Breast abscess (lactational and non lactational) form a very common clinical entity identified in daily practice. Treatment of breast abscess traditionally has been incision and drainage however this has been found to be associated with possible unsatisfactory cosmetic outcome,

difficulty in breast feeding, prolonged healing time, and regular dressing⁷. Repeated aspiration with ultrasound guidance has been found to be another treatment option for breast abscess and this has been reported to be associated with less recurrence, excellent cosmetic result and has less costs⁸⁻⁹.

AGE: In our study the youngest patient was 17 years and the oldest was 45 years old. The mean age of all the patients in the study was 27.35years in incision drainage group and 28.15 in usg guided aspiration group. The mean age was different in different studies. Ulitzsch *et al*⁵ from Sweden and AF Christensen *et al*¹⁰ from Denmark had reported 32 years of mean age in their study.

SIDE: With respect to side our study was comparable to Shanta B. Patil and Vajreshwari M. Vagger¹¹ where they found equal incidence in both breasts, right side abscess was seen in 47 patients and 48 patients had left side breast abscess bilateral in 5 patients.

LACTATIONAL STATUS: It was noted that 40.0% of the females in the needle aspiration group and 42.5% of patients in the incision and drainage group were lactational suggested that stasis of milk and carrier state of the infant plays a key role in the development of breast abscess. This is comparable with the finding of Singh *et al*¹² where out of fifty patients 62% were lactational and 38% were non lactational.

DURATION OF SYMPTOMS: In our study more number of patients presented within the first 3 weeks (85%). Kamal Kataria *et al*¹ said that most of the lactational abscesses occurs during 2 periods within first 4 weeks of breast feeding due to inexperience and secondly after 6 months due to trauma to the nipple by the teeth of the infant.

OPERATIVE TIME: The average operating time was 28.00min (range 20-45mins) with std. deviation of 6.156 in incision and drainage. In usg guided aspiration mean operative time was 12.5min with std. deviation of 2.565 which was similar to results found by Chen C *et al*¹³.

HOSPITAL STAY: Patients who underwent needle aspiration were not admitted. However those who underwent incision drainage had to be kept for a duration ranging from 12-24hours. In the study conducted by Chandika *et al*¹⁴ all patients that were treated by needle aspiration did not require admission whereas those treated by incision and drainage were admitted for a variable period of two to five days.

COMPLICATIONS: In our study most of the patients (40, 50.0%) from usg guided aspiration did not develop any complications. In the other group (I.e in incision and drainage) most common complication encountered was scar formation, in 36 patients (45%) and another complication I.e milk fistula in 2 patient (2.5%). These were comparable to those reported in a study conducted by Patil SB and VaggerVM¹¹. During our study we came across a rare complication in incision and drainage group that was milk fistula. It was managed conservatively with local care and cessation of breast feeding and healed in 2 weeks span. This was consistent with similar complication in study conducted by Naeem *et al*¹⁵. Another study conducted by Dr. Saira Saleem *et al*¹⁶ showed formation of milk fistulas in 2 patients. Milk fistula healed spontaneously by interruption of breast feeding in these two patients.

BACTERIAL ISOLATE: The bacteriological cultures revealed that 58 patients 72.5% of the samples grew Staphylococcus aureus, 10% were MRSA (8 patients), 5% were pseudomonas (4 patients) and the rest 10% were sterile (10 patients) which is comparable with finding in many other studies. In the literature, Ozseker *et al*¹⁷ and Imperiale *et al*¹⁸ reported that sterile culture results were 36% and 23%, respectively. Many studies like that of Munakomi *et al*¹⁹ and Ranjeesh v. and Kotha S (2018)²⁰ have shown that the most common organism obtained in culture was S. aureus.

PAIN: Mean pain score in I & D group was 3.95 and Needle aspiration group was 1.35. Hence, we noticed that mean pain score in needle aspiration method was much less. These figures were comparable to a study conducted by Patil SB and Vagger VM¹¹ where in I&D group 22% had mild and annoying pain, 5% patients suffered from intense dreadful and horrible pain. Whereas in Needle aspiration group 48% patients didn't have any pain, 2% suffered from mild and annoying pain.

HEALING TIME: The mean healing time in USG guided aspiration group was 2.45 weeks while in incision-drainage group was 2.70 weeks which correlates with the study of Markus *et al*²¹

COSMETIC OUTCOME: Satisfaction in patients treated by USG guided aspiration was 88.57% and in incision-drainage group was 54.1% and the findings were in correlation with the study of Dieter *et al*²² and Saira Saleem *et al*¹⁶. Cosmetic results in incision-drainage group were unsatisfactory while there were no cosmetic problems in USG guided aspiration. The observation of our study shows that needle aspiration of the abscess with ultrasonography guidance combined with antibiotics has a great value in the treatment of breast abscess although repeated aspiration may be needed to obtain complete resolution. The therapy has good post-operative cosmesis and is an effective alternative method of treatment to incision and drainage that is relatively painful, has a longer hospital stay and heals by scarring.

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