

Aspiration Versus Incision and Drainage in the Treatment of Acute Suppurative Breast Abscess

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Abstract

Breast abscess is a common cause of morbidity in women. While they are less common in developed countries as a result of improved maternal hygiene, nutrition, standard of living and early administration of antibiotics, breast abscess remain a problem among women in developing countries. This thesis is aiming to show the efficacy of aspiration in the treatment of acute suppurative breast abscess in comparison with traditional methods of incision and drainage. This current study involved fifty patients who were complaining of acute suppurative breast abscesses attending the medical care in Benha University Hospital and Samanud General Hospital. 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 4 cm 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.

Keywords: Abscess, Breast, Hygiene, Maternal, Morbidity and Suppurative.

1. Introduction

Between 5% and 11% of lactating women with infectious mastitis will develop a breast abscess, which usually occurs at 3 to 8 weeks postpartum. The causative agent is typically staphylococcus aureus which enters the breast tissue through a milk duct or crack in the nipple. Risk factors for developing breast abscess include primiparity, birth after 41 weeks' gestation, age > 30 years, and Diabetes mellitus [1].

Traditionally, management of breast abscess involves incision and drainage; however this is associated with need for general anesthesia, prolonged healing time, regular dressing, difficulty in breast feeding, and possible unsatisfactory cosmetic outcome [2]. Surgical treatment is typically reserved for recurrent or extremely large abscesses. The surgically-treated abscess is left open to heal by secondary intention, during which milk may leak out of the wound area.

Recently breast abscesses can be treated by repeated needle aspiration with or without ultrasound guidance [3].

Breast abscesses that develop in the puerperal period generally have a better course than nonpuerperal abscesses, which tend to be associated with longer treatment times and a higher rate of recurrence [3].

2. Subjects and methods

This current study involved fifty patients who were complaining of acute suppurative breast abscesses attending the medical care in Benha University Hospital and Samanud General Hospital.

2.1 Study outline

2.1.1 Title

Aspiration versus Incision and Drainage in the Treatment of Acute Suppurative Breast Abscess.

2.1.2 Study site

Benha University Hospital and samanud general Hospital.

2.2 Study objectives

Studying the curative role of aspiration in the treatment of acute suppurative breast abscess compared to incision and drainage.

2.3 Study design

Prospective comparative study.

2.3.1 Patients

2.3.1.1 Inclusion criteria

Any patient with breast abscess seeking medical advice in Benha University Hospital either lactating or non lactating regardless the size, site or type of the abscess.

2.3.1.2 Exclusion criteria

- -Malignant lesion (inflammatory carcinoma).
- -Any patient refused participation in the study.

2.4 Methodology

The fifty involved patients were evaluated regarding :- History taking . Clinical examination with photographic documentation of the breast abscess. Ultrasound evaluation of the abscess. Complete blood count.

The patients were randomizedly divided into two groups:-

Group(A) conducted on 25 patients of breast abscess treated by surgical incision and drainage and antibiotic therapy. The surgically-treated abscess is left open to heal by secondary intention.

Group(B) conducted on 25 patients with breast abscess who attended the Outpatient Department (OPD) of surgery throughout the duration including the period of October 2016 to October 2018. Of these, 20 patients were lactating and 5 patients were non-lactating. The diagnosis of the abscess was made when there was redness, warmth, tenderness, and swelling in the breast. Initial treatment comprised of aspirating as much as possible from the abscess with a 16 G to 19 G needle with 10 ml syringe and a 7 days course of oral or parenteral ampicillin and cloxacillin . The procedure was performed in the surgery OPD.

Ultrasound guidance was used for some patients. Sample of pus from all 50 patients were sent for culture and sensitivity. If the abscess has not resolved after repeated aspiration, this was accepted as treatment failure. Incision and drainage.

was performed when there was failure of non-operative treatment as indicated by a lack of

improvement in clinical sign of infection or in the amount of pus aspirated after a number of follow-up reviews or when the pus was too thick to aspirate. The following information was recorded in a database for each patient: Age, parity, location, duration of lactation and symptoms, results of pus culture, healing time, recurrence, and number of aspiration performed.

Lactating patients were encouraged to continue breast feeding from the unaffected breast and the breast with abscess was emptied by means of a pump to prevent milk stasis. Follow-up was performed in all cases twice weekly until clinical signs of abscess had resolved following which the patients were reviewed after 3 weeks and 3 months for recurrence.

2.5 Surgical methods

2.5.1 Group (A)



Fig (1) Circumareolar incision of retro-areolar breast abscess under general anaesthesia.



Fig (2) Circumareolar incision of retro-areolar breast abscess under general anaesthesia



Fig (3) Radial incision of breast abscess at lateral half of left breast



Fig (4) Radial incision over breast abscess.



Fig (5) Wound of incision after 2 weeks.



Fig (6) Scar of circumareolar incision.

2.5.2 Group (B)

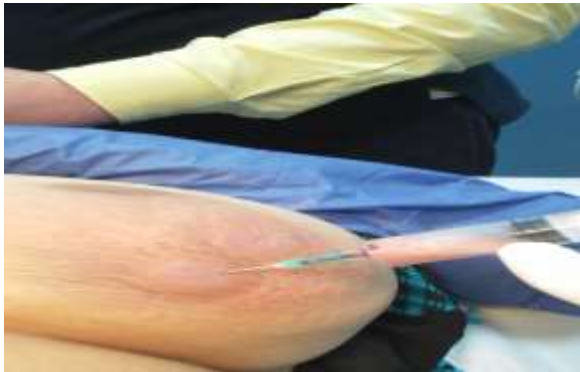


Fig (7) Aspiration without US guidance



Fig (8) Aspiration without US guidance with coverage of systemic antibiotics.



Fig (9) Aspiration with widebore needle.



Fig (10) Aspiration with widebore needle



Fig (11) Aspiration with widebore needle



Fig (12) Pus from breast abscess sent for culture.



Fig (13) Improved case of breast abscess after aspiration with use of systemic antibiotics.



Fig (14) Improved case of breast abscess after aspiration



Fig (15) Aspiration of breast abscess guided by US

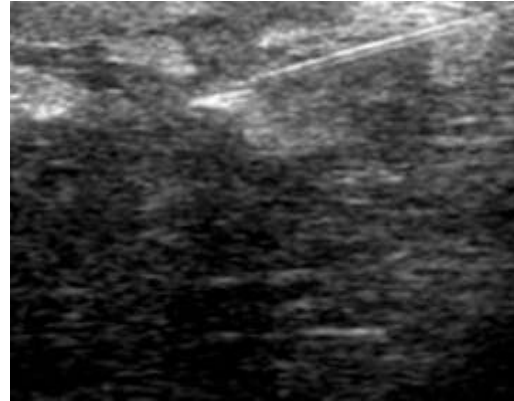


Fig (16) Improved case of breast abscess after aspiration with use of systemic antibiotics

3.Results

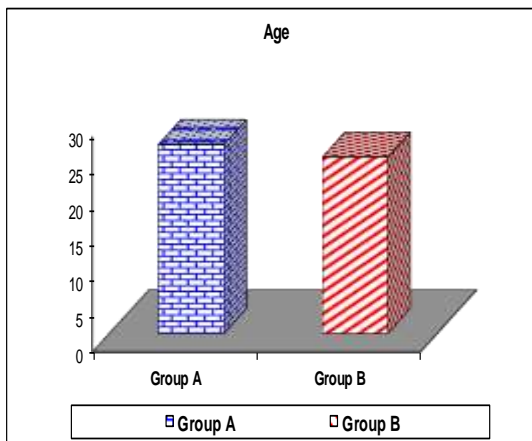


Fig (17) Comparison between 2 groups regarding age

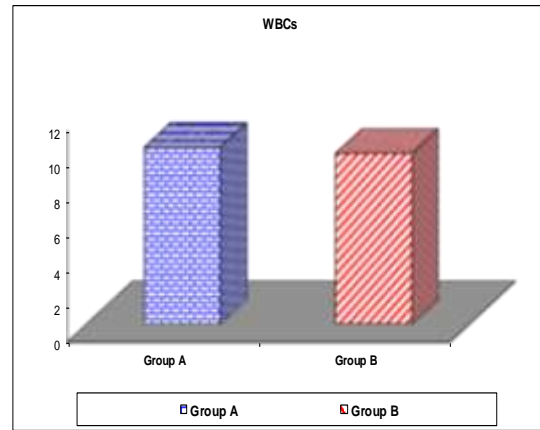


Fig (18) Comparison between 2 groups regarding WBCs

Table (1) Comparison between 2 groups regarding Lactation

Lactation		Group A	Group B	Total
Lactating	N	25	25	50
	%	50%	50%	100%
Total	N	25	25	50
	%	100.0%	100.0%	100.0%

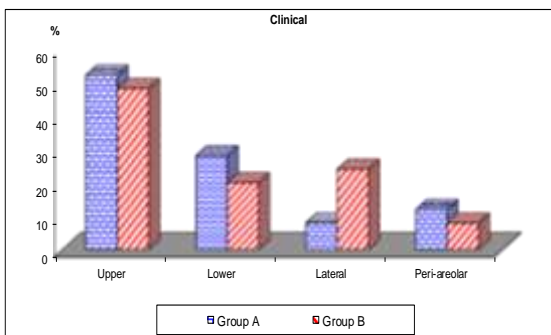


Fig (19) Comparison between 2 groups regarding the site of abscess

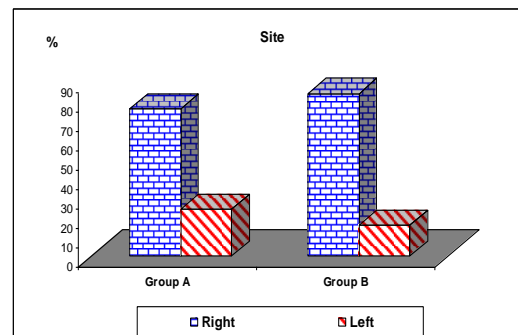


Fig (20) Comparison between 2 groups regarding right or left breast

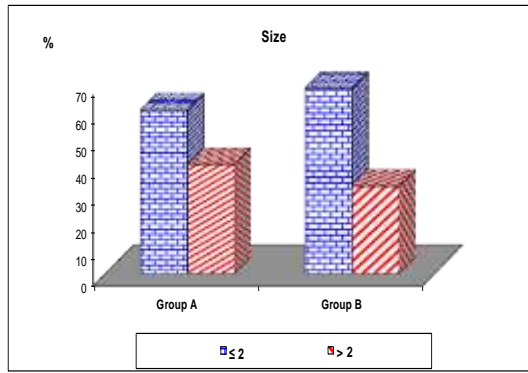


Fig (21) Comparison between 2 groups regarding the size of abscess

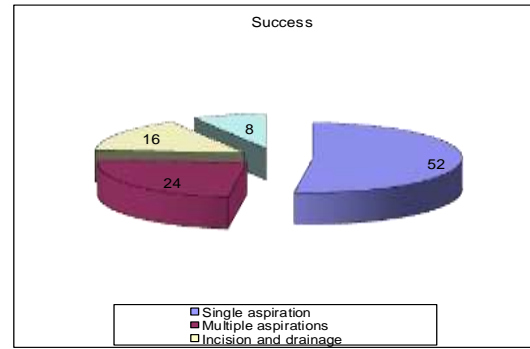


Fig (22) showing different results of aspiration

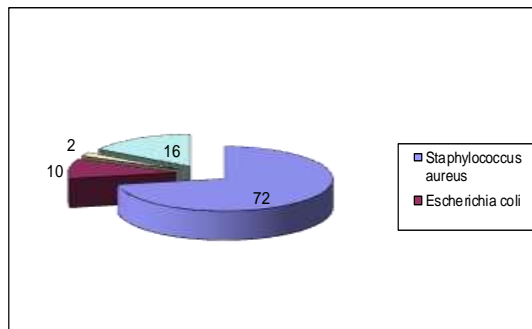


Fig (23) Bacteriology of pus from 50 patients

Table (2) Developing chronic breast abscess

	Group A (N=25)		Group B (N=25)		X ²	P-value
	N	%	N	%		
Chronic abscess	0	0	1	8	2.082	0.149

Table (3) Developing milk fistula

	Group A (N=25)		Group B (N=25)		X ²	P-value
	N	%	N	%		
Milk fistula	3	12	0	0	3.192	0.074

Table (4) Need for weaning in 2 groups

	Group A (N=25)		Group B (N=25)		X ²	P-value
	N	%	N	%		
Need free weaning	4	16	2	8	0.762	0.384

Table (5) Patient satisfaction in 2 groups

	Group A (N=25)		Group B (N=25)		X ²	P-value
	N	%	N	%		
Patient satisfaction	8	32	18	72	3.953	0.047*

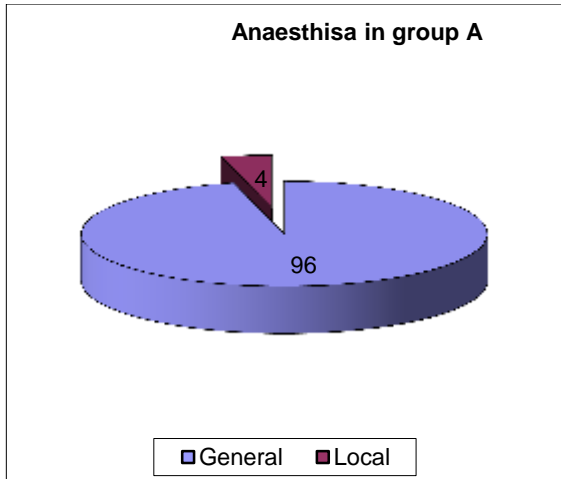


Fig (24) Anaesthesia in group A

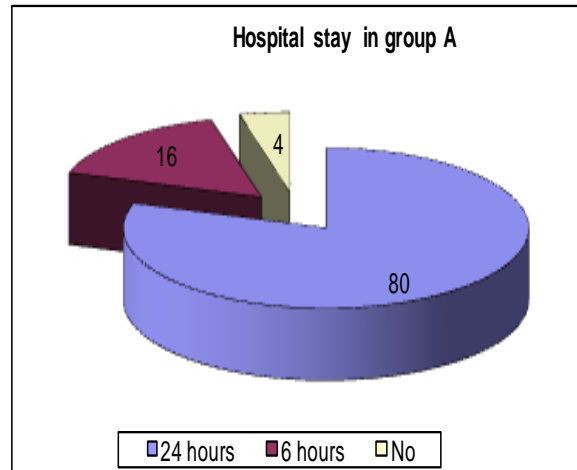


Fig (25) hospital stay in group A

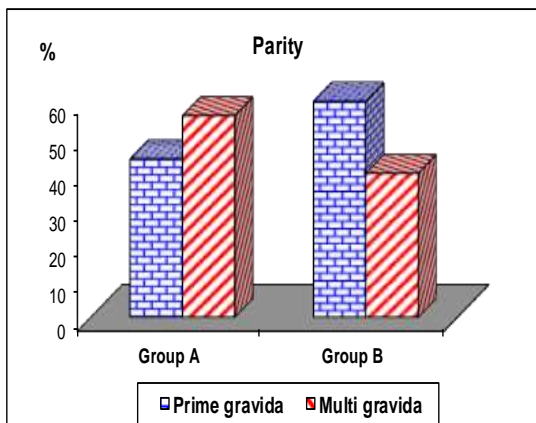


Fig (26) Comparison of parity between 2 groups

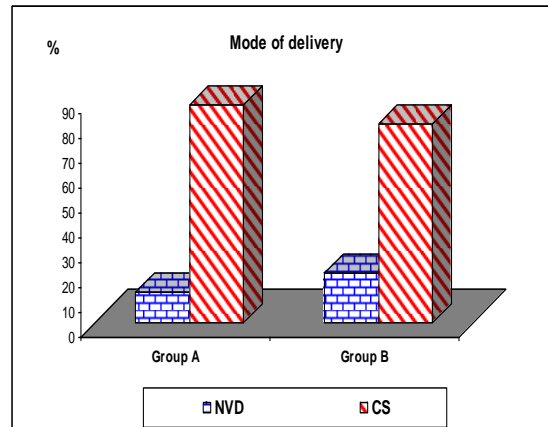


Fig (27) Comparison of mode of delivery between 2 groups

4. Discussion

The breast is one of the sex organs of a female, in case of breast disease care should be taken to insure that its beauty is minimally compromised in order to preserve its value and function.

Breast abscess is a common cause of morbidity in women. While they are less common in developed countries as a result of improved maternal hygiene, nutrition, standard of living and early administration of antibiotics, breast abscess remain a problem among women in developing countries.

The treatment of breast abscesses poses a difficult clinical problem.

Traditionally, management of breast abscess involves incision and drainage; however this is associated with need for general anesthesia, prolonged healing time, regular dressing, difficulty in breast feeding, and possible unsatisfactory cosmetic outcome. Even with the aggressive approach of incision and drainage combined with use of antibiotics, breast abscess recurrence rate is reported to be between 10 and 38%.

The aim of this study was to establish whether needle aspiration is a feasible alternative treatment option for breast abscesses.

Thus our study conducted on fifty patients who were complaining of acute suppurative breast abscesses attending the medical care in Benha University Hospital and Samanud General Hospital.

Recruitment of patients was carried out in the Accident and Emergency department, and Breast Outpatient Clinic.

Patients who met the inclusion criteria were enrolled into the study. Clinical diagnosis was made basing on the presence of breast pain, swelling, ± fever and presence of a fluctuant tender breast swelling.

The patients diagnosed clinically were subjected to ultrasound scan in the radiology department. The diagnosis was confirmed sonographically.

In this study, breast abscesses resolution was defined as clinically no breast tenderness, swelling or wound at the previous site of the abscess and sonographically complete absence of fluid

collection, normal breast glandular and fibro fat tissue with no edema.

Patients were randomized to both incision and drainage or needle aspiration. we preferred aspiration for most cases of unilocular breast abscess.

Thus, in our study we had 38 cases of unilocular abscess and 12 cases of multilocular abscess.

The cost effectiveness ratio of aspiration was found to be much less than that of Incision and Drainage, thus indicating that aspiration provides savings to the hospital and the patient, hence more cost effective than Incision and Drainage.

In our study the youngest patient was 18 years and the oldest was 38 years old, all of them were lactating. The mean age of all the patients in the study was 28 years. The mean age was different in different studies. Ulitzsch et al [4] from Sweden and AF Christensen et al [1] from Denmark had reported 32 years of mean age in their study. This implies the age of pregnancy in the European countries is above 25 years. In Gojen Singh et al [5] he considered none lactating patients which was the reason for the mean age of 32 years in his study.

In our study the smallest abscess was of size 1.5cm and the largest was about 7 cm. Based on success rate with respect to size of abscess in multiple studies around the world we had decided the cut off point for maximum size to be 5cm.

Our study reported different sites of abscesses. Studies of Singh et al [5] and Chandika et al [6] reported most of the breast abscesses in the upper outer quadrant. The reason for the observation in our study might be because the milk from the lower quadrant of the breast would have to move against the gravity and has more chance of stasis of the milk in the ducts of lower quadrant.

Mastitis and abscesses occurs when there is milk stasis. Secondly the sample size is too small to reach a conclusion, so it might be just an observation in our study which requires further evaluation.

In our study 52% of the patients were primipara. This observation of our study very well corroborates with the data of different studies. Kamal Kataria et al [7] said that the risk factors for the formation of breast abscess were first pregnancy, mastitis, pregnancy more than 41 weeks. The reason was in primipara because of the lack of experience regarding the positioning of the baby, nipple areola care and poor hygiene predisposes for the formation of breast abscesses. This was collaborated from the data around the world.

84% of the patients in my study underwent caesarean section as against 16% of normal vaginal delivery. High percentage of breast abscesses in their group can be explained by the fact that operative procedure with anaesthesia, post

operative analgesia and drowsiness, difficulty in sitting up to breast feed, delay in initiation of breastfeeding. No study had reported any relation between the mode of delivery with the development of breast abscesses.

In our study more number of patients were presented within the first 6 weeks (85%). Kamal Kataria et al [7] 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. Dieter Ulitzsch et al reported a mean time of 5.4 weeks for the development of abscess after delivery.

In our study we noticed 72% of the abscesses grow *Staphylococcus aureus*. This is followed by 16% sterile culture. All the previous studies reported that *Staphylococcus aureus* was the most common organism found in the cultures of breast abscess.

Chandika et al in their study noticed no recurrence in the patients treated with aspiration but he noticed recurrences in incision and drainage group.

Elagili et al [6] concluded multiloculated abscess associated with approximately 50% failure to cure by aspiration. Hook et al [8] in his study concluded that abscess of size > 3cm is difficult to treat by aspiration. In our study we suggest that smaller size of the abscess can be treated by aspiration and larger sized abscesses can be treated by aspiration also but better results with US guidance.

Abscesses with necrotic parts of skin needed incision and drainage.

The reported cases of recurrence after aspiration were 6 cases all of them multilocular abscesses.

Imperiale et al [9] in their study said the cosmetic result of aspiration was optimal in all cases. Dieter Ulitzsch et al [4] and Singh et al in their study reported 96% of patients treated by aspiration were satisfied by the cosmetic results. In our study cosmetic results of cases treated by aspiration were satisfactory while all cases of incision and drainage left an ugly scar.

According to Chandika et al [6] needle aspiration was a highly accepted modality. The high acceptance rate may be because of the convenience of the procedure which was an outpatient procedure and had no wound to nurse on and absence of scar.

The success rate of needle aspiration in our study is 76%. This correlated with the success rate of certain studies. JM Dixon noticed a 100% success rate in their study.

Post operatively clinical symptoms like pain and fever were assessed in the patients of breast abscess treated with aspiration and with incision and drainage. At the end of day 10, we observed 96% of the patients in aspirated group got relief

from pain whereas in the incised group 90 % of the cases had no pain and the difference has little significant.

Wound healing was significantly faster in the aspirated group than in the incised group this finding was similar to the study done by Eryilmaz et al. [10]

Rate of early restoration of breast feeding was higher in percutaneous aspiration group than drainage group. The findings were correlated with Christensen et al [1] where most of lactating mothers continued breastfeeding in the treatment period satisfactorily and no milk fistula developed while the study of Chandika AB et al [6] found 66.2% of lactating patients continued breastfeeding in the treatment period satisfactorily 19,7,. In our study 3 cases developed milk fistula all of them from incision and drainage group while 6 cases needed weaning 4 of them from drainage group and 2 cases of failed aspiration and needed incision and drainage also.

4. 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 4 cm 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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