

Comparison of outcome between percutaneous aspiration and incision and drainage in cases of lactational breast abscess

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Abstract

Breast abscesses are the formation of fluid (pus) in breast tissues and are usually common in lactating mothers. Therapies include percutaneous aspiration and is considered as one of the safe and highly effective treatment with high healing rate, less to no risk of reoccurrence for curing breast abscesses. Another one is incision and drainage. This is considered as the traditional approach of breast abscesses treatment. This approach has prolonged curing time with high chances of reoccurrence. Further to this, women underwent this approach are maximally not allowed to feed their babies. This approach is considered as less satisfactory on outcomes and is more expensive like need more hospitalization, regular dressing, dressing pain, series of medication, and so on. The studies recommend that this approach of treatment should not be considered for acute breast abscesses. The advanced approaches are more effective with less to no chances of reoccurrence rate and are cost-friendly as well. The incision and drainage approach of treatment for breast abscesses are more highlighted in terms of management and healing.

Objective: To compare the outcome of percutaneous aspiration with incision drainage for management of breast abscess among lactating mothers.

Place and duration: This was randomized controlled trial carried out at Department of General Surgery, Sir Ganga Ram Hospital, Lahore, from March 2016 to December 2016.

Material and Methods: 80-lactating mothers with breast abscess (< 4cm) were included. 40-patients in group-A had percutaneous aspiration, while 40-patients in group-B had incision drainage. The patients were evaluated for healing of abscess and cessation of breast feeding. Statistical significance determined by chi-square test ($p < 0.05$ was taken as significant).

Results: Cessation of breast feeding was observed among 2 (5%) in group-A and in 29 (72.5%) in group-B, ($p < 0.05$). While the healing rate does not differ much.

Conclusions: Percutaneous aspiration of the breast abscess is a better and safer alternate to incision and drainage in lactating females.

Keywords: Breast abscess, percutaneous aspiration, incision drainage

Introduction:

Breast abscesses are the painful formation of pus in breast tissue. This condition is mostly noticed in lactating mothers and is developed due to bacterial infection at nipple zone and majorly due to biting of the child during breast feeding, lack of proper hygiene, the blockade of milk ducts, lump formation that may be cancerous. Breast feeding causes pain or burn like feelings

to mother, warm and redness of breast cause itching. The infection leads to breast abscesses.¹

To date, the mode of treatment of treating breast abscess is incision applying cut to release pus or infected fluid. Another way of treatment is percutaneous needle aspiration of pus using syringe to collect pus following antibiotic treatment can assist in resolving this condition permanently.²

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This approach of treatment is safe, effective, and somehow cost-friendly. It is also considered a preferable option to treat breast abscesses due to its benefits like no scar formation, less to no hospitalization, and quick recovery without major complications.³ The percutaneous aspiration is mostly beneficial to treat minor abscesses of below 3-cm in diameter. Sonography is used to carry out the procedure and are done with many confirmatory tests.⁴ The procedure is done under general anesthesia and takes more time for healing but is cost-effective. Depending on the disease condition, the catheter is also applied for drainage.⁵

Hussain et al. (2018) found that about 87.8% of women cured within a couple of weeks after getting percutaneous needle aspiration.⁶ Procedure carrying out under sonography are less risky for scars development.⁷

The needle aspiration approach is less invasive having high cure rate. Metabolic disorders like diabetes, dyslipidemia, obesity may delay effective treatment. The procedure needs about 10-days for healing.⁸ The complete empty of milk minor duct is necessary either by pump or naturally, cleaning the areola of the nipple with taking medicine on time significantly reduce the healing time. Reoccurrence of infection may occur.⁹

The severity of breast abscess ranges from mastitis to abscess formation. The breast abscesses may be peripheral or central peri- eolar. The acute cases are easily curable but the chronic phase needs surgical procedure.¹⁰ There are different therapeutic approaches to resolve breast abscesses like incision drainage which is considered as the traditional approach. Another one in subcutaneous aspiration with the series of medication successfully cures this disease by allowing the women to feed their baby.¹¹

The procedure of incision drainage is conducted by applying cut to the injured area to release the infected fluid. The cleanliness and dressing of the injured area are needed frequently and pain gradually reduced. There is a less chance of reoc-

currence with more chance of leaving incision mark on the breast. Through this procedure, the women are hard to allow for breastfeed to their babies. This procedure is one of the traditional procedures however in substandard hospitals; this procedure is practiced to treat breast abscesses.¹² Many times women are permanently not allowed to feed their baby and depending on condition few women are allowed to feed after the completion of treatment. The surgical marks left which need cosmetic surgery or other treatments.¹³ The opening of the infected area for releasing fluid may also release some amount of blood. These conditions delay the cure rate whereas the advance therapeutic approach like needle aspiration cause less to no loss of blood with the immediate release of suffering. The incision drainage approach of treating breast abscesses has fewer advantages with a slow cure rate and high chances of wound granulation. The series of medication also influence the milk ducts like changes the pH of milk. Several studies reported that may be for this reason the women are permanently not allowed to feed their babies.¹⁴

Further to this, the post drainage is also needed in some patients due to several reasons, like the formation of granules or scars filled with fluid, the poor dressing or irregular dressing cause the emergence of this condition. These symptoms gradually increase the patient suffering along-with financial burden. For instance, patient has to be admitted for more couple of days, series of medication or infusion, and so on mostly result in prolonged healing time and increase finance burden.¹⁵ With this approach of treatment, there is a high chance of disease reoccurrence with or without complexity. Many studies suggested that this approach of treatment has unsatisfactory outcomes with more chances of reversibility. For this aim, the advance approach is highly considered to treat breast abscesses which have nearly 87% of curing rate with minimal chances of low reoccurrence rate. Most mothers are allowed to feed their babies.¹⁶

According to a study, a number of women underwent incision, and drainage therapeutic ap-

proach reported that 38% relapsed and 10% of women has reported of milk cessation. The re-occurrence has more complexity with extremely high abscesses.¹⁷ According to Miao et al. this therapeutic approach needs frequent consultation due to low curative to high reoccurrence rate with the high demand of cosmetic treatment. The milk cessation is high and this condition can also give rise to milk fistula.¹⁸

Incision and drainage treatment is one of the traditional procedures to treat breast abscesses. This therapeutic approach is least effective with prolonged healing time. Further to this, maximum women are unable to feed their babies. On the other hand, the fluid aspiration approach of treatment is advanced and is considered as a high curative and less reoccurrence rate. The studies reported 87% of success rate and after time interval women can able to feed their baby.¹⁹

Through aspiration technique of treating breast abscesses, the blood loss is less to no with no such chances of cracks or scar formation, however, the incision and drainage therapeutic approach opens the wound part to release the fluid, the more chances of blood loss with a high risk of granular formation and left the incision mark on the skin. This mark can be resolved via cosmetic treatment.²⁰

Treatment through aspiration causes the immediate release of pain and a few series of medications can effectively resolve the disease in women. However, the therapeutic approach of incision and drainage gradually releases pain, even the affected person also bears the regular dressing pain, and poor dressing or post drainage give rise to scars or granules formation in breast tissue. This eventually results in a delay in healing.²¹

The aspiration approach of treatment causes the least to no reoccurrence rate, the treatment does not require more stay in hospital, regular dressing, not allowed to feed their baby, and least cost effective.²² However, incision drainage needs hospitalization for couple of days after the procedure, needs regular dressing, series of medica-

tion, frequent consultation and a more chances of permanent milk cessation, high reoccurrence rate and many times result in more complexity, less to no satisfaction are the main factors that via research it is proposed that aspiration approach of treatment should be the priority to treat breast abscesses.²³

Material and Methods:

This was a randomized controlled trial carried out at Department of General Surgery, Sir Ganga Ram Hospital, Lahore, from March 2016 to December 2016. Total 80-lactating mothers with breast abscess size less than 4cm, were included in this study. 40-patients in this group received USG guided percutaneous aspiration of the breast abscess and 40-patients received surgical drainage. All patients with recurrent breast abscess, antibioma, uncontrolled diabetes, taking steroids or immuno-suppressant drugs were excluded from the study.

All cases registered through Emergency Department. Informed and written consent was taken. Randomization was done through lottery method. Group-A received percutaneous aspiration, and group-B received incision drainage. The surgery was done by experienced surgeon. Percutaneous aspiration was done by the experienced radiologist. All patients received 1-week course of antibiotic post intervention (augmentin 1g twice a day). After the intervention is done, all the patients were observed for the cessation of breast feeding and rate of healing (subsiding of pain, fever and inflammation) after one week.

The data was analyzed through SPSS statistical software. The outcome parameters were presented as frequency distribution. The two groups were compared for any statistical significance. P-value < 0.05 was significant.

Results:

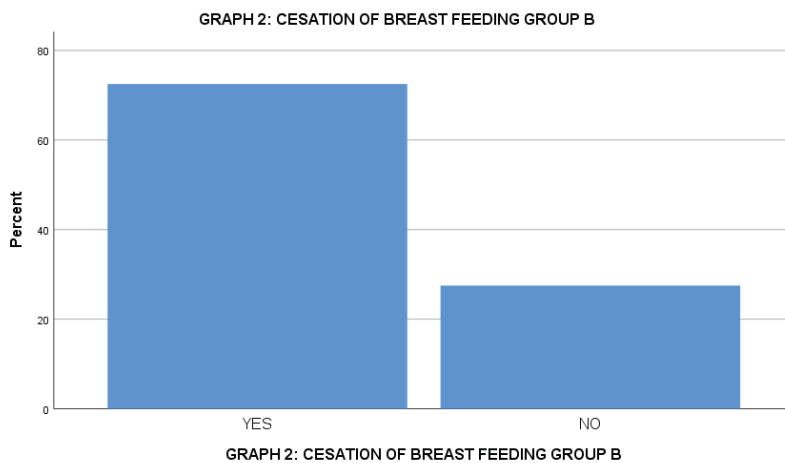
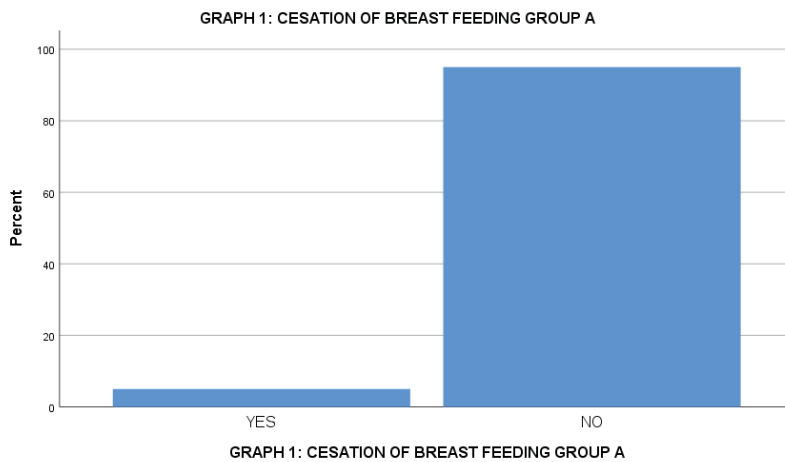
80-female patients were included in this study. Each group had 40-patients. Cessation of breast feeding was observed in 2(5%) patients in group-A and in 29(72.5%) patients in group-B. The results were statistically significant ($p < 0.05$), (table-1). Healing rate was comparable

Table 1: Cessation of breast feeding after intervention

Cessation of breast feeding	Group A		Group B		p-value
	No.	%	No.	%	
Yes	2	5	29	72.5	<0.05
No	38	95	11	27.5	
Total	40	100	40	100	

Table 2: Statistics

	Cesation of breast feeding Group-A	Cesation of breast feeding Group-B
N		
Valid	40	40
Missing	0	0
Mean	1.9500	1.2750
Median	2.0000	1.0000
Mode	2.00	1.00
Std. Deviation	0.22072	0.45220



among the two groups. In group-A, 2-patients (5%) underwent re-aspiration and 2-patients (5%) ended up with incision and drainage,

while in 35(90%) patients there was complete resolution of abscess. In group-B resolution of abscess was 100% after 1st intervention on the cost of open wound.

Discussion:

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 and needs general anesthesia, prolonged healing time, and regular dressing.²⁴ Our study is in favor of percutaneous aspiration with a lower rate of cessation of breast feeding (7%) as compared to incision drainage (73%). The results were statistically significant (p-value < 0.05), while the healing rate does not differ much. This has been proven that extraction of milk from the affected breast is essential in breast abscess. Stasis will lead to the engorgement of the breast tissue and elevation of signs and symptoms of breast abscess. Cessation of breast feeding is very common in the presence of breast abscess. This may be due to the pain, tenderness and psychological issues with mother.²⁵

In this study, the cessation of breast feeding occurred less frequently among patients with percutaneous aspiration (7%) as compared to incision drainage group (73%). The results of this study were also validated by previous work of Saleem S, et al¹³ who in a study among lactating mothers proved a lower rate of cessation of breast feeding with needle aspiration (13%) as compared to incision drainage (70%).

In 2006 Tewari M et al. described a minimally invasive palpatory method of drainage of breast abscess i.e., percutaneous placement of suction drain. The abscess healed in 5-8 days and there was no complication of residual or recurrent breast abscess, fistula or sinus formation, indurations or distortion of breast parenchyma. In that study, the breast feeding was not interrupted in any patient (0%).²⁶

In this study, there were only two cases in percutaneous group who suffered from cessation of breast feeding. In both cases, the cessation was

due to pain and tenderness. The other possible reasons have been documented by Saleem S, et al.¹³ who in their study found that out of 30-patients with percutaneous aspiration, 4-patients suffered from cessation of breast feeding. The causes of breast feeding were, milk fistula (one case), residual abscess (one case) and patient's own preference (two cases).

Percutaneous needle aspiration of breast abscess has been found to be a better treatment option for breast abscess and this has been reported to be associated with very good patient satisfaction, less recurrence, excellent cosmetic result and has less costs.

Conclusion:

Hygiene factors were responsible for breast infection and timely treatment the effective cure and therefore more preferable. At the acute phase of disease, the condition can be completely curable with no risk of reoccurrence. To treat this condition there is a number of therapeutic approaches including needle aspiration and incision and drainage. The subcutaneous aspiration is a safe, effective and takes less healing time. The incision and drainage approach is less effective with more reoccurrence rates. It is more expensive and takes more healing time. On the basis of our findings the incision and drainage approach should not be considered due to its disadvantages.

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Role and contribution of authors:

Dr Sikandar Ali, conceived the idea, collected the data and did initial writeup.

Dr Sadiqa Bano Haider, collected the data and helped in introduction writing.

Dr Abdullah-el-Muttaqi, critically review the article and made useful changes.

Dr Najam Rajpar, helped in collecting the data, references and also helped in discussion writing.

Dr Rasheeqa Mahmood, helped in collecting the references and also helped in tabulation the data.

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