



TO STUDY THE ULTRASOUND-GUIDED PERCUTANEOUS ASPIRATION IN LACTATIONAL BREAST ABSCESES: A HOSPITAL-BASED STUDY

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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 (Ioannis H and Nigel JB, 2002).

AIMS AND OBJECTIVES The following were the aims and objective of this study.

1. To establish the role of ultrasound-guided percutaneous aspiration of breast abscess as a treatment modality in lactational breast abscess.
2. To establish role of ultrasound as a diagnostic modality in localization of residual lactational breast abscess.
3. To formulate the outcome of intervention/procedure after overall outcome of the present study.

MATERIAL AND METHODS The present, observational study was conducted on 30 patients with clinically diagnosis of lactation breast abscess in the Postgraduate Department of Surgery, Government Medical College, Jammu.

SUMMARY AND CONCLUSION Needle aspiration is simple to carry out and is well tolerated by patients. Patients do not require hospitalization, and clinical improvement is rapid. In the present study in every case, ultrasound imaging revealed the fluid collection. The percutaneous procedures used in the treatment of breast abscesses do not produce any cosmetic alterations, and the results obtained are satisfactory. There is no need for general anesthesia or operation, and no in-hospital stay, and postoperative dressings and discomfort after aspiration therapy are minimal. There is also a low occurrence of the troublesome milk fistulae that often follows incision and drainage. This technique should become the standard of practice in the management of breast abscesses. US-guided needle aspiration is a minimally invasive therapy in combination with antibiotics is found to successfully treat most breast abscesses.

KEYWORDS : Aspiration, Breast, Fistula, Percutaneous

INTRODUCTION

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 (Ioannis H and Nigel JB, 2002).

Lactational breast abscess is an accumulation of pus in an area of the breast and frequently develops as a result of inadequately treated infectious mastitis (Dener C and Inan A, 2003). 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. Risks for developing breast abscess include primiparity, birth after 41 weeks' gestation, age >30 years, and recent mastitis (Preece PE, 1982; Ulitzsch D, Nyman MKG, Carlson RA, 2004; Kvist LJ and Rydhstroem H, 2005).

Breast abscesses are a complication of mastitis, and a pyogenic abscess can evolve from acute bacterial mastitis if treatment with antibiotics is not successful. Breast abscesses are more frequently observed in non-puerperal mastitis than in puerperal mastitis, and can be a particularly difficult condition due to the intense discomfort and tendency for recurrence. When an abscess is small and located deep within the breast, it can be clinically difficult to detect and differentiate from mastitis (Hayes et al., 1991).

Clinical presentation of lactational breast abscess usually includes fever, chills, malaise, and recent or recurrent mastitis. Pain, erythema, and firmness over an area of the breast are typically present. However, a mass is not always palpable, especially if it is located deep within a large breast. Diagnosis is made via signs and symptoms, physical examination, and ultrasound (Kvist LJ and Rydhstroem H, 2005).

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MATERIAL AND METHODS

The present, observational study was conducted on 30 patients with clinically diagnosis of lactation breast abscess in the Postgraduate Department of Surgery, Government Medical College, Jammu. The size of the abscess varied from 2 to 8 cm. All the patients were lactational mothers. Pain over an area of breast was present in all the patients. Discharge was present in 20 (66.67%) patients. All were given antibiotic cover against other infections. They were subjected to ultrasonography-guided percutaneous aspiration of breast abscess thrice during a period of one week.

OBSERVATION

The present, observational study was conducted on 30 patients with clinically diagnosis of lactation breast abscess in the Postgraduate Department of Surgery, Government Medical College, Jammu. The size of the abscess varied from 2 to 8 cm. All the patients were lactational mothers. Pain over an area of breast was present in all the patients. Discharge was present in 20 (66.67%) patients. All were given antibiotic cover against other infections. They were subjected to ultrasonography-guided percutaneous aspiration of breast abscess thrice during a period of one week. Following observations were made during the course of the study.

1: Age distribution of patients

Most patients were in the age group of 23 – 25 years (36.67%), followed by 20 – 22 and 26 – 28 years (23.33% each) and 29 – 31 years (16.67%). Mean age \pm standard deviation of the patients was 24.96 ± 2.90 years with a range of 20 to 31 years.

Mean age \pm standard deviation (range) = 24.96 ± 2.90 (20 – 31) years

2: Parity distribution of patients (n=30)

Most of the patients were para 1 (56.67%), followed by para 2 (36.67%) and para 3 (6.66%).

3: Distribution of patients according to duration of symptoms (n=30)

Half of the patients presented after symptoms persisted for 11 to 15 days (50%), followed by 16 to 20 days (26.67%), >21 days (13.33%) and <10 days (10%). Mean duration of symptoms \pm standard deviation was 15.46 ± 4.04 days with a range of 8 to 21 days.

Mean duration of symptoms \pm standard deviation (range) = 15.46 \pm 4.04 (8–21) days

4: Distribution of patients according to size of abscess (n=30)

Abscess with a size of 4 cm was seen in most patients (20%), followed by size of 5 cm (16.67% each), size of 2, 3 and 7 cm (13.33% each) and size of 8 cm in 6.67% patients. Mean size of abscess \pm standard deviation was 4.76 \pm 1.81 with a range of 2 to 8 cm

Mean size of abscess \pm standard deviation (range) = 4.76 \pm 1.81 (2–8) cm

5: Distribution of patients according to quantity of pus (n=30)

In 20% patients each, quantity of pus was <20 ml, 21–30 ml, 31–40 ml and 41–50 ml respectively. In 13.33% patients, quantity of pus was 51–60 ml and in 6.67% patients, it was >61 ml

Mean quantity of pus \pm standard deviation (range) = 39.33 \pm 18.55 (10–90) ml

6: Distribution of abscesses according to quadrant and side involved

There were 31 quadrants involved for 30 abscesses in the study. There were 18 on the left side and 13 on the right. One abscess of 5 cm size stretched from inferolateral to superolateral on the left side, thereby involving two quadrants. Superolateral quadrant left and right side was the most involved with 13 (41.94%) abscesses, which included 8/18 (44.44%) on the left side and 5/13 (38.46%) on the right side. Superomedial quadrant was more involved on the right side (38.46%), while inferolateral quadrant was more involved on the left side (22.22%) and inferomedial quadrant also was more involved on the left side (16.67%).

DISCUSSION

Breast abscesses constitute a significant clinical/surgical problem because of the significant associated patient discomfort and the tendency towards recurrence. Breast abscesses are observed more often in lactating women. Patients with breast abscesses are commonly seen in the Emergency Department.

The traditional treatment of breast abscesses is by surgical incision and drainage, digital disruption of the septations, complete evacuation of abscess contents, with or without the placement of surgical drains. Appropriate systemic antibiotic coverage should also be used. Despite adequate surgical drainage, between 10% and 35% of abscesses recur and require additional drainage procedures.

Frequently, the surgical drainage paradigm necessitates general anesthesia, may lead to unpleasant scar formation, is more expensive than aspiration, and often calls for regular postoperative dressing changes. Moreover, surgical drainage of breast abscess may interfere with lactation.

Needle aspiration of the purulent material in breast abscesses has been reportedly performed with or without ultrasound guidance. It was first suggested in the 1920s that breast abscesses can be successfully treated with percutaneous needle aspiration. Today, high-resolution, real-time, hand-carried ultrasonography allows surgeons to perform directed bedside drainage of breast abscesses, often irrespective of the total abscess volume and/or size.

In the present study, patients presented were from age group 20 to 31 years and most patients were in the age group of 23–25 years with mean age of 24.96 years, which is similar to the study conducted by Dixon JM (1988) in which six women aged 24–32 with mean age 27 years presented three to eight weeks postpartum with a breast abscess. The present study is also similar to the study conducted by Chandika AB, Gakwaya AM, Kiguli-Malwaddle E, et al. (2012) in which the mean age was 23.12 years.

In the present study, most of the patients were para 1 (56.67%), which is similar to study conducted by Chandika AB, Gakwaya AM, Kiguli-Malwaddle E, et al. (2012) in which most of them were lactating primiparous patients. Kvist LJ and Rydstroem H (2005) concluded in their study that primiparous women appear to be at a greater risk for the development of breast abscess during lactation than multiparous women. Also, in the present study, in 19 patients in whom abscess was resolved, 11 (57.89%) were primipara and 8 patients (42.11%) were multipara.

In our study, size of abscess varied from 2 to 8 cm, which is similar to the study conducted by Kielar M, Raczek-Pakula K, Waligora J, et al. (2009), in which ultrasonographic examinations confirmed the presence of typical image of an abscess, from 3.3 to 8.2 cm in diameter. Also, in the present study, size of abscess (in cm) in patients in whom abscess got resolved was less as compared to those in whom abscess did not get resolved which is similar to the study conducted by Hook GW and Ikeda DM (1999), who concluded that percutaneous aspiration of breast abscesses can enable diagnosis of abscesses and be used to treat small abscesses if they are completely drained. Eryilmaz R, Sahin M, Hakan Tekelioglu M, et al. (2005) concluded in their study that breast abscesses smaller than 5 cm in diameter on physical examination can be treated with repeated aspirations with good cosmetic results. Incision and drainage should be reserved for use in patients with larger abscesses. Ozseker B, Ozcan UA, Rasa K, et al. (2008) observed that this method is more successful in abscesses with a maximum dimension smaller than 3 cm. Chandika AB, Gakwaya AM, Kiguli-Malwaddle E, et al. (2012) found that ultrasound-guided needle aspiration is a feasible and cost effective treatment option for both lactating and non-lactating breast abscesses with a diameter up to 5 cm by ultrasound in an immune competent patient. Suthar KD, Mewada BN, Surati KN, et al. (2013) however concluded in their study that there was high failure rate of aspiration therapy in abscesses with >5 cm size on ultrasonography.

In the present study, amount of pus varied from 10 ml to 90 ml. Abscesses resolved in cases where the amount of pus was less which is similar to the study conducted by Schwarz RJ and Shrestha R (2001) which observed that those patients in whom needle aspiration was successful had a significantly smaller volume of pus on initial aspiration (4.0 mL versus 21.5 mL).

In our study, the superolateral quadrant of left breast was more involved (44%) as compared to other quadrants, which is similar to study conducted by Elagili F, Abdullah N, Fong L, et al. (2007) in which 9 (30%) lesions were in the upper outer quadrant of the left breast. Chandika AB, Gakwaya AM, Kiguli-Malwaddle E, et al. (2012) found that abscesses were located in the upper lateral quadrant (56%).

SUMMARY AND CONCLUSION

- The size of the abscess varied from 2 to 8 cm. All the patients were breast feeding and pain over an area of breast was present in all the patients. Discharge was present in 20 (66.67%) patients. Antibiotic cover was given to all patients against other infections. Most patients were in the age group of 23–25 years (36.67%). Mean age of the patients was 24.96 with a range of 20 to 31 years. Most of the patients were para 1 (56.67%), followed by para 2 (36.67%) and para 3 (6.66%). There was no significant difference between primipara and multipara patients in resolution of abscess.
- Mean duration of symptoms was 15.46 with a range of 8 to 21 days. Mean size of abscess was 4.76 with a range of 2 to 8 cm and mean amount of pus in 30 patients was 39.33 ml. Mean size of abscess was significantly less in whom resolution was observed ($p < 0.0001$).
- There were 31 quadrants involved for 30 abscesses in the study, 18 on the left side and 13 on the right. Inferolateral quadrant left and right side was the most involved with 13 (41.94%) abscesses.
- Causative agents like *Streptococcus aureus*, *S. spp.* and *Escherichia coli* were responsible for abscess in 28, 2 and 3 patients respectively.
- Mean size of abscess reduced to 3.44 cm from baseline size of 4.76 cm after 1st aspiration. The difference was statistically highly significant ($p = 0.009$). Mean size of abscess significantly reduced to 2.97 cm after 2nd aspiration ($p = 0.002$). Mean size of abscess significantly reduced to 2.78 cm after 3rd aspiration ($p = 0.004$).
- The success rate of resolution was 63.33%.

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