Original Article

Percutaneous needle aspiration of breast abscesses

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Summary:

Background: Breast abscesses could be successfully treated by percutaneous aspiration of pus and irrigation of the cavity with saline solution.

Objective: To assess the feasibility and effectiveness of percutaneous needle aspiration of breast abscesses under local anesthesia in the outpatient clinic.

Patient and methods:A prospective study of forty three women with breast abscesses attended outpatient clinic at Tikrit teaching hospital and privit clinic for the period from January 2008 to January 2010.All patients had preliminary breast ultrasoundexamination. Percutaneous needle aspiration of pus under local anesthesia was done ,followed by systemic antibiotics. Repeated aspiration was carried out later when deemed necessary and follow up byultrasound was conducted.

Results: Twenty three (53.4%) of patients obtained complete resolution (no focal collection) after one aspiration , 9 (21%) required two aspiration and 8 (18.6%)required more than two aspiration for cure (residual collection). In 3 (7%) of patients, the treatment failed where symptoms not resolved after 3 days, with further pus collection despite aspiration and antibiotics , where surgical drainage were required.

Conclusions: Percutaneous needle drainage of breast abscesses after preliminary breast US is feasible as a primary and definitive treatment for breast abscesses if complete or near complete drainage is achieved.

Key words: breast, abscess, aspiration.

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Introduction:

The traditional surgical treatment of breastabscesses consist of an incision over the point of maximal tenderness (or fluctuation) and digital disruption of abscess septa.(1) The abscess cavity is left open and packed with gauze, with subsequent dressing changes for few days during wound granulation.(2) This strategy is often done under general anesthesia . The incision is often disappointing cosmetically owing to scar formation and interference with lactation.(3) Battle and Bialy quoted by Uriburu in 1923 first suggested that breast abscesses could be successfully treated bypercutaneous aspiration of pus and irrigation of the cavity with Dakin ′ssolution.(4,5)In 1946, Flory was the first who considered the possibility of daily aspiration of small abscesses and direct injection of penicillin soon after drug become available at the end of World War II. (6)

Ultrasonography (US) has shown to be useful in depicting abscesses in patients with mastitis (7,8). Later on it was used to guide and facilitate complete drainage of breast abscesses compared with blind aspiration as it enables visualization of multiple abscesseloculations(9). Subsequently, imaging guided percutaneous aspiration of purulent breast abscesses collection was increasingly popular in 1980s(10), as Karstrup et al in 1990 reported successful percutaneous US guided aspiration of breast abscesses(11). The purpose of current study is to assess the feasibility and effectiveness of percutaneous needle aspiration of breast abscesses under US and under local anesthesia in the outpatient clinic.

Patient and methods:

A prospective study of forty three women with breast abscesses attended outpatient clinic at Tikrit teaching hospital and private clinic for the period from January 2008 to January 2010. The data gathered included age, lactation and breast symptoms as (discharge, red skin, fever, tender lumps). The site of the abscesses in relation to the breast was recorded. Preliminary breast US was performed by radiologist with 7–13 MHZ linear array tenderness (figure 1). The long axis diameter of the abscesses was checked. The aspiration procedure was performed on an outpatient basis using 19 G sterile needle underlocal anesthesia, 2 ml of 2% plain lignocaine anesthetic solutionat puncture side . Aspiration was followed by irrigation of cavity thoroughly with about 50 ml of sterile 0.9% isotonic saline solution until aspirate returned clear. Post procedural US images were obtained to evaluate any residual fliud collections (figure 2). Parenteral cefotoxime 1mg bid was prescribed on discharge from clinic. Further aspiration was done when necessary in the next 2–3 days. Patients were follow up one week later by US for any residual pus collection. No longer followed up was needed, when clinicalevidence

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of inflammation or residual collection no longer seen by sonography. Lactating patients were encouraged to continue doing so. Our management alogarithm was stated in (figure 3).

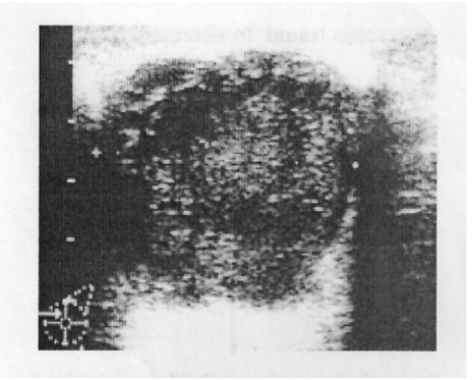

Figure (1): Ultrasound of breast abscess shows cavity with irregular walls and fine internal echoes.

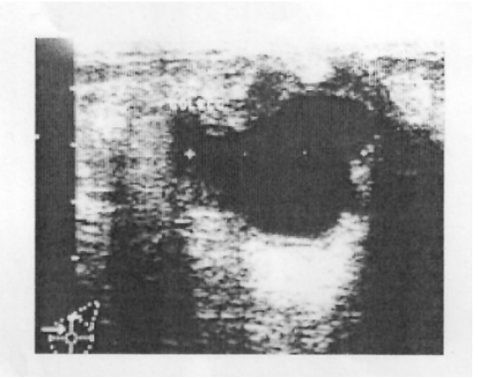

Figure (2): Ultrasound of breast abscess after aspiration and irrigation shows Complete resolution and internal echoes have cleared.

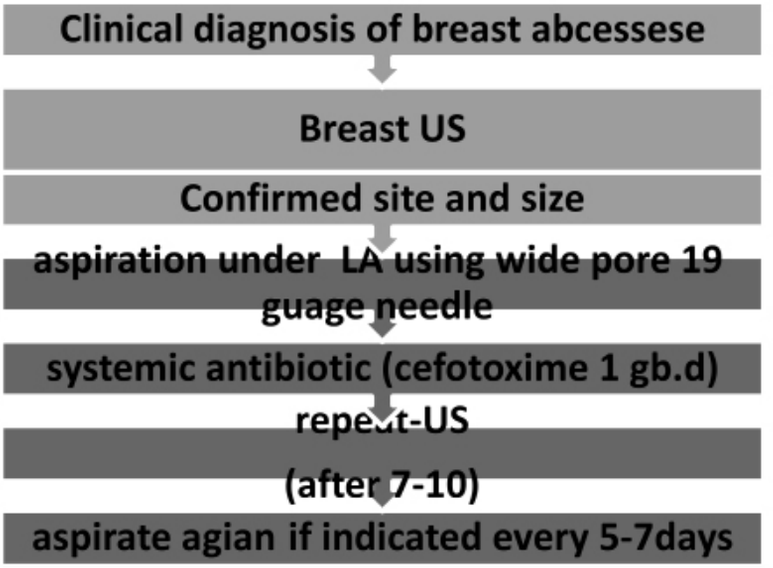

Figure (3): Management algorithm for treatment of 43 patients with breast abscesses.

Results:

A total of 43 patients with breastabscesseswere included in this study. Their age ranged from 16–75 years, with the mean age of 37 years± 5.6 .Seven (16%) of patients were lactating.

The abscesses situated centrally in the retro-areolar spacein 9% of patients while in 91% of patients the abscesses situated in peripheral sectors of the breast (table 1).

Table(1) Sites of breast abscesses

sites	No.	%
central	4	9
peripheral	39	91
Total	43	100

All patients presented with a firm, tender, palpable mass or masses in the breast. Seventeen (40%) of patients had redness of the overlying skin and one patient having a thick discharge from the nipple (table 2).

Table (2) Clinical presentation of patients

Symptoms	No.	%
Discharge	1	2
Tender lump	43	100
Fever	12	28
Red skin	17	40

US examination of the breast demonstrated a hypo echoic breast mass in all patients. Five patients had ultrasonic features of acute mastitis, were excluded from the study. The US long axis diameter of the abscesses ranged in size from 0.8–7 cm (average size =2.8 cm) as measured by the calipers on sonogram.

Twenty three (53.4%) of patients obtained complete resolution (no focal collection) after one aspiration, 9(21%) required two aspiration and 8 (18.6%)required more than two aspiration for cure (residual collection). In 3 (7%) of patients, the treatment failed where symptoms not resolved after 3 days, with further pus collection despite aspiration and antibiotics , where surgical drainage were required . Table (3).

Table (3) Treatment of patients by aspiration

Profile of treatment	No.	%
One aspiration	23	53.4
Two aspiration	9	21
More than two aspiration	8	18.6
Treatment failure	3	7
Total	43	100

No complications were observed in all patients who successfully treated with aspiration and antibiotics.

Discussion:

In the current report, patient ′s age range has some similarity with the result of Dixon JM who demonstrated that breast abscesses most commonly affects women aged 18 -50 years(2). Although breast abscess generally has been associated with mastitis and breast feeding, the results of our study and others (12) indicate that abscess is common in non–lactating women. In our series, the frequency of lactatingabscesses was (16%). This is in agreement with Crowe et al study who reported a 5% incidence of lactating abscesses in 21 patients(8)and on incidence of 8.5% reported by Scholefield et al. in 72 patients. (13) In our study; the finding of peripherally locatingabscesses more than centrally locating contradicts withDixon JM results who reported that peripheral breast abscesses are less common than periareolar one.(2) In the procedure of aspiration; some patient experienced discomfort during aspiration. This feeling according to Schwarz RJ and Shrestha R could have been resolved if prior application of local anesthetic (EMLA) cream at puncture site for 1 hourwas done to make aspiration acceptable(10)but unfortunately it was not available in our clinic. Our results showed that most of the abscesses (93%) can be treated with aspiration and antibiotic therapy if the abscess cavity is completely or almostcompletely drained. The finding of residual collection on follow up US in the patients studied emphasize the need for follow up imaging in the next referral to the clinic. O′ Hera et al. reported an 85% cure rate of 22 abscesses, some of them aspirate without sonographicguidance(12) Schwarz and Shresthaalso reported aspiration without sonographic guidance plus oral antibiotic in 33abscesses, with a resultant cure rate of 82%. In larger abscesses, aspiration was not always successful by drainage and treatment (10)Hook and Ikeda reported a 54% cure rate of 13 breast abscesses treated by aspiration and irrigation. The patient in whom the treatment failed had an abscess of more than 3 cm in diameter (9).Dixon et al. , however, reported successful aspiration of six lactating abscesses with a mean volume of 26 ml (14).It was stressed by R. Eryilmaz that the risk factor for failure of needle aspiration for breastabscesses was abscesses larger than 5 cm in diameter, unusually large volume of aspirated pus and delay in treatment(15). In their retrospective study that included 39 patients, Juan D et al. showed that percutaneous drainage procedures in breast abscesses are a safe and effective alternative to incision and drainage (16). After reviewing 36 papers, Thirumalaikkumar et al. concluded that the smaller the abscesses the better is the outcome and lower is the recurrence rate following the aspiration (17). According to Strauss et al. and Imperale A, surgery or other decompression method were required for definitive treatment in chronic or complicated abscesses (18,19).

Conclusion:
Percutaneous needle drainage of breast abscesses after preliminary breast US is feasible as a primary and definitive treatment for breast abscesses if complete or near complete drainage is achieved. Formal surgical drainage may be best reserved for few patients in whom aspiration fail.

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