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PUERPERAL BREAST ABSCESSES;

PERCUTANEOUS ULTRASOUND GUIDED DRAINAGE COMPARED WITH CONVENTIONAL INCISION AND DRAINAGE.

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ABSTRACT ... Objectives: The aim of this study was to compare the management of puerperal breast abscess by ultrasound guided percutaneous drainage v/s incision and drainage with special attention to resolution time and complications. **Setting:** Allied Hospital Faisalabad. **Period:** Jan 2005- June 2007. **Patients and Methods:** 60 patients with puerperal breast abscess were studied. Patients were divided into two groups randomly after informed consent. In Group A; patients were treated with percutaneous drainage under local anesthesia while Group B patients were treated by conventional incision and drainage, and results were compared with reference to resolution time and complications rate using student's t-test. **Results:** By percutaneous method abscess healed in 5-8 days time. Recurrent abscess was found in one case (3%), milk fistula formation in one case (3%) and no residual abscess was found. There was no scar formation, induration or distortion of the breast parenchyma. Breast-feeding was interrupted in four patients (13%) only due to milk fistula (one case), recurrent abscess (one case) and patient's own preference (two cases). On the other hand by conventional method healing took 15-25 days with pain and discomfort of daily dressings, scarring and cessation of breast feeding in most of the cases. **Conclusion:** Percutaneous ultrasound guided placement of suction drainage catheter in puerperal breast abscess for 5-8 days is less invasive, high resolution rate, scarless, low complication rate and preserves the function of breast-feeding as compared to conventional incision and drainage.

Key words: Breast abscess, lactation, ultrasonography, percutaneous drainage, incision and drainage, breast feeding, milk fistula.

INTRODUCTION

Breast abscesses can result as a complication of mastitis, especially if treatment is delayed or inadequate Mastitis is a potential complication of breast-feeding that occurs more commonly in primiparous women[1,2]. The reported incidence of abscess in lactation-related mastitis is 4.8%–11%[3]. The conventional treatment of a breast abscess has been surgical incision and drainage[4]. In recent years, however, various authors have described successful percutaneous treatment of breast abscesses by using US guidance or even palpatory guidance[5]. When compared with surgical incision and drainage, the risk of damaging major ducts with catheter placement is negligible also the better cosmetic results have been reported[6-8]. The minimally invasive technique however demands ultrasonographic facilities[9]. In treatment resistant cases, where the abscess is unresponsive to the combination of repeated drainage and oral antibiotics, surgical treatment still has a role. Surgery is also needed in cases with superficial abscesses with skin changes. This can make a surgical excision necessary for healing. Moreover surgery can also be necessary in special cases where other concerns such as suspicion of malignancy are important[10]. In this study comparison of conventional incision and drainage with US guided drainage is done.

SUBJECT AND METHOD

Sixty lactating women with clinically suspected breast abscess were studied in a period of 21/2 yr from January 2005 to June 2007 in surgical unit III Allied hospital Faisalabad. Clinical suspicion of abscess was based on the presence of a palpable mass or focal tenderness in the clinical setting of mastitis. Patients were divided into two groups randomly after informed consent.

In Group A percutaneous drainage under ultrasound guidance was done. Each breast US examination and therapeutic procedure was performed by one experienced radiologist and one surgeon. A sonographic diagnosis of abscess was made when a round, oval or irregularly shaped hypoechoic lesion was present with some acoustic enhancement.

If a lesion consistent with abscess was found, US-guided needle puncture was performed by using a 21-gauge needle to confirm the diagnosis. If the needle puncture findings confirmed the presence of an abscess, some of the aspirated material was sent for culture, and US-guided treatment was immediately performed.

On the basis of the experience reported by Karstrup et al[11], we decided to treat abscesses that were smaller than 3 cm in maximum diameter with aspiration alone while for abscesses with a maximum diameter of 3 cm and larger, local anesthetic (0.5% lignocaine) was administered to the patients and a nick was made in the skin to facilitate catheter insertion. Catheter placement was performed by using the trocar technique. A catheter of 14 Fr size was used. After catheter placement, the abscess drained through catheter and then irrigated three to five times with sterile saline until the aspirate was clear. The catheter was inserted through uninvolved tissue to minimize the possibility of leakage of milk, pus, or saline around the catheter. The catheter was also placed away from the nipple to avoid interfering with continued breast-feeding. The catheter is cared for by the patient herself after instructions given at the time of discharge.

In Group B, conventional incision and drainage was done under general anesthesia (ketamine). A sample of pus was sent for culture and sensitivity in each patient.

In both the groups patients were treated with penicillinase-resistant antibiotics, usually 1g augmentin administered orally two times a day for at least 07 days. The patients required convincing to continue feeding.

Patients were followed up to 2 months. Results were

compared with reference to resolution time and complications rate. Resolution, being defined as no recurrent abscess and no need for surgery. Cosmetic results were also assessed at follow up visits. Patients were asked about any residual scarring related to treatment, and, if so, whether the scar was cosmetically disturbing.

RESULTS

Sixty lactating women who were clinically suspected of having breast abscess were studied. The average age of women was 30 years. Thirty eight of the 60 women (63%) with abscesses were primiparous, and 22 were multiparous (Table I).

Table-I. Clinical characteristics of 60 patients with breast abscess.

Age (year)	**30 years (range 20-41 years)**
Area (rural / urban)	36 (60%): 24(40%)
Days from symptom onset to diagnosis	9 (range 2-16)
Parity (primiparous : multiparous)	38 (60%): 22 (36%)
Hospital admittance / OPD / emergency	12 (20%) / 22 (36%) / 26 (43%)
Median size of abscess (in cm) (range)	5.5 (2-12cm)
Central vs peripheral localization of abscess	35% / 65%

Four patients had abscesses which perforated spontaneously before treatment; three patients underwent surgery because the abscesses were too superficial and not suited for ultrasound-drainage with skin changes which required surgery for healing.

In Group A percutaneous ultrasound guided drainage was done. In 9 patients (30%) US evidence of mastitis was found without any abscess, In 4(13%) more than one abscess was found. The smaller one aspirated while larger were treated by putting drain as described earlier. Other ultrasound findings are shown in Table II.

Table-II. Ultrasound findings in 30 patients with clinical diagnosis of abscess.

Ultrasound findings	**Patients**
One or more abscess	21 (70%)
Without any abscess	9 (30%)
No evidence of abscess (in cm) (range)	5 (2-10)
Central vs peripheral localization of abscess	35% / 65%

In Group A, the mean drainage time was 5 days (range: 3-8 days).

In majority of patients drain was removed on the 5th day, otherwise further visit to the hospital was required on the 7th or 8th day. The catheter was removed when the abscess was no longer visible at US. In one patient recurrent abscess was found but this was less than 3 cm and was successfully treated with ultrasound guided aspiration. No patient treated with catheter placement required surgical intervention. Breast-feeding was interrupted in four patients (13%) only due to milk fistula (one case), residual abscess (one case) and patient's own preference (two cases). For milk fistula lactation was stopped by pharmacologic intervention; otherwise, milk may accumulate in the abscess cavity. There was no scar formation, induration or distortion of the breast parenchyma.

On the other hand by conventional method healing took 15-25 days with pain and discomfort of daily dressings, scarring and cessation of breast feeding in most of the cases. Mean duration of hospital stay was 4 days

(range2-8 days). Follow up examination was done after 4 and 8 weeks of the procedure. At follow up visit we also inquired about patient satisfaction with the cosmetic results of the operative modalities. Table 3 is showing comparison of two treatment modalities.

In both the groups pus was sent for culture and sensitivity. The result of pus for culture was showing Staphylococcus aureus in majority of the patients.

Table-III. Outcome of treatment in two groups of the patients

Outcome	Group A	Group B
Healing time	5 days (2-8days)	3wks (2-4 wks)
OPD / admission	26/4	0/30
Recurrent abscess	1 (3%)	1 (3%)
Breast feeding cessation	4 (13%)	21 (70%)
Milk fistula	1 (3%)	5 (16%)
Patient satisfaction	100%	55%

The results of the bacterial cultures of 49 abscesses in this series were as follow: 43 of 49 cultures (87.7%) contained Staphylococcus aureus, three (6%) contained Streptococcus pyogenes. In three patients, culture results were not available because a sample was inadvertently not sent for culture. The pus was found sensitive to augmentin and flucloxacillin.

DISCUSSION

The conventional treatment of a breast abscess has been surgical incision and drainage under general anesthesia as described by the Haagensen. This method was later modified by Webster with the addition of gauze packing[12]. I and D, curettage and primary closure of the abscess cavity has been described by others with better scar formation and reduction of cost of treatment[13,14].

In some institutions the standard treatment still remains early incision under general anaesthesia[15]. The side effects of this treatment include scarring and termination of breastfeeding[5]. In recent years ultrasound guided drainage has been described as method of choice[16,17]. A number of reports on breast abscess drainage under ultrasound guidance have also been published. In 1993 Karstrup et al. reported their experience with 19 patients who were scheduled to undergo surgical drainage of a breast abscess under general anesthesia[11]. Eighteen of the 19 patients were treated successfully with ultrasound-guided needle aspiration instead. In 1997 Garg et al. reported 25 consecutive cases of breast abscess drained under ultrasound guidance[18].

Christensen and colleagues conducted a study of 151 patients and reported a 90% success rate in patients treated with ultrasound guided drainage. They found less scarring no affect on breast-feeding and no requirement for general anaesthesia or hospitalization. And they concluded that with these advantages, ultrasound-guided drainage treatment should replace surgery as the first line of treatment in uncomplicated puerperal or non-puerperal breast abscess[10].

Tewari et al from India described a minimally invasive palpatory method of drainage of breast abscess that does not require hospitalization or ultrasonographic facilities; however this method was applicable only in drainage of large fluctuant puerperal breast abscess[9]. Sharma later described that the ultrasound facilities are available in most of areas in India and the use of ultrasound would minimize the chances of recurrent and residual abscess if its use is promoted in the primary health centers in the remote areas[19].

In our study we found ultrasound guided drainage an outpatient procedure in 60%, scar-less in 100%, complete healing occurs in 97% and breast-feeding is not interrupted in 87% patients. This is in accordance

with previous reports[1,9]. US can also rule out the presence of an abscess and thus prevent unnecessary intervention. Avoidance of repeated aspirations was another advantage of US guided placement of catheter in the abscess cavity. Although this technique requires an invasive radiology department but the ultrasound facilities are available in most of the hospitals of this country and even at the primary health centers. The patients easily carry out post catheter placement care of the treated breast.

CONCLUSION

Percutaneous ultrasound guided placement of suction drainage catheter in puerperal breast abscess for 5-8 days is less invasive, high resolution rate, scarless, low complication rate and preserves the function of breast-feeding as compared to conventional incision and drainage. US guided drainage can also rule out the presence of an abscess and thus prevent unnecessary intervention. This technique is not difficult to master and the service can be provided on a 24 hr basis.

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