

# LARGE LACTATIONAL BREAST ABSCESS: PRIMARY CLOSURE WITH DRAIN VERSUS CONVENTIONAL INCISION AND DRAINAGE

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## ABSTRACT

**Background:** Surgical management of breast abscess is a routinely performed technique. **Objective:** To assess the outcome of primary closure with drain and conventional incision and drainage of large lactational breast abscess. **Methodology:** This was an experimental study and we selected 50 patients of aged 16 to 42 years, with lactational breast abscesses larger than 5 cm in size, admitted from 1<sup>st</sup> April to 30<sup>th</sup> April 2018, in Sheikh Zayed Medical Hospital, Rahim Yar Khan. We randomly divided the patient in two groups of 25 patients each. Informed consent was taken from each patient. First group (close group) was named as primary closure group treated by incision and drainage followed by primary closure after placing a Nelton drain in the abscess cavity. Drain was attached with drainage bag without negative suction. Second group (open group) was named as open group treated by conventional incision and drainage and left open, to heal by secondary intention. Lactation suppression was carried out in both groups by using bromocriptine. Data was entered in SPSS version 16 and analyzed. **Results:** The mean hospital stay in primary closure group was 1.4±0.7 days and 2.7±0.92 day in open group. The mean healing time in primary closure was 8.1±2.1 days and 19.1±8.3 days in open group. The mean post operative hospital visits in primary closure group were 2.8±1.9 and 8.7±4.9 in open group. There was no recurrence in primary group while one patient presented with recurrence in open groups. **Conclusion:** The primary closure technique with drain in large lactational breast abscesses is better option than conventional incision and drainage in term of shorter hospital stay and healing time, less frequent hospital visits and with no increased risk of recurrence.

**Key words:** Lactational breast abscess, Primary closure, Conventional incision, Drainage

## INTRODUCTION

Breast abscess is one of the commonest surgical emergencies, usually seen in lactating women.<sup>1,2</sup> Its management is a significant clinical problem due to late presentation of the patients and delay in referral to breast surgeon in developing countries.<sup>3</sup> The treatment of breast abscess is clinically challenging due to diversity of treatment options which include from minimally invasive to open surgical drainage.<sup>4,5</sup> These different treatment options are for small breast abscesses of less than 5 cm.<sup>4,5</sup> The treatment option for large (>5 cm), multi-loculated, or long standing abscesses is only surgical incision and drainage. The traditional method include incision and drainage of abscess and then daily dressing as suggested by Sushrutha.<sup>6</sup> The introduction of antibiotics brought a great improvement in the management of breast abscesses.<sup>7</sup> Ellis taught that acute abscesses can be closed primarily due to effective antibiotics and good debridement of necrotic tissue that promote healing by primary intention.<sup>8</sup> Many surgeons experienced good outcome after primary closure of breast abscesses.<sup>9</sup> Primary closure has advantages of shorter wound healing time, shorter hospital stay and decrease number of hospital visits for the change of dressing.<sup>10</sup> The literature search shows that most of these studies were carried out on breast abscesses of less

than 5cm size.<sup>4,5</sup> Local and international research is deficient in providing a clear guideline for the management of large and late presenting breast abscesses. Only few case reports on the management of large breast abscesses are available.<sup>11</sup> Conventional method include incision and drainage with the Ellis method of using primary closure technique with little modification of using nelton drain without negative suction in the management of large breast abscesses.<sup>12-18</sup> The objective of this study was to assess the outcome of primary closure with drain and conventional incision and drainage of large lactational breast abscesses.

## METHODOLOGY

This was an experimental study, conducted on the patients admitted in Sheikh Zayed Medical College and Hospital, Rahim Yar Khan, with lactational breast abscess, after approval from Institutional Review Board. The duration of our study was one year from 1<sup>st</sup> April 2017 to 31<sup>st</sup> March 2018. Patients aged between 16 and 42 years with lactation breast abscesses, having size of greater than 5cm were included in the study. Patients with diabetes, recurrent abscesses, congenital inverted nipple, non-lactational breast abscesses, immuno compromised states and cold abscess were excluded. A total of 50 patients were selected. We collected the data on predesigned performa. The study population

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was randomly divided into two groups, namely, closed and open groups. The detailed history of all patients recorded. Patients were thoroughly examined and all were properly investigated to rule out other co-morbid conditions. Prophylactic antibiotic were given for both groups at the time of procedure empirically. Antibiotics changed appropriately depending on the culture and sensitivity. Lactation suppression was carried out in both groups by prescribing tablet bromocriptine 2.5 mg, twice a day. Informed verbal consent was taken from each patient.

In both groups, the procedure was done under general anesthesia. In closed group, circum-aerolar incision was used in cases where the skin was intact to drain abscess. In 5 patient with gangrenous skin, we debrided the skin and used that wound for pus drainage. We debrided the wound and washed with pyodine solution and normal saline. A nelton drain was placed in cavity and incision closed with vertical mattress sutures and compression bandage applied and collecting bag attached with nelton drain. Drain was removed when there was no output. Follow-up visits were advised for change of dressings if there was any soakage and otherwise on 7<sup>th</sup> and 10<sup>th</sup> post procedure days for wound examination and removal of stitches and drain.

In open group, incision and drainage of the abscess was done and cavity packed with povidone iodine-soaked gauze. Dressing changed appropriately depending on the soakage. Comparison was done based on wound healing time (number of days from the time of incision up to complete epithelialization in open group and up to skin suture removal in closed group), number of days of hospital stay (number of days from time of incision till discharge), need for frequent hospital visits for change of dressing (assessed by discharge from the operated site), and recurrence of abscess.

The data was analyzed using SPSS Version 16.0. The t-test was applied for continuous variable and p-value < 0.05 was considered as significant. Chi-square test was applied to compare recurrence rate of both groups.

## RESULTS

The mean age of patient was 25 years in both groups (p=0.4). The mean duration of symptoms in primary closure group was 21±17 days while in

open group was 12.8±8 days (p=0.04). The mean amount of pus in primary closure group was 99.4 ml and in open group while it was 87 ml in closed group (p=0.3). The mean wound healing time in closed group was 8±2 days whereas it was 19±8 days in open group (p=0.02). These results show faster healing in primarily closed group. The mean hospital stay in primary closed group was one day whereas it was 2.7 days in open group (p=0.02). The mean number of post operative hospital visits in primary closure group was 2.84±1.9 while in open group these were 8.72±8 (p=0.01). (Table I) Recurrence was observed in one patient in open group and there was no recurrence in closed group (p=0.3).

**Table I: Pre operative and post open five finding in both groups**

Group	Age in years	Mean	Std. deviation	P-value
Close	25	25.12	6	0.40
Open	25	25.72	7	
<b>Duration of symptoms</b>				
Group	Age in years	Mean	Std. Deviation	P-value
Close	25	21.2	17.2	0.04
Open	25	12.8	8.1	
<b>Amount of Pus</b>				
Group	N	Mean (ml)	Std. Deviation	P-value
Close	25	99.4	69.1	0.3
Open	25	87.0000	64.5	
<b>Duration of Hospital Stay</b>				
Group	N	Mean (Days)	Std. Deviation	P-value
Close	25	1.44	0.7	0.02
Open	25	2.76	0.9	
<b>Healing Time</b>				
Group	N	Mean (Days)	Std Deviation	P-value
Close	25	8.16	2.13464	0.02
Open	25	19.12	8.36819	
<b>Number of post operative hospital visits</b>				
Group	N	Mean	Std Deviation	P-value
Close	25	2.84	1.90788	0.01
Open	25	8.72	4.96253	

## DISCUSSION

We studied 50 patients of lactational breast abscess. The mean age of patients was 25 years in our study. Mean age of patients was 25 years in study conducted by Santosh and colleagues.<sup>12</sup> This result is comparable with our study but in two other studies mean age was 23.93 years and 26 years.<sup>13,15</sup> The mean

duration of symptoms was 21 days in primary closure group and 12 days in open group. The duration of symptoms in other study was 8-14 days.<sup>16</sup> The difference may be due to our selection criteria. We selected the patient with abscesses larger than 5cm while other study included the patients with abscess less than 2cm. Our selected patients presented late and having large breast abscesses. The mean volume of pus in our study was 99 ml in primary closure group and 87 ml in open group but the difference was not statistically significant. The large volume of pus was due to late presentation and also we selected the abscesses greater than 5cm.

The mean hospital stay in primary closure group was  $1.44 \pm 0.76$  days and it was  $2.76 \pm 0.92$  days in open group. This difference is statistically significant. Our result showed that hospital stay is shorter in primary closure group. Santosh and colleagues also observed shorter hospital stay in primary closure group.<sup>12</sup> Similar results were found in the study conducted by Madan Raj.<sup>18</sup>

The prolong stay in the hospital in open group is due to difficulty in managing the open wound and also more painful dressing of open wound requiring more potent analgesic to control pain and also it requires more trained staff for change of dressings. Shorter hospital stay is decreasing the cost of treatment and also help in better use of limited hospital resources.

The mean wound healing time in primary closure group was  $8.16 \pm 2.13$  days and  $19.12 \pm 8.36$  days in open group. This difference in healing time is statistically significant. The other studies also reported the decrease in healing time after primary closure.<sup>14,18,19,20</sup> The healing by primary intention in primarily closed wounds is faster than healing by secondary intention in open wounds. The mean number of post operative hospital visits was  $2.84 \pm 1.9$  days in primary closure group and  $8.72 \pm 4.98$  days in open group. The difference is highly significant between two groups. The more frequent hospital visits were required in open group for change of dressing as there is more frequent soaking of dressings in open wounds. Other studies also show less frequent hospital visits in primarily closed patients.<sup>12,18,21</sup> The shorter hospital stay, faster wound healing and less frequent hospital visits in primary closure technique decrease the cost of treatment and also more convenient for patients and hospital staff.

There was one case of recurrence in open group (4%) and no recurrence observed in primary closure group as already observed by Santosh and others.<sup>12,22</sup> The difference in the recurrence is not statistically significant in our study. Other studies reported more recurrence in closed group.<sup>18,22,23</sup>

## CONCLUSION

The treatment of large lactational breast abscesses by primary closure technique with Nelton drain placement has advantages of shorter hospital stay, faster wound healing time and less frequent hospital visits. All these advantages make this technique more cost effective, more convenient for patient and health care professionals involved in the patient management. The primary closure technique should be applied in late presenting and large breast abscesses

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