

**Research Article**

**Analysis of removal of drains and discharge of breast cancer surgery patients in Pakistan**

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**ABSTRACT**

**Introduction:** Breast cancer is a socially relevant group of malignant conditions of the mammary gland, affecting both males and females, showing a tendency for development after the third decade and increasing its incidence with age, peaking in the fourth and fifth decade. **Aims and objectives:** The basic aim of the study is to analyze the removal of drains and discharge of breast cancer surgery patients in Pakistan. **Material and methods:** This prospective study was conducted during October 2018 to January 2018. This study was done with the permission of ethical committee of hospital and patients. This study included those breast cancer female patients who were at stage I and II of breast cancer. Patients were excluded if they had received preoperative radiotherapy or chemotherapy, were at high risk of complications. The age range for this study analysis was 40 to 50 years. **Results:** The data was collected from 100 breast cancer patients with long and short duration of stay in the hospital. The two groups were comparable in tumour stage, type of treatment, age, marital status, family income, and educational level. Women in the short stay group were in hospital a median of 4 day and women in the long stay group had a median length of stay of 9 days. There were no significant differences between short stay and long stay patients in drainage volume or duration of drainage, but the mean number of aspirations required per patient was higher in the long stay group ( $P=0.04$ ). **Conclusion:** It is concluded that there is no difference in seroma after breast cancer surgery between patients that had postoperative drainage and patients that had no postoperative drainage. So, if we want to use suction drains then it is safe to remove these drains after 2 to 3 days.

**Keywords:** Breast, Cancer, Surgical, Drainage, Patients

**INTRODUCTION**

Breast cancer is a socially relevant group of malignant conditions of the mammary gland, affecting both males and females, showing a tendency for development after the third decade and increasing its incidence with age, peaking in the fourth and fifth decade. Worldwide it is the most commonly diagnosed malignant condition in

females and one of the leading causes for metastatic disease and cancer-related deaths affecting women<sup>1</sup>. The approach of choice for the treatment of breast cancer is based on its clinical staging. Most commonly the approach of choice is a modified radical mastectomy (MRM), due to it allowing for both the removal of the main tumor

mass and adjacent glandular tissue, which are suspected of infiltration and multifocality of the process, and a sentinel axillary lymph node removal<sup>2</sup>.

One of the most invalidating complications after breast cancer surgery is seroma formation. The incidence of seroma formation after breast surgery varies from 3% to 85%<sup>3</sup>. Seroma formation and inadequate drainage of seroma may lead to infections, pain, hospitalization and delay in treatment. The most common direct post-surgical complications following MRM are the formation of a hematoma, the infection of the surgical wound and the formation of a seroma<sup>4</sup>. These direct post-surgical complications can, at least in part, be attributed to the drainage of the surgical wound<sup>5</sup>.

However, the lack of modern and official guidelines and recommendations for drainage of the surgical wound from leading organizations and unions provides a wide opportunity for personalization of the already approved methods and introduction of new techniques and approaches<sup>6</sup>. This provides an ample scope for innovation and customizations, but also leads to a need for a randomized comparison of the results with the aim of promoting the drainage method with the most favorable patient outcomes optimal drainage, low levels of post-surgical complications, limited physical and mental traumatism<sup>7</sup>.

### **Aims and objectives**

The basic aim of the study is to analyze the removal of drains and discharge of breast cancer surgery patients in Pakistan.

### **MATERIAL AND METHODS**

This prospective study was conducted during October 2018 to January 2018. This study was done with the permission of ethical committee of hospital and patients. This study included those breast cancer female patients who were at stage I and II of breast cancer. Patients were excluded if they had received preoperative radiotherapy or chemotherapy, were at high risk of complications.

The age range for this study analysis was 40 to 50 years.

### **Data collection**

The data was collected from 100 breast cancer patients who visited the hospitals for longer and shorter duration. Women randomized to short stay treatment were discharged on the morning of the fourth day after surgery with the axillary drain in situ. Women randomized to long stay treatment were discharged after their drain had been removed. All patients had closed suction drains. Parameters including age, tumour size, lymph node involvement and grade of operating surgeon were recorded for each patient.

### **Analysis of Drainage volume**

Drainage volume was recorded 12 hourly for each patient. In both groups, shoulder exercises were started on the 1st postoperative day. The pressure dressings were taken down on the second day and the wound inspected. In the long stay group, the drains were removed when the daily drainage was < 30 ml. Patients were discharged only after their drains were removed. In the short stay group, the drains were removed irrespective of total volume drained.

### **Statistical analysis**

The collected data were analyzed using SPSS software (version 17). The results are presented as a mean with 95% confidence interval limits or standard deviations. The significant value for  $P < .05$  was accepted as statistically significant.

### **RESULTS**

The data was collected from 100 breast cancer patients with long and short duration of stay in the hospital. The two groups were comparable in tumour stage, type of treatment, age, marital status, family income, and educational level. Women in the short stay group were in hospital a median of 4 day and women in the long stay group had a median length of stay of 9 days. There were no significant differences between short stay and long stay patients in drainage volume or duration of drainage, but the mean number of aspirations required per patient was higher in the long stay group ( $P=0.04$ ).

**Table 1:**Complications among patients after surgery for breast cancer according to length of stay in hospital

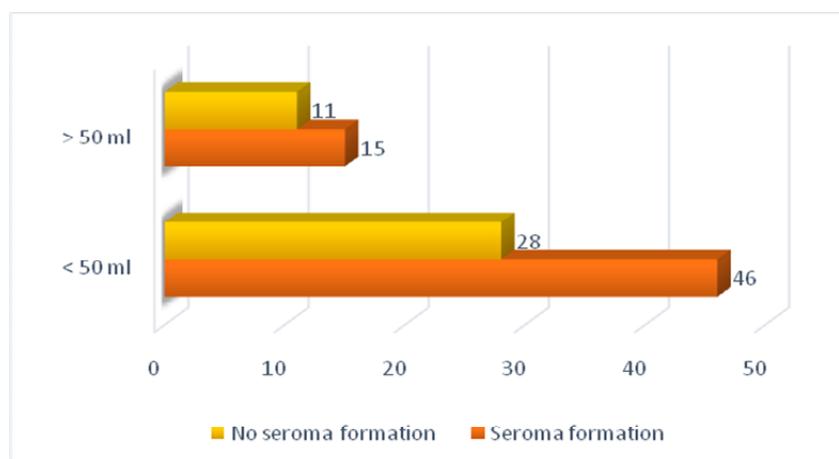
	Short stay (n=61)	Long stay (n=39)	P value
<b>Drainage</b>			
Median (range) total volume (ml):			
From axillary drain	515	685	0.19
From drain in breast wound	175	80	0.51
<b>Duration (days)</b>			
From axillary drain	8 (1-15)	9 (2-14)	0.45
From drain in breast wound	3 (1-12)	2 (1-9)	0.27
<b>Aspiration</b>			
No (%) of patients who had aspiration	10 (16) □	8 (14) □	0.80
Median No (range) aspirations per patient	1 (1-3)	3.5 (1-7) □	0.04
Median (range) total volume aspirated (ml)	105 (5-650)	400 (150-880)	0.01
<b>Wound complications</b>			
No (%) of patients with:			
Haematoma	2 (3) □	1 (2)	1.00
Necrosis	0 □	1 (2)	0.49
Infection	8 (13) □	7 (12)	1.00
Dehiscence	1 (2) □	1 (2)	1.00
Any type of wound complication	10 (16) □	9 (15)	1.00
<b>Drainage complications</b>			
No (%) of patients with:			
Obstruction	20 (33) □	15 (25)	0.42
Loss of vacuum	24 (39) □	16 (27)	0.18
Leakage	21 (34) □	10 (17)	0.04
Loss of drain	5 (8) □	2 (3)	0.44
Any type of drain complication	38 (62) □	27 (46)	0.10

Clinically significant wound infection occurred in eight patients in the short stay group and in seven patients in the long stay group; all were treated with antibiotics. One short stay and two long stay patients also required abscess drainage. Two short stay patients were readmitted for removal of a persistent haematoma. Leakage of drainage fluid alongside the drain occurred more often in the short stay group (patients, P=0.04).

**Table 02.** Suction drainage compared with subsequent seroma formation

<b>Drainage</b>			
	< 50 ml	> 50 ml	Total patients
Seroma formation	46	15	61
No seroma formation	28	11	39
Total	74	26	100

**P < 0.001**



**Analysis of Drainage level in both groups of selected patients**

## DISCUSSION

The postoperative management of patients after breast surgery remains controversial. There were no adverse effects of a shorter stay in hospital on the rate of complications or the incidence of seroma formation<sup>8</sup>. However, the number of patients in this study was too small to detect a difference of 5% in rates of wound complication; a sample size of more than 800 patients would have been necessary to do this. We decided to discharge patients with drains in situ and to remove drains when production of serous fluid was minimal. This practice leads to a low incidence of seroma aspiration and fewer outpatient visits<sup>9</sup>. The alternatives are to remove the drain after a fixed number of days regardless of fluid production or not to place a drain in the axilla<sup>10</sup>. Seromas have been reported in as few as 10% of patients after early drain removal,<sup>5</sup> but others have reported seromas in as many as 40%<sup>3</sup> and 73% of patients, though these did not affect the risk of infection<sup>11</sup>.

There are multiple options for drainage placement following MRM due to the great volume of surgically created free space<sup>12</sup>. However, drainage placement plays a greater role. Placement in the vector of the gravitational gradient gives a greater performance when compared to the placement of either two or three separate drains against it<sup>13</sup>. Therefore, a pectoro-axillary drainage system is superior to placement in other vectors, be it even placement of more than one drain. The choice of either conventional or vacuum drains has not demonstrated a significant role in the location of drainage placement<sup>14</sup>. Drains are often kept in until the daily drainage falls below about 30 ml and this may take up to 12 days in our experience. They may in fact encourage drainage by stimulating tissue reactions or by suction. They may provide a port of entry for infective organisms<sup>15</sup>.

## CONCLUSION

It is concluded that there is no difference in seroma after breast cancer surgery between

patients that had postoperative drainage and patients that had no postoperative drainage. So, if we want to use suction drains then it is safe to remove these drains after 2 to 3 days.

## Author's contribution

All the authors contributed equally.

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