



A COMPARATIVE STUDY ON ACTIVE VERSUS PASSIVE DRAINAGE FOLLOWING MODIFIED RADICAL MASTECTOMY IN CARCINOMA BREAST WITH SPECIAL REFERENCE TO BMI OF THE PATIENTS

General Surgery

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ABSTRACT

BACKGROUND OF PRESENT STUDY: Active drains are routinely used after modified radical mastectomy (MRM) and is an important factor contributing to increased hospital stay as patients are often discharged after their removal. Amongst various factors that affect the postoperative drainage, the negative suction pressure applied to the drain is of greater significance. Passive non suction drains act by gravity dependent action. Against this background, our study is designed to compare the use of active (suction) versus passive (non suction) drainage following MRM and to correlate their relation with BMI status of the patient.

OBJECTIVES: 1. To evaluate the outcome of the procedure in terms of postoperative recovery by studying various factors like pain, seroma, postoperative hospital stay.

2. To find a relation of Body Mass Index (BMI) and patient compliance in outcome of the above mentioned study.

METHODOLOGY: Patients attending General Surgery OPD and Emergency with breast cancer and fulfilling the inclusion criteria was studied and required investigations were done.

RESULTS: A total of 70 patients were evaluated, out of which 35 patients were given active suction drain and rest 35 patients were given passive non suction drain post operatively. Mean output per day with non suction drain was 74.54ml and that with suction drain was 84.29ml. mean number of days with non suction drain was 5.49 and that with suction drain was 7.80 days.

CONCLUSION: Mean output per day, number of days with drain, postoperative hospital stay, postoperative pain were significantly less in patients with non suction drain. Patient compliance was better with non suction drain. Age and sex distribution of patients, comorbid status, seroma formation, stage of the disease and status of neo adjuvant chemotherapy was comparable and non significant amongst both the arms. BMI of the patients did not alter the drainage modality of the patients.

KEYWORDS

modified radical mastectomy, suction drain, nonsuction drain, body mass index.

INTRODUCTION:

Worldwide breast cancer is a leading type of cancer in women, accounting for about 25% of all cases(*1). In those who have been diagnosed with breast cancer, a number of treatments can be used, including surgery, radiotherapy, chemotherapy, hormonal therapy and targeted therapy. Surgical interventions range from wide local excision to palliative mastectomy(*4).

MRM involves removal of the entire breast including breast tissue, skin, nipple areola complex and axillary lymph nodes. Outcome of breast surgery depends on the type, extent of the disease and person's age. Survival rates in the developed world are comparatively high with 5 year survival rates between (80-90) % while in developing countries survival rates are comparatively poor(*2).

Drains remove blood, serum and lymph that accumulate in the wound bed after the procedure. If allowed to accumulate, these fluids put pressure on the surgical site as well as adjacent organs, vessels and nerves. The decreased perfusion delays healing and the increased pressure causes pain. In addition, fluid collection serves as a breeding ground for bacteria(*7). Fluid can be removed from a wound using either a passive or active surgical drain. Passive drains rely on gravity to evacuate fluid while active drains are attached to a vacuum device.

Prolonged drainage on the other hand may increase the hospital stay and increase the risk of infection by allowing retrograde migration of bacteria. If kept for longer period, it has been observed that drains itself might contribute to increased drainage and the risk of infection in addition to the increased hospital stay resulting in wasteful utilisation of hospital resources(*8).

MATERIALS AND METHODS:

The study was done at Burdwan Medical College & Hospital from March 2019 to August 2020. The study design was Institution based, Prospective, Randomised, Analytical study. Patients with breast cancer undergoing Modified Radical Mastectomy with post-operative passive non suction drainage or active suction drainage was included in the study. Selection of drains for the patient was done by opening closed envelopes just before placing drains. BMI of every patient was noted and analysed accordingly with drainage output.

Permission from Institutional Ethics Committee was taken. Written Informed consent was obtained from all participating patients.

Data was collected in postoperative Day 1,2,3,4,5,6, during discharge, after 1 week of discharge and after 1 month of operation. Collection of data was from a pre tested proforma which considers the clinical history, physical examination, relevant investigations, imaging modalities and follow up of patients (both OPD & IPD).

Data thus collected was stratified in different categories based on certain characteristics (age, sex, comorbid status, BMI) and thus the outcome was studied. Mean and Standard Deviation was worked out to assess the recovery time. Proportions was calculated to assess the qualitative outcomes to compare the outcome by characteristics of the subject.

INCLUSION CRITERIA:

All patients who had histo pathologically proven breast cancer and underwent Modified Radical Mastectomy at Burdwan Medical College & Hospital from March 2019 to August 2020.

EXCLUSION CRITERIA:

1. Patients who have undergone Breast Conservation Surgery.
2. Patients who underwent spontaneous expulsion of drains.
3. Patients who were discharged with drain.

RESULT AND ANALYSIS:

The mean output per day with non suction drains was 74.54ml, whereas that of patients with suction drain was 84.29ml (significant)

The mean number of days with drain was 5.49 days, whereas that of 35 patients with suction drain was 7.80 days. (significant)

Out of the 35 patients with non suction drains, their mean age was 57.34 years and of the patients with suction drains, the mean age was 57.91 years. (not significant)

Non suction drain was given to 33 female patients and 2 male patients, whereas, suction drain was given to 34 female patients and 1 male patient. (not significant)

The mean BMI of 35 patients receiving non suction drain was 27.43. however mean BMI of 35 patients receiving suction drain was 27.57. (not significant)

Patients with non suction drain had mean post operative hospital stay of 7.49 days and those with suction drain was 9.40 days. (significant)

10 out of 35 patients receiving nonsuction drain came out to be hypertensive, whereas, 6 out of 35 patients receiving suction drain were hypertensive. (not significant)

9 of the 35 patients with nonsuction drain were diagnosed to have Diabetes Mellitus, whereas 5 of the 35 patients receiving suction drain had Diabetes Mellitus. (not significant as the 'p-value' was 0.232).

Of the total participating 70 patients, 13 had history of neo adjuvant chemo therapy. Out of those, 6 patients were given non suction drain and 7 patients were given suction drain. The 'p-value' was 0.759 and was thus statistically not significant.

A mean of 3.86 lymph nodes came out to be positive out of 10 harvested lymph nodes in patients with non suction drain, whereas, in patients with suction drain, a mean of 3.77 lymph nodes were positive. ('p-value' was 0.904 statistically not significant)

Of the 35 patients with non suction drain, 22 patients had pre operative 'Stage II' disease and 13 patients had 'Stage III' disease. Whereas in patients with suction drain, 24 were having 'Stage II' disease and 11 patients had 'Stage III' disease. statistically not significant as 'p-value' was 0.615.

Pain was calculated in a pre designed scale of 1 to 5 ranging from 'no pain' to 'very severe pain' respectively. Patients with non suction drainage had a mean pain scale index score of 1.66 and patients with suction drain had a mean pain scale index score of 2.06. The 'p-value' was 0.006 which was statistically significant.

In both the arms of this comparative study, 8 patients had the post operative complication of seroma.

DISCUSSION:

In this study of 70 participating patients, conducted in Burdwan Medical College and Hospital between March 2019 and August 2020, the following conclusions were drawn:-

- Post operative drainage with non suction drain gives a significantly lesser amount of daily output.
- This leads to significantly lesser number of days with drain in patients who had post operative drainage with non suction drains.
- Which in turn leads to significantly lesser number of post operative hospital stay in patients whose post operative drainage was with non suction passive drains.
- Patients were significantly more compliant to non suction drains and this study found that they were comparatively easy to manage as compared to suction drains.
- Post operative pain was significantly less in patients with post operative non suction drains in comparison to patients with suction drains as noted in this study as per patient response using a pre designed pain scale.
- Status of comorbidity, age and sex of the patient, axillary dissection pathological status or status of neo adjuvant chemotherapeutic regimen did not significantly affect the choice of post operative drainage modality.
- Body Mass Index (BMI) of the patients did not alter the choice of drainage modality significantly.

These were the significant conclusions from the study conducted. Though for definitive and further illustration of conclusion and results, further studies with larger study population and varied parameters are necessary.

CONCLUSION:

It Is Concluded From The Present Study That Non Suction Passive Drainage Is A Better Modality Of Choice For Post Operative Drainage After Modified Radical Mastectomy Irrespective Of Body Mass Index (bmi) Status Of The Patients As It Is Associated With Better Post Operative Patient Compliance And Lesser Hospital Stay, Though Further Study With Larger Study Population And Varied Parameters Are Needed For A Definitive Conclusion.

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