

EVALUATION OF EARLY COMPLICATION OF MODIFIED RADICAL MASTECTOMY WITH SPECIAL REFERENCE TO SEROMA FORMATION AND FLAP NECROSIS IN PATNA MEDICAL COLLEGE AND HOSPITAL

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Abstract

Background: Breast cancer is the second most common cause of cancer-related deaths in women. Modified radical mastectomy is a type of mastectomy that combines the excision of all breast tissue from the affected breast along with axillary lymph node removal. The most common surgery-related complication is seroma formation and flap necrosis. **Materials and Methods:** This prospective observational study was done in 50 Patients admitted in Department of General Surgery, Patna Medical College and Hospital, Patna from October 2017 to Sept 2019. **Results:** A total of 50 patients with modified radical mastectomy of breast cancer fulfilling the inclusion criteria were included in this study, 16 (32.0%) patients had complication of seroma formation and flap necrosis in 5 (10%) patients. **Conclusion:** Seroma remains the most common complication after mastectomy, and it is inevitable in certain number of patients and its exact aetiology remains obscure, even today. Wound infection after mastectomy is an infrequent complication.

INTRODUCTION

The breast is a mass of glandular, fatty, and fibrous tissues positioned over the pectoral muscles of the chest wall and attached to the chest wall by fibrous strands called Cooper's ligaments. A layer of fatty tissue surrounds the breast glands and extends throughout the breast. The fatty tissue gives the breast a soft consistency. The glandular tissues of the breast house the lobules and the ducts. Toward the nipple, each duct widens to form ampulla. During lactation, the bulbs on the ends of the lobules produce milk. Once milk is produced, it is transferred through the ducts to the nipple.

Cancer is a broad term for a class of diseases characterized by abnormal cells that grow and invade healthy cells in the body. Breast cancer starts in the cells of the breast as a group of cancer cells that invade surrounding tissues or spread to other areas of the body. Breast cancer is the most common female cancer worldwide.^[1] and an increasing number of women are undergoing surgeries as a treatment for breast cancer worldwide and India. Though most operations are characterised as a low morbidity procedure, still variety of complications, ranging from a mild seroma to flap

necrosis can be seen in association with mastectomy.^[2]

Ever since mastectomy was first carried out by William Stewart Halsted in 1882, surgeons have faced several problems such as necrosis of skin flaps, breakdown of the wound, hematoma, seroma and infection among them. Seroma and flap necrosis are the commonly faced problems in breast surgery.^[3] Seroma is a collection of serous fluid in the dead space of post-mastectomy skin flap, axilla or breast following modified radical mastectomy. Our study plans to observe the pattern of various complications after modified radical mastectomy with special reference to seroma formation and flap necrosis.

Seroma usually resolves within a few weeks, many surgeons view this problem as an unavoidable nuisance rather than serious complication. Seroma accumulation elevates the flaps from the chest wall and axilla there by hampering their adherence to the tissue bed. It thus can lead to significant morbidity such as wound hematoma, delayed wound healing, wound infection, wound dehiscence, prolonged hospitalization, delayed recovery and initiation of adjuvant therapy.^[4]

Skin flap viability may be influenced by both patient and surgical factors. Patient risk factors include a

history of smoking, obesity, diabetes, previous radiotherapy, previous scars and several medical comorbidities. Overall cosmetic outcome of the operation depends upon the viability of the flap. To prevent seroma formation and flap necrosis, it is important to estimate individual risk of seroma formation and flap necrosis.

In this study, we carried out a systemic review of risk factors for seroma formation and flap necrosis, and our study plans to observe the association of various preoperative and postoperative parameters with seroma formation and flap necrosis.

MATERIALS AND METHODS

This prospective observational study was done in 50 Patients admitted in Department of General Surgery, Patna Medical College and Hospital, Patna from October 2017 to Sept 2019

Inclusion Criteria

Patient undergoing modified radical mastectomy for early breast cancer.

Exclusion Criteria

1. Patients not opting for modified radical mastectomy and

2. Patients receiving pre-operative radiotherapy.

RESULTS

A total of 50 patients undergoing modified radical mastectomy for carcinoma breast were studied. The data was tabulated in Microsoft Excel 2007 worksheet. Statistical analysis was done using SPSS version 19.1. The median age of our patients was 50.10 patients (20%) were obese, 10 patients (20%) were hypertensive and 5 patients (10%) had diabetes. The mean tumours size was 5.0cm (range 2.8-8 cm). 11 patients (22%) in our study received neoadjuvant chemotherapy (NACT). All the patients in our study underwent modified radical mastectomy. Use of cautery and scalpel for flap preparation was decided as per surgeon choice. Duration of operation was calculated from the time of incision of skin closure. In 25 patients (50%) cautery were used for flap preparation. In 27 patients (54%) operation was prolonged for more than 2 hours. The mean intraoperative blood loss was 484ml. In the post-operative period mean duration of drainage was 5.66 days.

Table 1: Distribution clinical and peri-operative parameters

Characteristics	Category	Number N=50	Percentage
Age	Median = 50 Range 32-70	50	-
BMI	≥ 30 ≤30	10 40	20 80
Hypertension	Yes No	10 40	20 80
Diabetes mellitus	Yes No	5 45	10 90
Tumour size	Mean 5.06 cm Range 2.8-8 cm	50	-
Received NACT	Yes no	11 39	22 78
Cautery used for operation	Yes No	25 25	50 50
Duration of operation	≥2hr <2hr	27 23	54 46
Intra-operative blood loss	Mean- 484ml Range- 200-400 ml	50	-
Duration of drainage	Mean- 5.66 days Range- 3 rd – 10 th day	50	-

Table 2: Different complication of MRM and their incidence in our study

Serial No	Complication	Incidence	Percentage
1	Seroma	16	32%
2	Flap necrosis	5	10%
3	Ipsilateral neuralgia	7	14%
4	Impaired Shoulder mobility	7	14%
5	Cellulitis and abscess	1	2%
6	Winging of Scapula	0	0%

DISCUSSION

A variety of surgical procedures are available to treat patients with carcinoma breast but modified radical mastectomy with axillary clearance is the commonest procedure performed. The leading complication associated with this procedure is

formation of seroma with a reported frequency ranging from 4.2 to 89 percent in patients in which no drain was placed in axilla and 53 percent in patients whose axillae were drained. It is often correlated with age of the patient, size of the breast, axillary lymph nodes involvement by tumor, preceding biopsy, raised patient blood pressure and

usage of anticoagulants. In our study this complication was observed in 16 patients (32%) and was treated with percutaneous aspiration and pressure dressings. Flap Necrosis was observed in 5 patients (10%). Frequency of skin flap necrosis varies a little among different studies. Compte DV et al. reported a 14.^[5] percent incidence of flap necrosis.^[6] It occurred in 3 of our patients (5%) which required scar revision in two cases and flap closure in one patient. Other common complications of mastectomy include development of wound infection, neuralgia, hematoma, lymphoedema and winging of scapula. Wound infection in our patients was treated initially with empirical and later with culture-based antibiotics and regular dressings. Literature suggests that frequency of hematoma following mastectomy reaches up to 18 percent while that of lymphoedema is around 16.6 percent.^[7,8]

CONCLUSION

Seroma remains the most common complication after mastectomy, and it is inevitable in certain number of patients and its exact aetiology remains obscure, even today. Wound infection after mastectomy is an infrequent complication. Electrocautery is significantly associated with causation of seroma. As evident from discussion part there should not be an injudicious use of electrocautery for breast, use should be optimized, rather than abandoning it completely. Duration of drainage after operation is associated with seroma formation, prolong duration of drainage for more than 7 days should alert to the possibility of seroma formation after discharge. In our study following parameters found to have association with seroma formation: Age of patient,

Presence of hypertension, Presence of diabetes mellitus, Presence of obesity, Neoadjuvant chemotherapy (NACT), Tumour size, Lymph node status, Level of axillary dissection , Duration of operation Though statistically our study could not find any association of these parameters with seroma formation, as evident by result and analysis, still because of a smaller number of sample size we can't rule out the association of some parameters with seroma. So A study with larger number of sample size is necessary in this regard.

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