

**ANALYSIS OF EARLY COMPLICATIONS FOLLOWING MODIFIED RADICAL
MASTECTOMY: ONE MONTH FOLLOW UP STUDY**

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ABSTRACT

Background and Objectives: The majority of complications arise within a month following modified radical mastectomy in breast cancer patients. In order to mitigate and lessen postoperative complications, this study aimed to determine the frequency of early post-operative complications of modified Radical Mastectomy within a four-week timeframe.

Methods: A cross-sectional case series using a non-probability convenient sampling technique was conducted at a Tertiary care hospital for 14 months. A total of 112 patients diagnosed with breast cancer via FNAC were included, while those who underwent neoadjuvant chemotherapy or radiotherapy, had inflammatory breast cancer, metastasis, or co-morbidities were excluded. Patients were operated on by a senior consultant. Daily follow-up was conducted until the 7th post-operative day, followed by weekly OPD visits for four weeks, and the final outcome was recorded.

Results: A total of 39 patients experienced complications during the study, accounting for 34.82% of the total patients. The most frequent complication was breast seroma, with an elevated risk observed in patients aged over 50 years, tumor size exceeding 8 cm, weight exceeding 70 kg, and those with three or more palpable lymph nodes. Other complications included hematoma, lymphedema, wound infection, and shoulder dysfunction, while no instances of scar hypertrophy were observed.

Conclusions: Seroma formation and hematoma were identified as the most common early complications following modified radical mastectomy. Lymphedema, wound infection, and shoulder dysfunction were noted in a smaller number of patients.

Keywords: Modified radical mastectomy, Breast, Seroma, Haematoma

INTRODUCTION

Breast cancer stands as the most prevalent malignancy among women globally, with approximately 1 in 8 women facing a lifetime risk of developing this condition. Notably, there is a rising trend in the incidence of breast cancer in Asian nations [1-3]. The primary approach to managing breast cancer remains surgical intervention, either directly or in conjunction with neo-adjuvant chemotherapy. Over time, the modified radical mastectomy has gained prominence as the preferred surgical procedure, wherein the breast tissue and ipsilateral axillary lymph nodes are excised while preserving the pectoralis major and minor muscles, a departure from the radical mastectomy approach [4-5]. Postoperative care entails hormonal or chemotherapy treatments, tailored to the hormone receptor status of the breast tissue. This procedure is also utilized as a preventive measure for patients at high genetic risk and is the treatment of choice for stage II and III breast cancer cases [5-7].

Complications following modified radical mastectomies can be categorized into early and late onset. Early complications manifest within the initial four weeks post-surgery and include seroma as the most frequent issue, along with hematoma, lymphedema, wound infections, and shoulder dysfunction. Conversely, late complications encompass pain, shoulder immobility, and scar hypertrophy. The majority of complications arise within a month following modified radical mastectomy in breast cancer patients [8-9]. In order to mitigate and lessen postoperative complications, this study aimed to determine the frequency of early post-operative complications of modified Radical Mastectomy within a four-week timeframe.

MATERIALS AND METHODS

This investigation was carried out in the Department of Surgery at an Indian Medical Centre over a 14 months period. A total of 112 consecutive female patients diagnosed with breast cancer via FNAC were enrolled in this study. Patients who had undergone neoadjuvant chemotherapy or radiotherapy, those with inflammatory breast cancer, metastatic cancer, and patients with co-morbidities such as hypertension or diabetes mellitus were excluded.

All the patients underwent modified radical mastectomy performed by a senior consultant with 5 years of experience. The procedure involved the sequential removal of all breast tissues, including the entire nipple-areola region, affected skin areas, and level I and II axillary lymph nodes. Level III axillary lymph nodes were also excised to ensure complete removal of potentially involved areas. Negative suction drains were placed in the axillary region and under flaps, remaining in situ for approximately 3 days. Drain removal occurred when the 24-hour output decreased to less than 20ml. After one week, drains were permanently removed based on drain output quantity. Patients were regularly followed up on a daily basis until the 7th post-operative day while in the ward, then discharged and followed up in the OPD weekly until the fourth week, with outcomes noted and documented in the proforma at the end of the fourth week.

All relevant information, including patient age, weight, tumor size, and the number of palpable lymph nodes, was recorded in the proforma as these factors influence the development of complications such as seroma, hematoma, lymphedema, wound infection, shoulder dysfunction, and scar hypertrophy.

Data were entered and analyzed using SPSS version 21. Quantitative data, such as complication rates concerning age, weight, palpable lymph nodes, and tumor size, were expressed as frequencies in percentages.

RESULTS

The findings revealed that 39 out of 112 patients developed complications, accounting for approximately 34.82% of the total patients, each complication having a different frequency as shown in Table 1. Breast seroma was the most common complication, occurring in 13.39% of patients, with an increased risk noted in patients over 50 years old, those with a tumor size exceeding 8 cm, a weight greater than 70 kg, and those with three or more palpable lymph nodes. This led to the conclusion that the risk of seroma formation is directly correlated with these four risk factors. Notably, scar hypertrophy was not observed in any patient, suggesting it was not an early complication according to this study.

Table 2 illustrates the complications following modified radical mastectomy (MRM) categorized by age and body weight in the study population, with the majority of patients falling in the 51-60 years age group.

Table 3 presents the risk of complications following MRM based on the number of palpable nodes and tumor size. Tumor size was classified into five categories, with most patients having a tumor size greater than 8 cm.

Table 1: Rate of complication following MRM in study population

Complication	n	%
Haematoma	8	7.14
Lymphedema	6	5.36
Seroma	15	13.39
Shoulder Dysfunction	5	4.46
Wound Infection	5	4.46
None	73	65.18
Total	112	100.00

Table 2: Age and body weight wise complications following MRM in study population

Complication	Seroma	Hematoma	Lymphedema	Wound Infection	Shoulder Dysfunction
Age groups					
21-40 years	1 (0.89)	Nil	1 (0.89)	Nil	1 (0.89)
41-50 years	1 (0.89)	Nil	3 (2.68)	1 (0.89)	1 (0.89)
51-60 years	10 (8.93)	5 (4.46)	1 (0.89)	Nil	1 (0.89)
61-70 years	3 (2.68)	3 (2.68)	1 (0.89)	4 (3.57)	2 (1.79)
Total	15 (13.39)	8 (7.14)	6	5 (4.46)	5 (4.46)
Body Weight					
36-45 kg	Nil	Nil	1 (0.89)	3 (2.68)	Nil
46-55 kg	3 (2.68)	Nil	3 (2.68)	1 (0.89)	1 (0.89)
56-65 kg	5 (4.46)	1 (0.89)	1 (0.89)	1 (0.89)	1 (0.89)
66-75 kg	7 (6.25)	3 (2.68)	Nil	Nil	1 (0.89)
76-85 kg	Nil	4 (3.57)	1 (0.89)	Nil	2 (1.79)
Total	15 (13.39)	8 (7.14)	6 (5.36)	5 (4.46)	5 (4.46)

Table 3: Risk of complications following MRM as per no. of palpable nodes and tumor size

Complication	Seroma	Hemato ma	Lymphede ma	Wound Infection	Shoulder Dysfunction
No. of palpable nodes					
1-2	Nil	Nil	Nil	Nil	1 (0.89)
3-4	Nil	1 (0.89)	Nil	Nil	1 (0.89)
5-6	3 (2.68)	Nil	Nil	Nil	Nil
7-8	5 (4.46)	3 (2.68)	2 (1.79)	2 (1.79)	3 (2.68)
9-10	7 (6.25)	4 (3.57)	4 (3.57)	3 (2.68)	Nil
Total	15 (13.39)	8 (7.14)	6 (5.36)	5 (4.46)	5 (4.46)
Tumor Size (cm)					
2-4	Nil	Nil	Nil	1 (0.89)	1 (0.89)
5-6	Nil	Nil	Nil	1 (0.89)	1 (0.89)
7-8	1 (0.89)	Nil	Nil	1 (0.89)	2 (1.79)
9-10	10 (8.93)	5 (4.46)	2 (1.79)	2 (1.79)	1 (0.89)
11-12	4 (3.57)	3 (2.68)	4 (3.57)	Nil	Nil
Total	15 (13.39)	8 (7.14)	6 (5.36)	5 (4.46)	5 (4.46)

DISCUSSION

Each year in the United States, over 250,000 women are diagnosed with breast cancer. Advances in treatment efficacy and improved survival rates mark the ongoing enhancements in breast cancer management. The selection of surgical interventions for breast cancer hinges on multiple factors like patient age, disease stage, and patient and surgeon preferences. Research indicates that despite initial conservative treatments, a majority of breast cancer patients eventually undergo mastectomy. Among these, the modified radical mastectomy is the predominant surgical approach [10-14].

The overarching goal in treating breast cancer encompasses local disease control, metastasis prevention or mitigation, and averting disease recurrence, leading to continual improvements in survival rates. Recent data from the National Cancer Institute demonstrate 5-year survival

rates of 96% for early-stage breast cancers, 75% for cancers with tissue invasion, and 20% for metastatic cancers. Unfortunately, survival rates are lower and disease stages tend to be higher in women from lower socioeconomic backgrounds [15-16].

Similar to any surgical procedure, modified radical mastectomy carries notable morbidity and mortality risks. Early complications encompass hemorrhage, hematoma, seroma, wound infection, skin flap necrosis, paresthesia, arm edema, and shoulder dysfunction, while late complications include shoulder stiffness, psychosexual disturbances, and recurrence [17-18]. This study focuses on evaluating the incidence of early complications post-modified radical mastectomy.

The subjects' age ranged from 25 to 72 years, with the most common lesion size being 5 cm or larger, corresponding to T3 stage, and predominant nodal involvement in N2 stage, signifying fixation of over 6 lymph nodes on the ipsilateral side. Seroma formation emerges as the most frequent early complication post-mastectomy, impacting recovery and contributing significantly to morbidity. Its occurrence varies widely, attributed mainly to the extent and duration of breast surgery. Hematoma, the second most common complication, occurs post-drain removal, typically between the 7th to 10th post-operative days, with an incidence of up to 18% [19-21]. Lymphedema, a consequence of axillary lymph node dissection, remains poorly understood, emphasizing the need for meticulous surgical technique and post-operative care. Wound infections pose another risk, particularly heightened by axillary surgery and patient-related factors like age, comorbidities, and smoking history [22-23].

Shoulder dysfunction, characterized by pain and restricted motion, is a long-term complication associated with mastectomy and axillary dissection, impacting quality of life. Scar hypertrophy, linked to wound healing stages and genetic predisposition, also warrants attention in post-surgical care [24-26].

CONCLUSION

Seroma formation and hematoma were identified as the most common early complications following modified radical mastectomy. Conversely, lymphedema, wound infection, and shoulder dysfunction were observed in a small number of patients. It was noted that the mean age, tumor size, number of axillary lymph nodes, and patient weight influenced the occurrence of these complications. Therefore, early diagnosis and a prompt approach to proper treatment can help reduce the incidence of these complications after mastectomy.

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