

Early Complications of Modified Radical Mastectomy with Level II Axillary Clearance

Rab Nawaz Malik¹, Asim Shafi¹, Shabbir Ahmed¹, Bushra Ghulam¹, Umair Tahir¹ and Muhammad Aamir Shahzad²

ABSTRACT

Objective: To assess the early complications of Modified Radical Mastectomy (MRM) with Level II axillary clearance.

Study Design: Prospective Observational Study

Place and Duration of Study: This study was conducted at the Department of General surgery, Bakhtawar Amin Medical and Dental College, Multan from July 2019 to June 2021 for a period of two years.

Materials and Methods: Total patients with breast carcinoma with confirmed diagnosis were added in this study were 288. Under general anesthesia, patients had a MRM with level II axillary clearance. Drain was used and held in for 3 to 6 days and when amount produced decreased from 20ml the drain was removed. Follow up period was of one month in the outpatient department. Complications occurred after surgical procedure, were noted from day 4 to 7 during hospital stay, day 10 and one month of surgery. After 10 days of surgical procedure the stitches were removed. Predesigned form was used for collection of data and SPSS (version 16) was used for data analysis. Data was presented in descriptive statistics.

Results: The average tumor size of the patients was 6.34±2.21 cm with the majority of the patients 191 (66.3%) had >5 cm. 197 (68.4%) patients had axillary nodes involvement and no any patients did not develop distant metastasis. (Table. I). Seroma collection was the most common 102 (35.4%) complication and lymphedema was the least common 5 (1.7%) complication. (Table. II). (Figure. I)

Conclusion: Following a modified radical mastectomy and axillary clearing, seroma development was the most prevalent consequence. Seroma formation leads to high risk of infection of wound, wound dehiscence, and skin flap necrosis, all of which increases morbidity and enhances the length of hospital stays.

Key Words: Complications, Modified Radical Mastectomy, Axillary Clearance, Seroma, Surgical site infection

Citation of article: Malik RN, Shafi A, Ahmed S, Ghulam B, Tahir U, Shahzad MA. Early Complications of Modified Radical Mastectomy with Level II Axillary Clearance. Med Forum 2022;33(2):15-18.

INTRODUCTION

In women breast cancer is most common type of cancer with annual cases of 1.7 million diagnosed cases in 2012. Breast cancer is 2nd most common type of cancer overall, lungs cancer being first most common type of cancer in both men and women. In all types of cancers in women it contribute to about 25% while in all the new cases of cancer it contribute to about 12%⁽¹⁾. At present, one hundred thousand cases are reported annually in India.

¹. Department of General Surgery, Bakhtawar Amin Medical and Dental College, Multan.

². Department of General Surgery, Nishtar Medical University, Multan.

Correspondence: Dr. Rab Nawaz Malik, Assistant Professor of General Surgery, Bakhtawar Amin Medical and Dental College, Multan.

Contact No: 0300 7347731

Email: rnawazmalik965@gmail.com

Received: September, 2021

Accepted: November, 2021

Printed: February, 2022

In different regions of India, breast cancer contributes to about 19-45% among all types of cancers in women of India. In under developed countries the numbers of cases of breast cancer among women are increasing day by day. In a lifetime, every one out of twenty two Indian women is expected to have breast cancer, according to reports. In America this percentage is even higher in which one out of every eight woman is liable to have breast cancer⁽²⁾. Now-a-days management of breast cancer can be done by a number of different methods. These methods of management include surgery, chemotherapy, hormonal therapy, and radiotherapy⁽³⁾. Nonetheless, of all the management procedures via surgical procedure is the hallmark procedure of breast cancer management. Modified Radical Mastectomy (MRM) is most common method performed among all the surgical management procedures of breast cancer⁽⁴⁾. Along with oncological complications non-oncological complications can also occur. Some of major oncological complications that occur are occurrence of local or axillary again after curative surgical procedure and residual disease. Modified Radical Mastectomy (MRM) contribute to the morbidity occurring in both early and late stages, also

causes increase in the length and cost of stay at hospital. MRM also causes delay in radiotherapy or chemotherapy, interfering with management of breast cancer. The complications that occur in the first 30 days after surgical procedures are said to early complications here. It is reported that the early complications of wound of surgery after MRM include infections of wound, chronic pain, lymphedema, flap necrosis, hematomas, and seromas. The reported rate of complications at surgical site after surgical procedures for breast cancer ranges from 0.8% to 26%, according to reports of different surveys conducted on breast cancer^(5,6). The formation of seroma is one of the most common complications after surgical procedure, modified radical mastectomy. The rate of seroma formation after modified radical mastectomy is 3%-85%⁽⁷⁾. The formation of seroma can cause development of infection which leads to increased morbidity which in turn increases the need of admission, imaging, drainage and use of antibiotics again⁽⁸⁾. There is variation in the rate of incidence of infection at the site of wound after surgical procedure. The range of wound infection rate is 3-19%, 20-30% for chronic pain, and between 3 to 32% for flap necrosis are reported cases⁽⁹⁾. After modified radical mastectomy, the rate of occurrence of lymphedema i.e. functionally significant, is less than 10%. With the help of different approaches the complications that occur after modified radical mastectomy can be reduced. These approaches can include preoperative examination, proper wound closure, hemostasis, and meticulous technique. Before surgical procedure examination must include complete assessment of physiologic conditions of patient along with standard oncological analysis. These evaluations of physiological conditions of patients must emphasis on hypertension, anemia, diabetic status, coagulopathy tolerability of anesthesia, or steroid therapy. In the current institute patients with breast cancer from both urban and rural setting were included in this study with increased body mass index (BMI) and advanced stage of malignancy, respectively. Therefore current study was conducted to learn the complications at the early stage after performing modified radical mastectomy.

MATERIALS AND METHODS

Current study was done during July 2019 to June 2021 in Department of Surgery, at General Surgery, Bakhtawar Amin Medical and Dental College, Multan. Study of Hadi et al was used as reference for calculation of sample size for this descriptive study⁽¹⁰⁾. Total patients with breast carcinoma with confirmed diagnosis were added in this study were 288. Patients with breast lumps were presented in the outdoors of the present institute. Triple examination approach was conducted on all the patients including clinical examination, mammography/ultrasound and core

biopsy or fine needle aspiration cytology. After diagnostic confirmation for breast cancer, the patients were admitted and complete history was taken mainly for patients with any co-morbidities e.g. coagulopathy, diabetes, hypertension, smoking, and steroid therapy. According to inclusion criteria of this study, patients with age of 20 years of more were included. Moreover, female patients with biopsy proven stage II and stage III infiltrating ductal breast carcinoma were included. On the other hand according to exclusion criteria of the study patients with stage IV carcinoma, inflammatory breast carcinoma, in need of anticoagulant therapy, and immunocompromised conditions with tuberculosis and positive HIV were not included in this study. To stage the cancer, chest X-ray abdominal ultrasound, general anesthesia, bones scan and alkaline phosphatase were done along with the primary processes of investigation. Under general anaesthesia, patients had a MRM with level II axillary clearance. Drain was used and held in for 3 to 6 days and when amount produced decreased from 20ml the drain was removed. Follow up period was of one month in the outpatient department. Complications occurred after surgical procedure, were noted from day 4 to 7 during hospital stay, day 10 and one month of surgery. After 10 days of surgical procedure the stitches were removed. Predesigned form was used for collection of data and SPSS (version 16) was used for data analysis. Data was presented in descriptive statistics.

RESULTS

Table No.1: Demographic and tumor characteristics of the study patients

Variable	Mean±S.D	N (%)
Age (years)	47.01±8.41	
25-40 years		78 (27.1)
41-60 years		203 (70.5)
61-75 years		7 (2.4)
Gender		
Male		164 (56.9)
Female		124 (43.1)
Tumor size (cm)	6.34±2.21	
T2 (2-5) cm		97 (33.7)
T3 (>5) cm		191 (66.3)
Nodal involvement		
N0 (no nodal involvement)		91 (31.6)
Axillary nodes involvement		197 (68.4)
Distant metastasis		
M0 (No)		288 (100.0)
M1 (Yes)		0 (0.0)

S.D: standard deviation

Two hundred and eighty-eight patients were included, in our study of both genders. The average age of the patients was 47.01±8.41 years with the majority 203

(70.5%) between 41-60 years. Male and female ratio was 1.3. The average tumor size of the patients was 6.34 ± 2.21 cm with the majority of the patients 191 (66.3%) had >5 cm. 197 (68.4%) patients had axillary nodes involvement and no any patients did not develop distant metastasis. (Table. I).

Seroma collection was the most common 102 (35.4%) complication and lymphedema was the least common 5 (1.7%) complication. (Table 2).

Table No.2: Postoperative complication of the study patients

Variable	N (%)
Seroma collection	102 (35.4)
Wound infection	68 (23.6)
Altered sensation	50 (17.4)
Postoperative pain	32 (11.1)
Hematoma formation	24 (8.3)
Skin flap necrosis	18 (6.3)
Wound dehiscence	6 (2.1)

DISCUSSION

In this era, breast cancer management can be done by a number of different methods. The stage of breast cancer, patient's age, preferences of patients and choice of the surgeon are considered for surgical treatment. The most common surgical procedure of surgery i.e. MRM with axillary clearance is done for patients with breast cancer⁽¹¹⁾. However, modified radical mastectomy is also associated to morbidity as well as mortality like other surgical procedures. In current study the most common postoperative complication was seroma formation comprising 25% of total 80 patients. These outcomes were compared to outcomes reported by other studies done including Chandrakar N et al (21.95%), Dahri FJ et al (33.3%), Bokhari I et al (38%), and Shaikh K et al (26.3%) (9, 11-13). According to the research, rates of seroma development for patients with undrained axilla and drained axilla range from 4.2 percent to 89 percent and up to 53 percent, respectively⁽¹⁴⁾. Improved surgical methods, as harvesting of suitable skin flaps, elimination of dead space, least use of diathermy, using tissue glue, insertion of closed suction drain deep to the mastectomy flaps and in the axilla, removing drain when empty for 24 hrs and no shoulder movements, can all help to prevent this complication^(15,16). Age of patient, size of breast, existence of malignant nodes in the axilla, hypertension, past biopsy surgery, and heparin usage are all connected to seroma development⁽¹⁴⁾. In the index research, wound infection was found in 20% of the patients. It is larger than the 4.5 percent reported by Shaikh K et al, but equivalent to Chandraker N et al's 24 percent and Jan WA et al's 11.4 percent^(9,11,17). In his series, Davis GB stated a 2.3 percent surgical infection rate. He found a link between a BMI of more than twenty five, an American Society

of Anesthesiology categorization of three or above, an operation length of more than two hours, diabetes mellitus, and current status of smoking⁽¹⁸⁾. Nosocomial or hospital-acquired organisms are the most prevalent cause of wound infection. Collection of fluid, separation of wound and smoking are all risk factors for wound infection¹⁹. Because it lacks certain humoral components including complement and fibronectin, seroma development is a major risk factor. Having low transferrin content adds to the fluid's failure to promote lymphocyte blastogenesis and healing of wound⁽¹¹⁾. For the first 3-5 days following surgery, 7.5 percent of patients had postoperative discomfort. This percentage is lower than the 20-30% reported in the literature^{20,21}. Hematoma development was seen in 6.25 percent of the patients. This is comparable to the 4% and 7.32 percent observed in other research. 4,11 Four individuals (5%) suffered flap necrosis. According to the literature, the reported frequency ranges from 3% to 32%^{20, 21}. Flap necrosis is caused by seroma collection and subsequent infection. Seroma also causes necrosis by disrupting the connection between the flap and the underlying tissues⁽¹¹⁾. Skin flap necrosis can also be caused by excessive mobility and the use of diathermy to raise skin flaps. To reduce the danger of flap necrosis, we mostly employed scissors to raise skin flaps. Edema of the arm has been reported in nearly half of the patients following axillary dissection for affected lymph nodes. The majority of patients suffer some degree of edoema after axillary clearing, which is typically so little that the patients are unaware of it. The risk of lymphedema is increased by having a greater BMI before and after surgery⁽¹⁵⁾. In our study, 2.5 percent of the patients developed lymphedema in one arm. According to the literature, the frequency of lymphedema after a MRM is $<10\%$ ⁽²¹⁾.

CONCLUSION

Following a modified radical mastectomy and axillary clearing, seroma development was the most prevalent consequence. Seroma formation leads to high risk of infection of wound, wound dehiscence, and skin flap necrosis, all of which increases morbidity and enhances the length of hospital stays.

Author's Contribution:

Concept & Design of Study:	Rab Nawaz Malik
Drafting:	Asim Shafi, Shabbir Ahmed
Data Analysis:	Bushra Ghulam, Umair Tahir, Muhammad Aamir Shahzad
Revisiting Critically:	Rab Nawaz Malik Asim Shafi
Final Approval of version:	Rab Nawaz Malik

Conflict of Interest: The study has no conflict of interest to declare by any author.

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