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COMPLICATIONS OF MODIFIED RADICAL MASTECTOMY IN CARCINOMA BREAST PATIENTS

1. **BILAL FAZAL SHAIKH**
MBBS, CRCP, MS Plastic Surgery
2. **AHMER AKBAR MEMON**
MBBS
3. **MAHESH KUMAR**
MBBS, FCPS
4. **ZEESHAN MEMON**
MBBS Student
5. **EHSANULLAH SOOMRO**
MBBS Student

1. ***Assistant Professor Plastic Surgery***
Department of Plastic & Reconstructive Surgery
Muhammad Medical College, Mirpurkhas
2. ***Registrar***
Department of General Surgery
Liaquat University of Medical & Health Sciences, Jamshoro
3. Department of Plastic & Reconstructive Surgery
Associate Professor Plastic Surgery
Liaquat University of Medical & Health Sciences, Jamshoro
4. Liaquat University of Medical & Health Sciences, Jamshoro
5. Liaquat University of Medical & Health Sciences, Jamshoro

Correspondence:
Dr. Bilal Fazal Shaikh
Flat 6, Naseem Market
Opp APWA School
Latifabad Unit 8, Hyderabad
Email: bilalfazal@live.com
Cell 92 333 2620802

ABSTRACT:

Objective: To assess the clinical out-come of modified radical mastectomy for management of breast cancer and to evaluate its safety and frequency of complications associated with this surgery

Design: Prospective observational study was conducted from July 2008 to June 2012 at Liaquat University Hospital Jamshoro and a private hospital Hyderabad city.

Methodology: All patients had routine investigations, staging ultrasound, xray and bone scan. The patients who underwent MRM were included in this study. The procedure was carried out by standard technique. Clinical examination, investigations, postoperative complications were recorded on proforma and results were drawn.

Results: Total study population was 78 patients with mean age of 44.21 years ± 13.43. Main per-operative complications observed were seroma formation 34.6% and wound infection in 12.8% cases, skin flap necrosis, paresthesia and hematoma in 5.1% cases. Wound dehiscence, edema and muscular paralysis were seen in 3.8, 2.5 and 1.2% study population respectively.

Conclusion: Modified radical mastectomy is mainstay of treatment option for breast cancer management. Modified radical mastectomy is reliable and safe modality in hands of well-trained surgical team observing careful approach. Common complication associated with MRM can be avoided by taking prophylactic measures during surgery and convalescence period.

Keywords: MRM : modified radical mastectomy, breast cancer, complications

INTRODUCTION:

Modified radical mastectomy has become the mainstay of treatment in breast cancer management in Pakistan. It has increasingly being opted as prophylactic surgery in patients genetically at high risk for breast cancer development. Radical mastetctomy usually follows an uneventful recovery. Complications after MRM can be minimized with thorough preoperative evaluation, meticulous technique, hemostasis, and wound closure. In addition to the standard oncologic evaluation, preoperative evaluation includes assessment of the patient's overall physiologic condition, with particular emphasis on tolerability of anesthesia, uncontrolled diabetes, hypertension, anemia, coagulopathy, or steroid dependency. Complications of modifies radical mastectomy include seroma formation, wound infection and wound dehiscence, skin flap necrosis, lymphedema, hemorrhage, hematoma formation, paresthesia and muscle paralysis[1-3].These complications can be minimized with careful patient selection, meticulous operative dissection and sound surgical judgment.

METHODOLOGY:

This prospective study was conducted at Liaquat University Hospital Jamshoro and private hospitals of Hyderabad from July 2008 to June 2012 at Liaquat University

Hospital and a private hospital. Seventy eight patients, presenting with carcinoma breast and planned for modified radical mastectomy were included in the study after obtaining informed consent.

All the patients under went fine needle aspiration cytology or open biopsy for confirmation. All patients had staging done with ultrasound abdomen, x-ray chest, CT scan of chest and bone scan. Patients with stage II and III patients were included in the study. Patients with early breast cancer (T1), with history of previous breast surgeries, those on neo-adjuvant therapy, with diabetes mellitus and other comorbids and with any other unacceptable anesthetic risk were excluded from the study. All patients underwent Patey's modified radical mastectomy with axillary clearance up to level II and III. During surgery flap dissection was partially performed by diathermy. Two closed suction drains were kept, one in axilla and other under the flap. Hemostasis was secured by diathermy and sutures. Suction drains were removed in 5-7 days or early if the amount of drainage was less than 30cc. Patients were followed up for surgical site infection up to one month. Data was analyzed for variables like length of surgery, amount of drainage, time of drain removal, number of recovered lymphnodes and number of involved lymph nodes. The patients, who developed any wound complications e.g. seroma, wound dehiscence and flap necrosis, remained admitted for treatment. The patients were advised for follow up at monthly interval up to six months.

Collected was statistically analyzed and results compiled using SPSS v.16. Variables were described as mean ± standard deviation. Frequency was described as percentages in each group.

RESULTS:

A total of 78 patients had modified radical mastectomy during the study period. Average age was 44.21 years ± 13.43. The age range of the selected population was 28-67 years, 10 patients were in age range 21-30 years (12.8%). While in age range of 31-40 year there were 23(29.48%) patients, 29 were in age range of 41-50 years (37.17%), 10 patients (12.8%) were in 51-60 years group and 6 (7.69%) were had age more than 60 years (Figure 1). According to TNM staging about 1/3rd (34.62%) of the study population was having T2 lesions while 51 (65.38%) patients were having lesion of T3 or more. (Table 1).

Commonest complications were seroma formation (34.6% N-27), wound infection was the second most common early complication (12.8% N=10). Other complication included wound dehiscence (3.8% N=3), paraesthesia (5.1% N=4), skin flap necrosis (5.1% N-4), lymphedema (2.5 % N=2), hematoma (5.1% N=4) and muscle paralysis (1.2% N=1). (Figure 3).

FIGURE 1:
Frequency of modified radical mastectomy (MRM) in various age groups

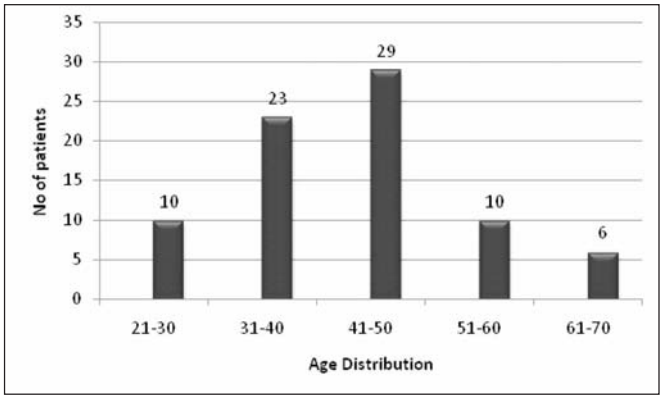


TABLE 1:
Breast Cancer Statistics in study population

Characteristics	Frequency	Percentage
Lesion size		
T2	27	34.62
T3 or more	51	65.38
Nodal Status		
N0	20	25.64
N1	58	74.35
Metastasis		
M0	78	100
M1	0	

FIGURE 3:
Complications of MRM

Complication	No of patients	Percentage
Seroma Formation	27	34.6
Wound Infection	10	12.8
Skin flap necrosis	4	5.1
Wound dehiscence	3	3.8
Hematoma	4	5.1
Edema	2	2.5
Paresthesia	4	5.1
Muscle paralysis	1	1.2

DISCUSSION

Mainstay of breast cancer management is surgery directly or after neoadjuvant chemotherapy. The surgical treatment for the breast cancers depends upon the stage of disease at the time of initial presentation, age of patients, patient's preference and surgeon's choice. Among the procedures, modified radical mastectomy with axillary clearance is the most commonly performed surgery. Although it is commonly performed procedure in any surgical setup still it is associated with significant morbidity and mortality. Modified radical mastectomy (MRM) is most commonly performed surgical procedure in Ca breast patients in Pakistan.

The mean age in our study population was 44.21 years ± 13.43, this presenting age for ca breast is well matched with published data populations of various studies[i-]. The age range in our study was 28-59 years, 10 patients were in age range 21-30 years (12.8%). While in age range of 31-40 year there were 23(29.48%) patients, 29 were in age range of 41-50 years (37.17%), 10 patients (12.8%) were in 51-60 years group and 6 (7.69%) were had age more than 60 years. Similarly most populated age range in our study was 41-50 years as of Jan et al[iv].

Most frequent presenting size of lesion in our study population was T3 or more (65.38%). Although in Western world and in developed countries efficient public awareness strategies with widely available screening programs have dramatically decreased the

presenting lesion size but situation in developing countries is still bleak. Our data findings are similar to published literature from developing countries particularly Pakistan[v]. Nodal status in our study population was predominantly N1 (74.35% N=58) that is 1 or more than one lymph nodes were involved. Our study results were in concordance with numerous local publications[vi]. Mamoon et al in their study found out positive nodal status in 74.6% patients[x]. This study was undertaken with the aims and objective of finding the common complications associated with modified radical mastectomy. In our study population the most common complication was seroma. In our study population the it was found in 27 out of 78 patients (34.6%). Seroma formation post modified radical mastectomy is a common observation. Seroma formation is a side effect of breast or axillary surgery rather than a complication but can delay patient recovery and cause unpleasant symptoms. Patient and tumor-related factors have no significant bearing on seroma formation except possibly body weight and body mass index, which seem to be directly proportional to seroma formation. Its estimated incidence is reported to be between 3 and 85%[vi]. Seroma formation in our study population is well within the reported range and we report incidence similar to many studies.

After modified radical mastectomy reported rates of wound infections range from 2.8% to 15%. Infection of the mastectomy wound or ipsilateral arm may represent serious morbidity in the postoperative patient and produces disability. It may also leads to late postoperative lymphedema of the arm. Many factors have been proposed to increase the risk of wound infection namely open biopsy before mastectomy, increasing age, prolonged suction catheter drainage, and immune-compromised state. Wound infection developed in 12.8 % (N=10) in our patient cohort. Our study population had infection rate relatively on higher side as compared to rate quoted in Western literature[v]. Higher rate in our study population can be attributed to many factors like malnutrition and improper hygiene of patient, improper sterilization, the drain and wound care.

Another commonly occurring complication of breast surgery is necrosis of the developed skin flaps or skin margins. Skin flap necrosis can occur if the skin is fixed under tension. Reported range of Bland and colleagues observed an incidence of 21% for minor and major necrosis of mastectomy skin flaps with associated wound infection. Comparatively lower frequency of skin flap necrosis was observed in study of Mizuno H & Bernard R W et al. However, our study showed incidence even lower, . The most likely cause of this difference of incidence could be due to variation in study population.

Hematoma and paresthesias developed in 5.1% (N=4) of study population. Early severe hemorrhage is most often related to arterial perforators of the thoracoacromial vessels or internal mammary arteries. Improper haemostasis. Its incidence can be reduced by proper fixation of flaps and suction catheter drainage. Litertaure has reported the incidence of haemmorhage and haemtoma between 0.5%-5%[v] . Paresthesia is generally attributed to the sacrifice of intercostobranchial nerve, which can be preserved in about 65% of the patients. Jan et al reported the 9.7% incidence of paresthesia[iv]. Slightly lower incidence in our patient cohort can be attributed to smaller data in our study.

Less common complications were wound dehiscence, edema and muscle paralysis. Early edema reported to occur in half of the operated patients but usually its smaller quantity usually goes unreported. Lower reported incidence in our study can be attributed to this fact that lymphedema is usually a late complication and it may take years to develop. As we didn't had the long term follow up of our study population so our study may be reporting lower incidence of lympedema in breast cancer patients undergoing modified radical mastectomy. Muscle paralysis can occur due to injury to long thoracic nerve supplying Serratus anterior which was observed muscle causing winged scapula.

CONCLUSION:

Seroma formation, wound infection were major early complications, while haematoma, paresthesia, muscle paralysis and skin flap necrosis were observed in few cases after modified radical mastectomy with axillary dissection. Well trained surgical team with careful approach can decrease the MRM related morbidity and lessen the operative complications.

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