

Post MRM Early Complications in Low VS High BMI Patients; A Comparative Study

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Abstract:

Objective: To compare frequency of early complications in post-operative period of modified radical mastectomy in patients with low body fat percentage versus relatively higher body fat percentage.

Study Design: Comparative observational study design being conducted from December 2022 to December 2023 in Bundelkhand medical college Sagar, District Sagar, Madhya Pradesh.

Methodology: All the patients included in the study had all investigations done in our as well as their previous centres (blood work up, bone scans, x rays, ultrasounds etc.) along with detailed clinical examinations and operative procedure carried out with standard techniques and under aseptic conditions.

Results: The total patients included in the study were 60 among which 30 had BMI of 17 to 24.9 and 30 had body mass index more than 25. All patients were in mean age group of >35 years and <60 years. Among patients with lower body mass index early post-operative complications were noted which is far more low than cases of higher BMI patients.

Conclusion: For carcinoma breast Modified Radical Mastectomy remains mainstay of treatment but post-operative complications; surgical site infections and such delay in healing process, increase hospital stay and sometimes delay definitive managements like chemotherapy and radiotherapy.

Keywords: Carcinoma breast, Modified Radical Mastectomy, Body mass index, surgical site infections, haematoma, seroma formation, Flap necrosis.

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Introduction

Breast cancer is the most common cancer in females globally, accounting to almost 2 million new cases a year globally and upto 1,00,000 new cases in India every year. It is the most common cancer overall second only to Lung cancer (i.e.in both males and females). This represents about 12% of all new cancer cases and 25% of all cancers in women. [1]

In India, the incidence has increased significantly, almost by 50%, between 1965 and 1985.[2]

The estimated number of new cases of breast cancer in India in 2016 was 118000 (95%

uncertainty interval, 107000 to 130000), 98.1% of which were females and 1.9% were male, and the prevalent cases were 526000 (474000 to 574000).

Over the last 26 years, the age-standardised incidence rate of Breast cancer in females increased by 39.1% (95% uncertainty interval, 5.1 to 85.5) from 1990 to 2016, with the increase observed in every state of the country [3].

As per the Globocan data 2020, in India, Breast cancer accounted for 13.5% (178361) of all cancer cases and 10.6% (90408) of all deaths with a cumulative risk of 2.81 [4]. (Figure 1 and figure 2).

Estimated number of new cases in 2020, worldwide, females, all ages

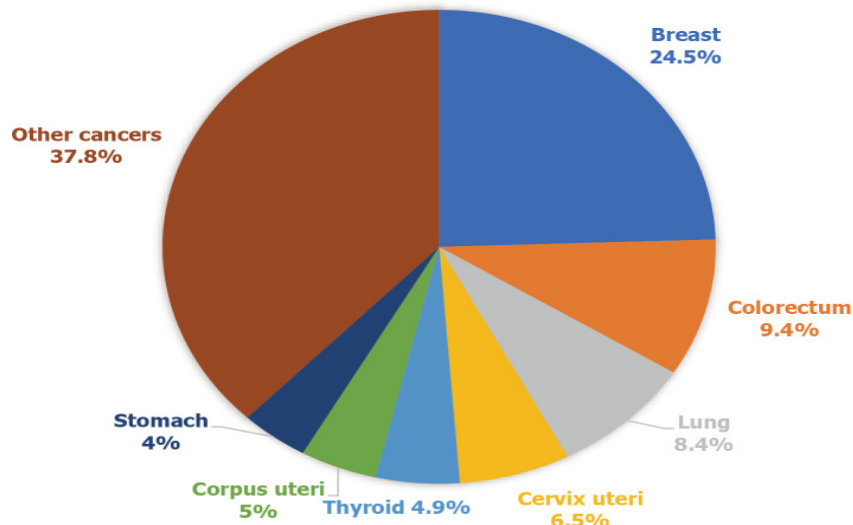


Figure 1: Estimated Number of new cancer cases in 2020 , worldwide in females of all ages. [5]

Number of new cases in 2020, both sexes, all ages

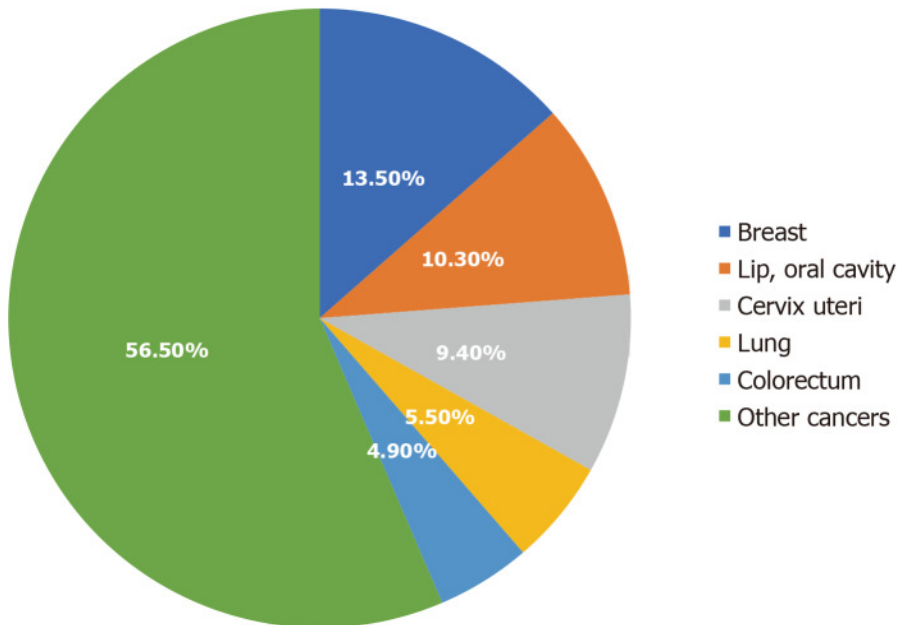


Figure 2: Estimated number of new cancer cases in 2020 in both sexes of all ages [5].

The modern day approach to breast cancer management is multidisciplinary and includes a combination of surgery, radiotherapy, hormonal therapy and chemotherapy.[6]

However, surgical excision of the tumor is the hallmark of treatment of breast cancer. Among a plethora of surgical procedures available and being performed, modified radical mastectomy (MRM) is the most common.[7]

A modified radical mastectomy preserves the pectoralis major muscle with removal of level I, II, and III (apical) axillary lymph nodes.[8]

Complications of MRM include seroma formation, surgical site infection (SSI), wound dehiscence,

skin flap necrosis, lymphedema, hemorrhage, hematoma formation, paresthesia, and muscle paralysis. These complications can be minimized with careful patient selection and standardized surgical care. Complications following MRM occur early or late in the post-operative period and lead to morbidity. This in turn leads to prolonged stay in hospital which exposes them to nosocomial infections and delay in wound healing and there by delaying the adjuvant chemotherapy or radiotherapy to be carried out.

Early complications occur usually in initial 30 days and involve seroma formation, flap necrosis, wound dehiscence and such leading to surgical site infections. Based on different conducted surveys,

the incidence of SSI's following breast surgeries may vary anywhere between 0.8-26%.[9,10] Seroma formation is the most frequent postoperative complication seen after MRM with an incidence ranging from 3% upto 85%.[11]

Secondary infection of unresolved seroma may lead to unnecessary morbidity and may even require re-admission, re-imaging, drainage and antibiotic usage.[12] Incidence rates for postoperative wound infections range from 3% to 19% and chronic pain is seen in 20-30% of the cases. Incidence of flap necrosis is reported between 3% and 32%. [13-15].

Post-operative complications can be controlled via good patient evaluation, better dissection perioperative and careful assessment of comorbidities associated with the patient.

Method

This comparative observational study was conducted in General surgery department of Bundelkhand medical college, District Sagar, Madhya Pradesh. The study was conducted among 60 patients which were operated cases of Modified Radical Mastectomy proven Carcinoma breast. The duration of the study was 1 year i.e. from December 2022 to December 2023.

BMI formula:

$$\text{BMI} = \frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$$

Inclusion criteria:

All operated cases of Modified Radical Mastectomy for FNAC proven carcinoma breast.

Exclusion criteria:

1. Patients with co-existing comorbidities like diabetes and hypertension.
2. Patients on anticoagulant medications.
3. Patients with metastatic carcinoma breast.

Data from these patients were collected after complete informed and written consents in their local language. Data was collected from the

patients in detailed proforma pertaining history, clinical examinations and investigations. The post-operative complications were recorded on post-operative day 3, 5, 7, and at 1 month follow up visit. This data was then analysed by institute's statistician from PSM department.

Procedure: The Modified Radical Mastectomy was performed where entire breast parenchyma along with the pectoral fascia, the nipple areola complex, necessary skin and relevant axillary lymph nodes were removed. Suction drain was kept in the axilla and beneath flaps in the chest wall. Drain was kept for a minimum of 72 hours and it was removed on the day when 24 hour drain output was less than 05 ml.

Statistics: Statistical analysis was done by using descriptive and inferential statistics using chi square test and software used in the analysis were SPSS 17.0 version

Results

Out of 60 cases seroma formation was noticed in 25% cases, wound dehiscence in 13.33% cases, surgical site infections in 18.33% cases, flap necrosis in 16.667% and haematoma formation in 5% cases.

The study was conducted among 60 patients with mean age group of 35 to 60 years of age, and early post-operative complications were compared between 30 patients in group A which were low BMI (17 – 24.9) patients and 30 patients in group B with BMI > 25.

Among patients in Group A seroma formation was noted in 10% cases followed by wound dehiscence in 6.66%, surgical site infections in 3.33%, flap necrosis in 3.33% and haematoma formation in 0% cases.

Among patients in Group B seroma formation was noted in 40% cases followed by wound dehiscence in 20%, surgical site infections in 33.3%, flap necrosis in 30% and haematoma formation in 10% cases.

Table 1:

Complications	Number of cases involved out of 30	Percentage
Seroma formation	03	10%
Wound dehiscence	02	6.66%
Surgical site infections	01	3.33%
Flap necrosis	01	3.33%
Haematoma formation	00	0%

Complications in low BMI (17 – 24.9) patients (out of 30 cases from group A)

Table 2:

Complications	Number of cases involved out of 30	Percentage
Seroma formation	12	40%
Wound dehiscence	06	20%
Surgical site infection	10	33.3
Flap necrosis	09	30%
Haematoma formation	03	10%

Complications in high BMI (>25) patients (out of 30 cases from group B)

Discussion

Breast cancer is one of the most frequent noncutaneous cancer among women Breast cancer is one of the most frequent noncutaneous cancer among women Breast cancer is one of the most frequent noncutaneous cancer among women Breast cancer is most common cancer among women. MRM and quadrantectomy with lymph node dissection are the methods of choice in most of the cases [16]. The surgical resection of axillary region leads to multiple complications, the most common being seroma formation [17-19]. The study our institute did focuses on post-operative complication like seroma formation and such in early post-operative period which were found be more prevalent in cases with high body fat percentage, Although these complications can be reduced with meticulous dissection and good and aseptic surgical approach.

Conclusion

It can be concluded that early post-operative complications of MRM included wound dehiscence, seroma, surgical site infection, hematoma and flap necrosis. It was observed that seroma formation was the most common complication followed by wound dehiscence, surgical site infections and flap necrosis in the early post-operative period and were more common in high BMI patients than in Patients with lean and thin built. Proper per-operative assessment of patients, better skill and proper technique of surgery with adequate aseptic precautions and patient specific post-operative management may help in minimizing these complications.

Complications of MRM include seroma formation, surgical site infection (SSI), wound dehiscence, skin flap necrosis, lymphedema, hemorrhage, hematoma formation, paresthesia, and muscle paralysis. These complications can be minimized with careful patient selection and standardized surgical car Complications of MRM include seroma formation, surgical site infection (SSI), wound dehiscence, skin flap necrosis, lymphedema, hemorrhage, hematoma formation, paresthesia, and muscle paralysis. These complications can be minimized with careful patient selection and standardized surgical car.

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