



A STUDY ON INCIDENCE OF EARLY POST OPERATIVE COMPLICATIONS OF MODIFIED RADICAL MASTECTOMY

General Surgery

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ABSTRACT

Background: Breast Cancer is the most common cancer amongst women globally with over 2 Million new cases in 2018. In various parts of India, it constitutes between 19% to 45% of all cancer cases in women.

Surgical management is the hallmark of breast cancer treatment with the modified radical mastectomy or MRM, mastectomy with axillary clearance or wide local excision with axillary dissection, being the most performed procedure.

The common early complications of MRM like Seroma formation, skin flap necrosis, wound infection & wound dehiscence, lymphedema, haemorrhage, hematoma, paraesthesia can be minimized with careful patient selection, meticulous operative procedures & good surgical judgement.

This study was done to analyse the early complications of modified radical mastectomy performed using data over a 5 year period.

Methods: The present Prospective and observational study was conducted in the Department of General Surgery, Sree Balaji Medical College & Hospital (SBMCH), Chennai and considered forty patients of breast carcinoma treated with MRM between January 2015 to December 2019.

Results: The mean age of cases was 49.73 years with a standard deviation of 11.20 years. The youngest patient was of 31 years and oldest of 74 years.

In 100% (40 nos) of the cases, chief complaint was lump in breast, while 28% (11) had axillary swelling and 20% (8) history of pain in lump. Ecchymosis of the flap was seen in 20% (8), surgical site infection in 25% (10) and Seroma in 23% (9). Pain at surgical site was 7.5% (3), Tissue Necrosis 17.5% (7), Wound Dehiscence 32.5% (13)

Conclusions: It was concluded that the Post-operative complications of MRM that show highest frequency are Wound Dehiscence, Seroma, Surgical Site Infection & Ecchymosis of the flap.

KEYWORDS

Breast cancer, Modified radical mastectomy, Post-operative complication, Seroma, Wound dehiscence

INTRODUCTION

Breast cancer is the second most common cancer globally (after lung cancer) and the most commonly occurring cancer in women, with over 2 million new cases diagnosed in 2018.

India has been reporting roughly 100,000 new cases with the number of cases rising rapidly year on year and currently 1 in 22 women in India are likely to get breast cancer during their life time.

While the modern approach to breast cancer management is multi-disciplinary, surgical management is the hallmark of treatment of breast cancer. The different surgical treatment options include simple mastectomy, modified radical mastectomy and breast conservative surgery.

Among the surgical procedures mastectomy with axillary clearance is the most commonly performed procedure, known as the modified radical mastectomy (MRM) which has become the standard treatment option for most patients with breast cancer⁴.

These surgical procedures aimed to cure breast cancer are associated with a very low morbidity and mortality rates of around 1% demonstrating the need for proactive interventions and prophylactic surgery in patients genetically at high risk for breast cancer development. The common early complications of MRM are Seroma formation, skin flap necrosis, wound infection & wound dehiscence, lymphedema, haemorrhage, hematoma, paraesthesia.

These complications can be minimized with careful patient selection, meticulous operative dissection and sound surgical judgment along with thorough preoperative evaluation, meticulous technique, haemostasis, and wound closure.

In addition to the standard oncologic evaluation, pre-operative evaluation includes assessment of patients overall physiologic condition with particular emphasis on tolerability of anaesthesia, diabetic status, hypertension, anaemia, coagulopathy or steroid therapy¹².

Non-oncological complications after MRM which occur early and late contribute to morbidity and prolong hospital stay and interfere with the management of breast cancer especially delaying the adjuvant chemotherapy or radiotherapy to carry on.

Early complications are defined here as complications occurring within 30 days after surgery. It is documented that early wound complications after modified radical mastectomy include wound infections, seromas, lymphoedema, chronic pain, flap necrosis and hematomas.

- Seroma formation is the most frequent postoperative complication seen after modified radical mastectomy with an incidence of 3% to 85%⁷.
- Infection developing within seroma increases morbidity and often results in the need for re-admission, re-imaging, drainage and antibiotic usage⁸.
- Incidence rates for postoperative wound infections are variable and range from 3% to 19% chronic pain in 20-30% of the cases, flap necrosis is reported between 3% and 32%⁹⁻¹¹.
- The incidence of functionally significant lymphedema after a modified radical mastectomy is <10%.

Since many patients present from rural areas with advanced stage of malignancy and patients from urban area with raised body mass index and other factors, hence, the study was done to analyse early complications of modified radical mastectomy performed.

METHODS

It is a retrospective and observational study titled "A study on early complications of modified radical mastectomy". Duration of study was 5 years i.e. January 2015 to December 2019 and considered forty patients of carcinoma breast who were treated with Modified Radical Mastectomy.

INCLUSION CRITERIA

- All the patients who undergo modified radical mastectomy procedure

EXCLUSION CRITERIA

- Patients on anticoagulants/aspirin
- Patients with metastatic breast carcinoma.

Method of collection of data

Data was collected from the medical records department. Post-operative complications on day 4th, day 10th and in 1 month were noted. Statistical analysis on the data received was done.

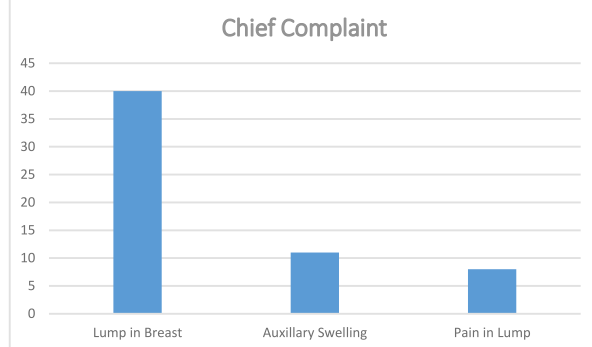
The modified radical mastectomy removes all breast tissue, the nipple

areola complex, necessary skin, and level I and level II axillary lymph nodes. In suspicious cases level III axillary lymph nodes were removed. Negative suction drain was kept in situ in the axilla and beneath flaps.

Drain was kept for a minimum of 3 days and it was removed on the day when 24 hour drain output was less than 20ml. The drain was strictly removed on 7th day irrespective of the amount of drain output.

RESULTS

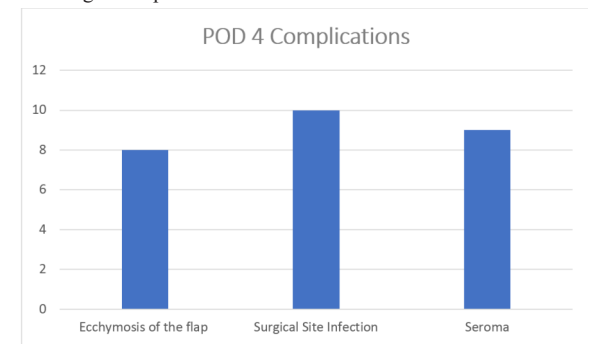
Chief Complaint	Nos	%
Lump in Breast	40	100%
Axillary Swelling	11	28%
Pain in Lump	8	20%



Post-Operative Day 4

POD 4 Complications	Nos	%
Ecchymosis of the flap	8	20%
Surgical Site Infection	10	25%
Seroma	9	23%

In the present study, ecchymosis of the flap was seen in 20% (8) patients. 25% cases (10) had surgical site infection and were treated with antibiotics according to the culture and sensitivity report and local betadine dressing. Minimal seroma collection (<10ml) was seen in 23% (9) cases. Though drain was in situ there was collection away from the drain site, which had no active drainage. All the seromas were aspirated with syringe and given pressure bandage over the surgical wound. A bar chart is shown below according to distribution of patients according to complication on POD 4



Post-Operative Day 10

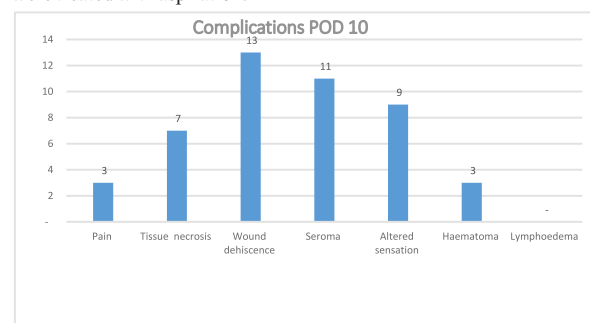
POD 10 Complications	Nos	%
Pain	3	7.5%
Tissue necrosis	7	17.5%
Wound dehiscence	13	32.5%
Seroma	11	27.5%
Altered sensation	9	22.5%
Haematoma	3	7.5%
Lymphoedema	-	0.0%

Wound dehiscence was present in 32.5% (13) cases, 27.5% (11) patients had minor dehiscence (<2cm) which was treated with daily dressings and 2 patients required secondary suturing of the wound.

Among these 13 cases, 6 patients had signs of infection and 2 patients had both seroma formation and signs of infection, prior to 10th day.

Seroma was present in 27.5% (11) cases. All cases were treated with aspiration with syringe.

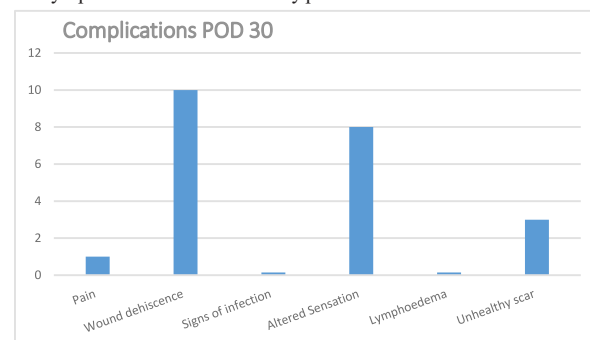
Altered sensation over the operated site was observed in 22.5% (9) Haematoma was seen in 7.5% (3) cases along the lower flap who were treated with aspiration.



Post-Operative Day 30

Complications POD 30	Nos	%
Pain	1	2.5%
Wound dehiscence	10	25.0%
Signs of infection	0	0.0%
Altered Sensation	8	20.0%
Lymphoedema	0	0.0%
Unhealthy scar	3	7.5%

25% (10) case showed minor wound dehiscence (<2cm). Among these 10 cases, 4 cases had earlier flap necrosis, 3 patients had seroma, 3 had surgical site infection. Altered sensation was present in 20% (8) cases and unhealthy scar was noticed in 7.5% (3) cases. None of the patients had lymphoedema within the study period of 1 month



DISCUSSION

9 cases developed seroma in the early post-operative period of 4th day though drain was in situ, away from the location of drain. The seroma was managed with aspiration. Seroma formation is a side effect of breast and axilla surgery rather than complication but can delay patient recovery and can cause unpleasant symptoms. Rate of seroma formation can be reduced/prevented by insertion of suction drain deep to mastectomy flaps in axilla

Comparison of incidence of seroma in different studies.

Study	Seroma %
Wedgwood KR et al	25.0 %
Bhatty I et al	20.0 %
Altinyollar H et al	15.5%
Dahri FJ et al	33.3%
Chandrakar, Shinde	26.8%
Present Study	27.5 %

Surgical site infection

10 cases had surgical site infection (25%) and were treated with antibiotics according to the culture and sensitivity report and daily dressing was done. Among these cases 4 patient's wound improved with local dressing but 6 cases resulted in wound dehiscence (15%).

Wound dehiscence

In this study there was no wound dehiscence on 4th day, dehiscence was noted in 13 cases on 10th day (32.5%) which was reduced to 10 cases on 30th day (25%). Amongst these 13 cases 11 patients had minor

dehiscence (<2cm) which was treated with daily dressings and 2 patients (15.4%) required secondary suturing of the wound

Comparison of incidence of post mastectomy wound dehiscence in different studies.

Study	No. of patients	% Wound dehiscence
Compte DV et al	1774	11.9%
Dahri FJ et al	150	1.9%
Present study	40	32.5%

Association of local infection

Out of 13 cases, 6 patients had signs of infection and 2 patients had seroma formation with signs of infection. Percentage of the dehiscence in present study was higher as compared to above mentioned studies is due to the reason that we have included cases of marginal tissue necrosis.

Flap necrosis

Comparison of incidence of flap necrosis in different studies.

Study	No. of patients	% of flap necrosis
Shaikh FB et al	78	5.1%
Shaikh K et al	57	7%
Alam Jan W et al	154	3.9%
Compte DV et al	1774	14.5%
Present study	40	2.5 %

CONCLUSION

It was concluded that the Post-operative complications of MRM that show highest frequency are Wound Dehiscence, Seroma, Surgical Site Infection & Ecchymosis of the flap.

REFERENCES

1. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, Coebergh JW, Comber H, et al. Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. *Eur J Cancer*. 2013 Apr 1;49(6):1374-403.
2. What is breast cancer? Available at: <http://www.cancer.org/cancer/breastcancer/overview>. Accessed 1 January 2012.
3. Hudis CA, Norton L. Adjuvant drug treatment for resectable breast cancer. *Oncologist*. 1997 Dec 1;2(6):351-8.
4. Thompson AM. Axillary node clearance for breast cancer. *J Royal Coll Surg Edinburgh*. 1999 Apr;44(2):111-7.
5. Prospero E, Cavicchi A, Bacelli S, Barbadoro P, Tantucci L, D'errico MM. Surveillance for surgical site infection after hospital discharge: a surgical procedure-specific perspective. *Infect Control Hospital Epidemiol*. 2006 Dec;27(12):1313-1318.
6. Ruvalcaba-Limón E, Robles-Vidal C, Poitevin-Chacón A, Chávez-MacGregor M, Gamboa-
7. Vignolle C, et al. Complications after breast cancer surgery in patients treated with concomitant preoperative chemoradiation: a case-control analysis. *Breast Cancer Res Treatment*. 2006 Jan 1;95(2):147-52.
8. Kumar S, Lal B, Misra MC. Post-mastectomy seroma: a new look into the aetiology of an old problem. *J Royal Coll Surgeons Edinburgh*. 1995 Oct;40(5):292-4.
9. Coveney EC, O'Dwyer PJ, Geraghty JG, O'Higgins NJ. Effect of closing dead space on seroma formation after mastectomy--a prospective randomized clinical trial. *Eur J Surg Oncol*. 1993 Apr;19(2):143-6.
10. Vitug A, Newman L. Complications in breast surgery. *Surg Clin North Am*. 2007 Apr;87(2):431-51.
11. Tasmuth T, Von Smitten K, Kalso E. Pain and other symptoms during the first year after radical and conservative surgery for breast cancer. *Br J Cancer*. 1996 Dec;74(12):2024-31.
12. Larson DL, Basir Z, Bruce T. Is oncologic safety compatible with a predictably viable mastectomy skin flap? *Plastic Reconstructive Surg*. 2011 Jan 1;127(1):27-33.