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Original Research Article

Study the early complications of modified radical mastectomy performed

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ABSTRACT

Background: According to the national and regional cancer registries, breast cancer is the most common cancer among women in Delhi, Mumbai, Kolkata, Ahmadabad and Thiruvananthapuram.
Methods: The present Prospective and observational study was conducted in the Department of Surgery of Acharya Vinoba Bhave Rural Hospital attached to Jawaharlal Nehru Medical College. Forty-one patients of carcinoma breast were treated with modified radical mastectomy from September 2013 to September 2015.
Results: The mean age of cases was 50.90 years with a standard deviation of 11.61 years. only 1 male patient (2.44%) was diagnosed with carcinoma breast and 40 female patients (97.56%) out of 41 total cases. In all the 41 cases (100%) chief complaint was lump in breast, followed by axillary swelling in 11 cases (26.83%) and history of pain (in lump) in 8 cases (19.51%). ecchymosis of the flap was seen in 8 patients (19.51%). The 10 cases (24.39) had surgical site infection, Minimal seroma collection (<10ml) was seen in 9 cases. 3 cases (7.32%) had pain at the surgical site. Tissue necrosis was observed in 7 cases (17.07%).
Conclusions: It was concluded that Post-operative complications of MRM included wound dehiscence, seroma, surgical site infection, hematoma, altered sensation and pain.

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

INTRODUCTION

Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new cases diagnosed in 2012 and second most common cancer overall (i.e. in both males and females where lung cancer is most common). This represents about 12% of all new cancer cases and 25% of all cancers in women.[1] Currently, India reports roughly 1,00,000 new cases every year. Breast cancer ranges from 19 to 45% of all cancers among Indian women in various geographical locations. The number of breast cancer cases is rising rapidly in India. It is reported that one in 22 women in India are likely to get breast cancer during the life time. This number is definitely high among American women; one in eight being the victim of this disease.[2]

The modern approach to breast cancer management is multidisciplinary which includes surgery, radiotherapy, hormonal therapy and chemotherapy.[3] However, surgical management is the hallmark of treatment of breast cancer. Among the surgical procedures modified radical mastectomy (MRM) is the most commonly performed procedure.[4] Apart from oncological complications like residual disease, local or axillary recurrence after curative resection, other non-oncological complications after

MRM which occur early and late contributing to morbidity, which prolongs hospital stay and cost 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 30days after surgery. It is documented that early wound complications after modified radical mastectomy include wound infections, seromas, lymphoedema, chronic pain, flap necrosis and hematomas. Based on different conducted surveys, a wide range of 0.8-26% has been reported as the incidence rate of the surgical site complications after the breast surgeries.[5,6] 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, reimaging, drainage and antibiotic usage.[8] 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%. Complications after mastectomy can be minimized with thorough pre-operative evaluation, meticulous technique, hemostasis 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 anesthesia, diabetic status, hypertension, anemia, coagulopathy or steroid therapy.[12]

In the present institute many patients present from rural areas with advanced stage of malignancy and patients from urban area with raised body mass index. Hence, the present study was undertaken to study early complications of modified radical mastectomy performed.

METHODS

The present prospective and observational study entitled "study the early complications of modified radical mastectomy performed" was conducted in the Department of Surgery of Acharya Vinoba Bhave Rural Hospital attached to Jawaharlal Nehru Medical College. Duration of study was 2 years i.e. September 2013 to September 2015. Forty one patients of carcinoma breast were treated with Modified Radical Mastectomy from September 2013 to September 2015.

Inclusion criteria

- All the patients who undergo modified radical mastectomy procedure

Exclusion criteria

- Pre-existing pain at operative site or on the contralateral site
- Patients on anticoagulants/aspirin
- Patients with malignant breast carcinoma.

Method of collection of data

Data was collected from an especially designed case recording proforma pertaining to patient particulars, examinations, diagnosis. Post-operative complications were noted on day 4th, day 10th and in 1month follow up. It was then subjected to statistical analysis with the help of biostatistician of authors' institute. Before start of present study, a written consent was obtained in local vernacular in each patient.

Procedure

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

Statistical analysis

Statistical analysis was done by using descriptive and inferential statistics using chi square test and software used in the analysis were SPSS17.0 version and GraphPad Prism 5.0 and $p < 0.05$ is considered as level of significance ($p < 0.05$).

RESULTS

Maximum number of the cases i.e. 16 (39.02%) belonged to the age group 51-60years, followed by 11 (26.83%) cases in the age group of 31-40 years, 8 (19.51%) cases in 41-50years and 5 (12.20%) cases were above 60 years of age. The mean age of cases was 50.90 years with a standard deviation of 11.61years. The youngest patient was of 30 years and oldest of 75 years. Only one patient (2.44%) was diagnosed with carcinoma breast at the age of 30 years.

In the present study, only 1 male patient (2.44%) was diagnosed with carcinoma breast and 40 female patients (97.56%) out of 41 total cases.

In all the 41 cases (100%) chief complaint was lump in breast, followed by axillary swelling in 11 cases (26.83%) and history of pain (in lump) in 8 cases (19.51%).

In the present study, ecchymosis of the flap was seen in 8 patients (19.51%). The 10 cases (24.39%) 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 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 post-operative day 4 (Table 1).

Table 1: Distribution of patients according to postoperative complication on day 10.

Postoperative complications	No. of patients	Percentage (%)
Abnormal flap colour (ecchymosis)	8	19.51%
Signs of infection	10	24.39%
Seroma	9	21.95%
Altered sensation	0	0.00

Three cases (7.32%) had pain at the surgical site. Tissue necrosis was observed in 7 cases (17.07%), 6 of them had marginal blackening which were treated with application of hydroheal AM gel (propylene glycol, carbomer, silver colloid, amorphous hydrogel) and 1 patient had flap necrosis which further required split skin grafting.

Table 2: Distribution of patients according to postoperative complication on day 4.

Postoperative complications	No. of patients	Percentage (%)
Pain	3	7.32%
Tissue necrosis	7	17.07%
Wound dehiscence	13	31.71%
Seroma	11	26.82%
Altered sensation	9	21.95%
Haematoma	3	7.32%
Lymphoedema	0	0.00

Wound dehiscense was present in 13 cases (31.71%), 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 11 cases (26.82%). All cases were treated with aspiration with syringe. One patient required seroma aspiration till post-operative day 24th.

Altered sensation was observed in 9 cases (21.95%) at the anterior axillary fold and haematoma was seen in 3 cases (7.32%) along the lower flap who were treated with aspiration (Table 2).

One case (2.44%) had persisting pain over lateral aspect of surgical incision which was treated with oral diclofenac tablets.

Table 3: Distribution of patients according to postoperative complication on 1month of follow up.

Postoperative Complications	No. of patients	Percentage (%)
Pain	1	2.44%
Wound dehiscence	10	24.39%
Signs of infection	0	0.00
Altered Sensation	8	19.51%
Lymphoedema	0	0.00
Unhealthy scar	3	7.32 %

Ten cases (24.39%) had minor wound dehiscence (<2cm). Among these 10 cases 2 cases had earlier flap necrosis, two patients had seroma, 1 case had surgical site infection, one patient had seroma with surgical site infection, one case had haematoma with surgical site infection and flap necrosis, 1 case had haematoma with flap necrosis, 1 case had flap necrosis along with seroma and surgical site infection. Only one patient had no earlier complications. Altered sensensation was present in 8 cases (19.51%) and unhealthy scar was noticed in 3 cases (7.32%). None of the patients had lymphoedema within the study period of 1 month (Table 3).

DISCUSSION

In present study, maximum number of cases was in between the age group of 40- 60 years i.e. 24 (58.53%). The mean age of cases was 50.90 years with a standard deviation of 11.61years. In a study of 150 patients by Dahri FJ et al, maximum patients were 40-60year of age with a mean age of 52year.[13] It is an accepted fact that incidence of carcinoma of male is 1%. In a study of Sandhu DS et al, conducted in India among 304 breast cancer patients found incidence of male breast carcinoma as 1.3% whereas Weiss et al, reported it as <1% in his epidemiological study.[14,15]

In present study, only one male patient (2.44%) and 40 female patients (97.56%) was diagnosed with carcinoma breast out of the total 41 cases which is double than the incidence reported in the literature for male breast cancer. This difference may be due to exclusion of the other advanced cases reported to hospital and as well that only operable carcinoma breast cases i.e. up to stage 3A were included in the study, even this higher percentage may be due to the small sample size in the present study.

Eight 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 in present study was managed with aspiration under aseptic precautions. Seroma formation is a side effect of breast and axilla surgery rather than complication but can delay patient recovery and can cause unpleasant symptoms.[16] Rate of seroma formation can be reduced/prevented by insertion of suction drain deep to mastectomy flaps in axilla (Table

4).[17] In the present study occurrence of seroma formation was in the ranges of other studies

Table 4: Comparison of incidence of seroma in different studies.

Study	Seroma %
Wedgwood KR et al[18]	25 %
Bhatty I et al[19]	20%
Altinyollar H et al[20]	15.5%
Dahri FJ et al[13]	33.33%
Present study	26.82%

Surgical site infection

In the present study, 10 cases had surgical site infection (24.39%) and were treated with antibiotics according to the culture and sensitivity report and local betadine dressing. Among these cases 4 patients were cured with local dressing but 6 cases resulted in wound dehiscence (14.6%). The increased number of wound infections in present study was higher in spite of all sterile precautions, it may due to patient factors like malnutrition, improper hygiene of the patient. David GB et al, reported in a large scale retrospective study of 38,739 patients undergoing mastectomy from 2005 to 2009 that, 891 patients were found to have surgical site infection (2.3%).[21] They observed significant association of body mass index greater than 25, American Society of Anesthesiology classification of 3 or higher, diabetes mellitus, surgical time of 2 hours or longer (75th percentile), and current smoking status to SSI as risk factors (P <0.05).

Wound dehiscence

In present study there was no wound dehiscence on 4th day, dehiscence was noted in 13 cases on 10th day (31.71) which was reduced 10 cases on 30th day (24.39%). Amongst these 13 cases 11 patients (84.62%) had minor dehiscence (<2cm) which was treated with daily dressings and 2 patients (15.38%) required secondary suturing of the wound (Table 5).

Table 5: Comparison of incidence of post mastectomy wound dehiscence in different studies.

Study	No. of patients	% Wound dehiscence
Compte DV et al[22]	1774	11.9%
Dahri FJ et al[13]	150	1.9%
Present study	41	37.71%

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

Table 6: Comparison of incidence of flap necrosis in different studies.

Study	No. of patients	% of flap necrosis
Shaikh FB et al [23]	78	5.1%
Shaikh K et al [24]	57	7%
Alam Jan W et al[25]	154	3.9%
Compte DV et al[22]	1774	14.5%
Present study	41	2.44 %

CONCLUSION

It has been concluded that Post-operative complications of MRM included wound dehiscence, seroma, surgical site infection, hematoma, altered sensation and pain. It was observed that wound dehiscence was the most common complication noted in present study.

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