

Early Complications of Modified Radical Mastectomy With Level II Axillary Clearance

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ABSTRACT

Objective To identify the pattern of early complications of modified radical mastectomy with level II axillary clearance for stage II and stage III carcinoma breast.

Study design Descriptive study.

Place & Duration of study Department of Surgery, Hayatabad Medical Complex Peshawar, from July 2019 to June 2020.

Methodology A total 80 female patients who underwent modified radical mastectomy for stage II and stage III carcinoma of the breast were included. Patients were followed up in the OPD for one month. Data were collected on a predesigned form and analyzed through SPSS version 16.

Results The age range was 28 years - 75 years with a mean age of 48.5 ± 10.46 year. In 52 (65%) patients tumor size was more than 5cm. Axillary lymph nodes were involved in 60 (75%) cases. Seroma formation was the commonest complication and was observed in 20 (25%) cases. Wound infection occurred in 10 (20%) women. Other complications included altered sensations in 8 (10%), postoperative pain 6 (7.5%), hematoma 5 (6.25%), flap necrosis 4 (5%), wound dehiscence 3 (3.75%) and lymphedema in 2 (2.5%) patients.

Conclusion Modified radical mastectomy with level II clearance is mainly associated with complications like seroma formation and wound infection.

Key words Carcinoma breast, Modified radical mastectomy, Axillary clearance, Early complications.

INTRODUCTION:

Worldwide carcinoma of the breast is the most common cancer and about 1.7 million new cases were diagnosed in 2012.¹ In women it is the second most common cause of death after lung cancer. It represents about 12% of all newly diagnosed cancer cases and 25% of all cancers in females.^{2,3} A multidisciplinary approach is recommended for the management of breast cancer and includes surgery,

radiotherapy, hormonal therapy and chemotherapy.⁴ However surgical management is recommended as first line of management of breast cancer.⁵

Different surgical procedures performed are simple mastectomy, modified radical mastectomy and breast conservative surgery but among these procedures, modified radical mastectomy (MRM) is the most commonly employed procedure.⁶ Besides oncological complications, like residual disease, local and axillary recurrence following curative resection, many non-oncological complications also occur. These increase morbidity and prolong the hospital stay and cost of treatment. Early complications are those which occur within 30 days after surgery and affect the management of breast cancer by delaying the adjuvant chemotherapy and radiotherapy.^{5,7,8}

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Various factors are responsible for these complications that relate to disease as well as comorbid conditions.⁹ The type of surgery depends upon the stage of breast cancer at the time of presentation, patients preference and surgeon's expertise.¹⁰ Complications after mastectomy can be minimized through preoperative evaluation, meticulous surgical technique.⁵ The purpose of this study was to identify the early postoperative complications following modified radical mastectomy with level II axillary clearance.

METHODOLOGY:

This descriptive study was conducted at the Department of Surgery, Hayatabad Medical Complex Peshawar, from July 2018 to June 2019. A total of 80 patients with confirmed diagnosis of carcinoma breast were included. These patients presented to outdoor department with breast lumps. They were subjected to triple assessment including clinical examination, ultrasound/ mammography and fine needle aspiration cytology or core biopsy. After confirming the diagnosis, patients were admitted and detailed history especially for any comorbid condition like hypertension, diabetes, coagulopathy, steroid therapy and smoking was taken.

Only female patients of more than 20 years of age, with biopsy proven infiltrating ductal carcinoma breast of stage II and stage III disease were included. Patients with inflammatory carcinoma of breast, stage IV cancer, Immunocompromised conditions with tuberculosis and HIV positive status and those requiring anticoagulant therapy were excluded. Apart from baseline investigations for general anesthesia, ultrasound abdomen, x-ray chest, bone scan and alkaline phosphatase were also performed to stage the disease.

Patients underwent modified radical mastectomy with level II axillary clearance under general anesthesia. Drain was kept for 3-6 days and removed when output was less than 20 ml. patients were followed up in OPD for one month. Postoperative complications were noted during hospital stay (4-7

days), at day 10 and one month after the surgery. Stitches were removed at 10th post operative day. Data were collected on a predesigned form and analyzed through SPSS version 16. Descriptive statistics were used to present data.

RESULTS:

This study included 80 female patients. The age was 28-75 years with mean age of 48.5± 10.46 year. Twenty-eight (35%) patients had tumor size of 2-5 cm and in 52 (65%) it was more than 5 cm. Regional (axillary) lymph nodes were involved in 60 (75%) cases while in 20 (25%) cases axillary lymph nodes were impalpable. There was no distant metastasis. Details are given in table I.

In this study seroma collection was the most common complication observed in 20 (25%) cases at 10th postoperative day. In eight cases, minimal seroma (less than 10ml) collected in spite of using suction drains under mastectomy flaps and in axilla. These patients were subjected to multiple aspiration and pressure bandage over the surgical wound. Two patients having large seroma underwent open drainage under general anesthesia. Wound infection was observed in 16 (20%) cases at 10th postoperative day. Thirteen patients had minor surgical site infection which was treated with antiseptic dressings and antibiotics according to culture and sensitivity report, while in three cases, wound dehiscence occurred secondary to infection. Eight (10%) patients had altered sensation at the pectoral region and anterior axillary fold. These patients were counseled and reassured about the benign nature of this condition.

Postoperative pain at the wound site was experienced by 6 (7.5%) patients even one month after the procedure. These patients were managed with oral diclofenac and tramadol. Postoperative hematoma under the lower flap was noted in 5 (6.25%) cases. Four patients were managed with aspiration while one patient needed evacuation under general anesthesia. Skin flap necrosis was observed in 4 (5%) cases, 3-5 days after surgery.

Table I: Tumor Characteristics (n=80)

TNM staging	No. of patients (n)	Percentage (%)
T2 (2-5cm)	28	35%
T3 (>5cm)	52	65%
N0 (no nodal involvement)	20	25%
N1 (axillary nodes involvement)	60	75%
M0 (no distant metastasis)	80	100%
M1 (distant metastasis)	00	00

Table II: Early Postoperative Complications (n=80)

Complications	Postoperative day	No. of patients (n %)
Seroma collection	10	20 (25%)
Wound infection	10	16 (20%)
Altered sensation	3-5	8 (10%)
Postoperative pain	3-5	6 (7.5%)
Hematoma formation	3-5	5 (6.25%)
Skin flap necrosis	3- 5	4 (5%)
Wound dehiscence	3-5	3 (3.75%)
Lymphedema	3-5	2 (2.5%)

Three cases had marginal blackening which required excision and re-suturing while one patient had flap necrosis which was managed with split skin grafting.

Three (3.75%) patients developed wound dehiscence secondary to surgical site infection. Two patients had minor dehiscence (<2cm) which was treated with daily antiseptic dressings while one patient needed secondary suturing of the wound. Lymphedema of the upper arm developed in 2 (2.5%) cases. They were advised limb elevation, anti inflammatory drugs and physiotherapy. Details are given in table II.

DISCUSSION:

In the modern era, the management of breast cancer is multidisciplinary. Surgical treatment of breast cancer is based on the stage at initial presentation, age of the patient, patient's preference and surgeon choice. Modified radical mastectomy with axillary clearance is the most commonly performed procedure for carcinoma breast.¹¹ But like other surgical procedures, MRM has also associated morbidity and mortality. In the current series of 80 cases, seroma formation was the most common complication and observed in 25 % of cases. This figure is comparable to 21.95% by Chandrakar N et al, 33.3% by Dahri FJ et al, 38% by Bokhari I et al and 26.3% reported by Shaikh K et al.^{5,7,11,12} In literature the reported rate of seroma collection varies between 4.2 % and 89% in undrained axilla and as high as 53% in drained axilla.¹³ The complication is preventable by improving the surgical techniques such as harvesting of proper skin flaps, minimal use of diathermy, obliteration of dead space, use of tissue glue, restriction of shoulder movements, insertion of closed suction drain deep to the mastectomy flaps and in the axilla and then removal of drain when empty for 24 hours.^{14, 15} Seroma formation is closely linked with patient's age, breast size, presence of malignant nodes in

axilla, previous surgery for biopsy, hypertension and use of heparin.¹³

Wound infection was noted in 20% cases in index study. It is higher than 4.5% recorded by Shaikh K et al but is comparable to 24% by Chandraker N et al, and 11.4% reported by Jan WA et al.^{5,7,16} Davis GB mentioned 2.3% surgical infection in his series. He noted significant association of body mass index greater than 25, American Society of Anesthesiology classification of 3 or higher status, diabetes mellitus, operation time of two hours or more and current smoking status.¹⁷ Wound infection commonly occurs due to nosocomial or hospital acquired organisms. The contributory risk factors for wound infection are fluid collection, wound separation and smoking.¹⁸ Seroma formation is also a major risk factor because it does not contain some humoral factors like complement and fibronectin. It also has a low concentration of transferrin which contributes to inability of the fluid to support lymphocyte blastogenesis and wound healing process.⁷

Postoperative pain was experienced by 7.5% patients for 3-5 days after surgery. This figure is less than 20-30% reported in the literature^{19, 20} We observed hematoma formation in 6.25% cases. This is similar to 4% and 7.32% reported by different studies.^{5,11} Four (5%) patients had flap necrosis. In literature, the reported frequency is between 3% and 32%.^{19,20} Seroma collection and subsequent infection, is the cause of flap necrosis. Moreover, seroma also interrupts the interaction between flap and underlying tissues, causing necrosis.⁷ Extensive mobilization and excessive use of diathermy for raising skin flaps, also cause skin flap necrosis. We mainly used scissors for raising skin flaps to minimize the risk of flap necrosis.

It has been observed that axillary dissection for involved lymph nodes is responsible for edema of

the arm in about half of the patients. Majority of the patients following axillary clearance, develop some degree of edema, often so slight that the patients are unaware of it. The higher body mass index before and after surgery increase the risk of lymphedema.¹⁴ In our series, 2.5% patients developed lymphedema of the respective arm. In literature, the reported incidence of lymphedema following modified radical mastectomy is less than 10%.²⁰

CONCLUSIONS:

Seroma formation was the most common complication following modified radical mastectomy and axillary clearance. This increase the risk of wound infection, skin flap necrosis and wound dehiscence which further increase the morbidity and prolong hospital stay.

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Shehzad Akbar Khan: Overall supervision and final checking of the manuscript

Muhammad Shah: References search.

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