

## Original Research Article

# Frequency of early post operative complications of modified radical mastectomy within period of four weeks

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## ABSTRACT

**Background:** Most of the complications are developed after modified radical mastectomy in breast cancer patients, hence to avoid and reduces the postoperative complications, this study is performed to identify the frequency of early post-operative complications of modified Radical Mastectomy within the period of four weeks.

**Methods:** Cross-sectional case series using non-probability convenient sampling technique was conducted in surgical unit I of Tertiary care hospital, for 1 year from 15 January 2018 to 14 January 2019. 89 patients FNAC proved breast cancer were included, patients that received neoadjuvant chemo or radiotherapy or with inflammatory breast cancer, metastasis and with co-morbid were excluded. After taking consent patients were operated by senior consultant. Follow up was taken daily 7th post-operative day and then followed in OPD on weekly basis fourth week and final outcome was noted. SPSS version 23 was used for data analysis. Quantitative data was reported as frequency in percentages.

**Results:** Total 31 patients developed complications during the study, accounts 34% of total patients. The most common complication was breast seroma in 12(13.48%) of cases with an increased risk in cases of age >50 yr, size of tumor >8 cm, weight >70 kg and increased number of lymph nodes [3 or above] palpable after wards hematoma in 6(6.74%), lymphedema in 5(5.62%), wound infection 4(4.49%) and shoulder dysfunction in 4(4.49%) patients, no patient was found scar hypertrophy.

**Conclusions:** Seroma formation, hematoma were found most common early complications after modified radical mastectomy, lymphedema, wound infection and shoulder dysfunction were observed in small number of patients.

**Keywords:** Fine needle aspiration cytology, Modified radical mastectomy, Outpatient department, Seroma

## INTRODUCTION

Breast cancer is the most common cancer among females worldwide with every 1 in 8 women at a lifetime risk of developing breast cancer over their lifetime.<sup>1,2</sup> The incidence of breast cancer is increasing in Pakistan.<sup>3</sup> Surgical removal, either directly or with neo-adjuvant

chemotherapy is the mainstay of breast cancer management.<sup>4</sup> While many procedures have been performed, increasingly modified radical mastectomy is becoming the most common procedure.<sup>5</sup> In this procedure, breast tissue is removed along with the axillary lymph nodes of the same side, however, as opposed to radical mastectomy, the pectoralis major and

pectoralis minor are preserved. Post-operative management involves hormonal or chemotherapy and depends largely on the estrogen- or progesterone-receptor status of breast tissue.<sup>5</sup> It is being used to as prophylactic management of patients who have been shown to be at a high genetic risk. In addition it is the treatment of choice for stage II and stage III breast cancer.<sup>6,7</sup>

The complications of modified radical mastectomies can be divided into two categories: early and late. Early complications are those which occur within the first four weeks of the post-op period and late complications are those that develop after these four weeks. Seroma is the most common early complication followed by hematoma, lymphedema, wound infection and shoulder dysfunction.<sup>8</sup> Whereas pain, shoulder immobility and scar hypertrophy are the common late complications.<sup>9</sup>

**METHODS**

This study was conducted in department of surgery (unit 1, 2 and 3) Jinnah postgraduate medical Centre Karachi, for period of one year from 15 January 2015 to 14 January 2016. About 89 consecutive female patient of FNAC proved breast cancer were included in this research. The patients who have received neoadjuvant chemo or radiotherapy or who have inflammatory breast cancer, metastasized cancer and patients with co-morbid like hypertension, diabetes mellitus were excluded from this study.

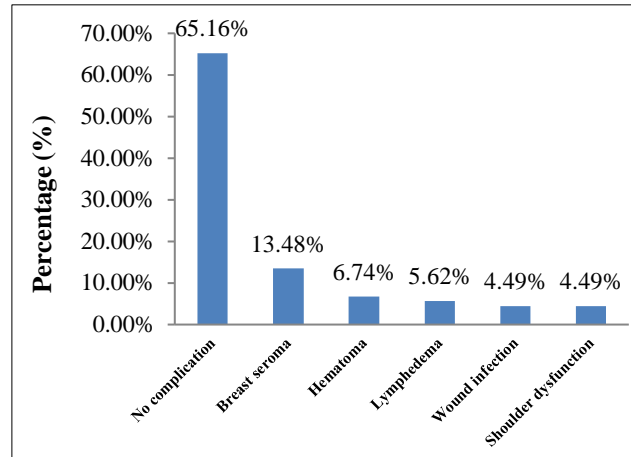
After taking proper consent and maintaining all ethical issues the patients were underwent modified radical mastectomy by senior consultant having 5 years of post-fellow ship experience In modified radical mastectomy all the breast tissues were removed in following order, the entire nipple areola region, total effected areas of skin and level I as well as level II axillary lymph nodes were removed. Level III axillary lymph nodes were also resected to avoid the area of tumor involvement. The Negative suction drain was kept within situ in axillary region as well as under flaps. The placement of drain was retained almost 3 days and when the 24 hour drain output was declined to less than 20ml, it was removed out. After one week, permanent removal of drain was done beside the quantity of drain output. Patients follow up was taken regularly on daily basis till 7<sup>th</sup> post-operative day in ward, then discharged and followed in OPD on weekly basis till fourth week and final outcome was noted and mentioned in proforma at the end of 4<sup>th</sup> week. Whole above information along with the patient’s age, weight, tumor size, number of lymph nodes palpable were recorded in proforma as these all factors affects over development of complications such as seroma, hematoma, Lymphedema, wound infection, shoulder dysfunction dysfunction and scar hypertrophy.

Data was entered and analyzed using SPSS version 23. Quantitative data such as complication rates in patients with regards to age, weight, number of palpable lymph

nodes and size of tumor were expressed as frequency in percentage.

**RESULTS**

Findings showed that number of patients who developed complications were 31 out of 89, accounted for about 34% of total patients, with different frequency of each complication (Figure 1).



**Figure 1: Graphical representation of complications among the patients of the study.**

The most common complication was breast seroma developed in 13.48% of patients with an increased risk in patients of age >50 yr, size of tumour >8 cm, weight >70 kg and increased number of lymph nodes [3 or above] palpable, hence it was concluded that risk of seroma formation directly correlate with all four risk factors. Study shows that Hematoma was noticed in 6.74% (Figure 1) of patients and like seroma, hematoma was also found with increased frequency in patients of old age, heavy weight, with big size of tumour, and more number of lymph nodes palpable in ipsilateral axilla. Lymphedema was seen in 5.62% of patients (Figure 1), with increased frequency in patients having big tumour [>8 cm] and increased number, [3 or more] of lymph nodes palpable but there was no correlation found with age and weight of patient.

In current study wound infection was found in 4.49% (Figure 1) of patients with no correlation noticed between all above mentioned risk factors and development of wound infection. About 4.49% (Figure 1) of patients developed shoulder dysfunction in this study, due to increased number [3 or more] of lymph nodes palpable, while old age, weight and size of tumour didn’t affect the frequency of shoulder dysfunction. Present study reveals Scar hypertrophy was not found in any patient so it was concluded that scar hypertrophy was not an early complication to develop according to this study. Among the total of 89 patients in the study, 10 patients were in range of 27-40 years, 26 were in range of 41-50 years, 29 were in between 51-55years, 14 were in 56-65 range, and

10 were in range between 65-71years. The mean weight of patients was found in range of 62 to 78kg (Table 1). The size of tumour was classified into 5 categories

depending on its measurement, i.e. between 2-4 cm, 5-6 cm, 7-8 cm, 9-10 and 11-12 cm Most of patients had a tumour size great than 8 cm (Table 2).

**Table 1: Risk of complications related to age and weight of patient.**

Name of complication	Seroma	Hematoma	Lymphedema	Wound infection	Shoulder dysfunction	
Age (years)	27-40	01(8.33%)	Nil	01(20.0%)	Nil	01(25.0%)
	41-50	01(8.33%)	Nil	02(40.0%)	01(25.0%)	01(25.0%)
	51-60	08(66.66%)	04(66.66%)	01(20.0%)	Nil	01(25.0%)
	61-70	02(16.66%)	02(33.33%)	01(20.0%)	03(75.0%)	01(25.0%)
	Total	12 (100.0%)	06(100.0%)	05(100.0%)	04(100.0%)	04(100.0%)
Weight (kg)	38-48	Nil	Nil	01(20.0%)	02(50.0%)	Nil
	49-58	02(16.66%)	Nil	02(40.0%)	01(25.0%)	01(25.0%)
	59-68	04(33.33%)	01(16.66%)	01(20.0%)	01(25.0%)	01(25.0%)
	69-78	06(50.0%)	02(33.33%)	Nil	Nil	01(25.0%)
	79-83	Nil	03(50.0%)	01(20.0%)	Nil	01(25.0%)
	Total	12(100.0%)	06(100.0%)	05(100.0%)	04(100.0%)	04(100.0%)

**Table 2: Risk of complications related to number of axillary nodes palpable and number of size of tumour.**

Name of complication	Seroma	Hematoma	Lymphedema	Wound infection	Shoulder dysfunction	
Palpable Nodes	1-2	Nil	Nil	Nil	01(25.0%)	
	3-4	Nil	01(16.66)	Nil	01(25.0%)	
	5-6	02(16.66%)	Nil	Nil	Nil	
	7-8	04(33.33%)	02(33.33)	02(40.0%)	02(50.0%)	02(50.0%)
	9-10	06(50.0%)	03(50.0%)	03(60.0%)	02(50.0%)	Nil
	Total	12(100.0%)	06(100.0%)	05(100.0%)	04(100.0%)	04(100.0%)
Tumor Size (cm)	2-4	Nil	Nil	Nil	01(25.0%)	01(25.0%)
	5-6	Nil	Nil	Nil	01(25.0%)	01(25.0%)
	7-8	01(8.33%)	Nil	Nil	01(25.0%)	01(25.0%)
	9-10	08(66.66%)	04(66.66%)	02(40.0%)	01(25.0%)	01(25.0%)
	11-12	03(25.0%)	02(33.33%)	03(60.0%)	Nil	Nil
	Total	12 (100.0%)	06(100.0%)	05(100.0%)	04(100.0%)	04(100.0%)

## DISCUSSION

More than 250,000 women develop breast cancer every year in the United States.<sup>10</sup> Management of breast cancer has continued to improve with increased efficacy of treatment and an increase in the survival rates.<sup>11</sup> The choice of surgical procedures for treatment of breast cancer depends upon various factors which include the age of patient, stage of disease, preference of patient and surgeon.<sup>12</sup> According to studies, most of the patients of breast cancer being treated conservatively eventually undergo mastectomy.<sup>13</sup> Modified radical mastectomy is the most commonly performed procedure for breast cancer in Pakistan.<sup>14</sup>

The ultimate aim of treatment of breast cancer is to control the local disease, prevent or mitigate the

metastasis, and prevent the re-occurrence of disease. Survival rates for breast cancer continue to improve.<sup>15</sup> Recent findings from the National Cancer Institute (NCI) indicate that 5-year survival rates are 96% for limited, low-stage breast cancers (stage 0, stage I, and some stage II cancers), 75% for breast cancers that have invaded the surrounding tissue (stage II and III cancers), and only 20% for breast cancers that have metastasized (stage IV cancers). Unfortunately, survival rates are lower and breast cancer stages tend to be higher among women from low socioeconomic backgrounds.<sup>16</sup> Like every surgical procedure, modified radical mastectomy also has significant morbidity and mortality.<sup>17</sup> The early complications includes hemorrhage, hematoma, seroma wound infection, skin flap necrosis, paresthesia, edema of arm, and shoulder dysfunction.<sup>18</sup> Late complications

include shoulder stiffness, psychosexual disturbances and recurrence.<sup>17,18</sup>

In this study, authors measured the incidence of early complications following modified radical mastectomy. The age range of our subjects was from 27 to 71 years. The most frequent size of lesion in our study was 5 cm and above corresponding to T3 stage. Nodal involvement was found predominantly in N2 stage; which is to say that more than 6 lymph nodes were found fixed and they involved ipsilateral side.

The most common early complication of modified radical mastectomy is seroma formation.<sup>19</sup> Seroma formation delays the recovery following the procedure and is a significant contributor to the morbidity associated with procedure. It can cause delay in wound healing and increases the risk of infection and hospitalization duration. The incidence of seroma formation varies quite remarkably with a widely reported incidence ranging from 8% to 85%. The most important factor behind seroma formation is the extent and duration of breast surgery.<sup>20</sup>

Another common complication post-mastectomy is hematoma. In this study, it is found to be second only to breast seroma in incidence. The incidence of hematoma formation is up to 18%.<sup>21</sup>

It usually develops after the drain removal, which is usually performed on the 5<sup>th</sup> post-operative day, from 7<sup>th</sup> to 10<sup>th</sup> post-operative day. The usual presentation is a painless swelling at the site of surgery or a dark discharge from the said site.

Another common complication of breast cancer surgery is lymphedema following the dissection of axillary lymph nodes. The exact cause and causative factors leading to lymphedema are still not fully understood and are being researched. It has been pointed out that proper surgical technique informed by intimate anatomical knowledge of the lymphatic pathways of upper limb and axillary architecture, along with assiduous care of wound and proper drainage is helpful in preventing lymphedema.<sup>22</sup>

As with any surgery, there is a significant risk of wound infection. The risk of wound infections in breast cancer surgery increases when there is an associated axillary surgery. Other factors also contribute to the risk profile, including: the age of patient, co-morbidity, and smoking history.<sup>23</sup> This study demonstrates a statistically significant relationship between the occurrence of wound infection and the age of patient, weight of patient, size of the tumor and the status of lymph nodes.

Shoulder dysfunction is another complication which involves pain and restriction of motion. It is a long term complication, persisting from 6 months to 5 years or even more. The reasons behind the development of shoulder dysfunction are mastectomy with axillary dissection,

minimal physical activity and poorer quality of life. It is associated with increased chest tightness.<sup>24</sup>

Scar hypertrophy is a complication of surgery associated with the stages of wound healing. The wound matures after six weeks and during this process excessive fibrosis can lead to the scar becoming thick. Some patients have increased genetic propensity of developing.<sup>25</sup>

## CONCLUSION

Seroma formation, hematoma were found most common early complications after modified radical mastectomy, while lymphedema, wound infection and shoulder dysfunction were observed in small number of patients. The mean age, size of tumour, number of axillary lymph nodes and weight of patients, were also found to influence the occurrence of these complications, hence early diagnosis and early approach, to proper treatment can lessen the incidence of these complications after mastectomy.

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