

Early Wound Complications Following Modified Radical Mastectomy with Axillary Clearance

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ABSTRACT

Objective To identify the pattern of early wound complications after modified radical mastectomy with axillary clearance and to determine the risk factors predisposing to these complications.

Study design Descriptive case series.

Place & Duration of study Surgical Unit II, Peoples University of Medical and Health Sciences Nawabshah, from January 2008 to December 2010.

Methodology One hundred and fifty patients were included in this study who underwent Patey's modified radical mastectomy with axillary clearance. These patients were followed up for one month postoperatively in OPD.

Results Age of the patients was between 30-80 years. Seroma formation was the most common complication seen in 50 (33.3%) patients, wound infection in 15 (10%) and flap necrosis in 4 (2.6%) cases. More than 1000 ml discharge in drain was noted in 30 patients. Wound infection found more in patients with prolonged operation time (>150 minutes) and in those with seroma formation.

Conclusions Seroma formation was the most common complication as well predictive factor for wound infection and flap necrosis.

Key words Modified radical mastectomy, Complications, Carcinoma breast, Axillary clearance.

INTRODUCTION:

Breast cancer is the most common cancer in women.¹ It is the 2nd most common cause of death among females.² The modern approach to breast cancer management is multi-disciplinary.³ The different surgical treatment options include simple mastectomy, modified radical mastectomy and breast conservative surgery.⁴ The modified radical mastectomy or wide local excision with axillary dissection are standard treatment options for most patients with breast cancer. Seroma formation, skin flap necrosis and wound infection are the common early complications of breast surgery which increase the morbidity

and mortality rate.⁵ Postoperative wound infection is labeled if it occurs within one month after surgery.⁶ Various factors have been reported to cause seroma, flap necrosis and wound infection. These parameters have been divided into tumor factors (tumor size, lymph node status), patient factors (age, weight, diabetes mellitus, hypertension, smoking)⁵ and surgical factors (use of electrocautry for flap dissection, length of operation time).⁵ The type of surgery depends upon stage of breast cancer at the time of initial presentation, patient preference and surgeon's choice.⁷ The objective of this study was to identify the early wound complications after modified radical mastectomy with axillary clearance.

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METHODOLOGY:

This descriptive study was carried out at Surgical Unit II, Peoples University of Medical and Health Sciences, Nawabshah, from January 2008 to December 2010. A total of 1500 patients were seen

in breast clinic with a history of breast lump and their performa filled. The performa was designed to record complete history and examination findings of all the patients coming with suspicion of malignancy of breast. All the patients underwent fine needle aspiration cytology or open biopsy for confirmation. All patients had ultrasound abdomen, x-ray chest, bone scan and serum alkaline phosphatase. Stage II and III patients were included in the study. These patients underwent Patey's modified radical mastectomy with axillary clearance up to level II and III.

All the patients were followed up for surgical site infection up to one month. Other variables noted were length of operation time, amount of drainage, time of drain removal, number of recovered lymph nodes and involved lymph nodes. Comorbids like hypertension, diabetes mellitus BMI, etc were also noted.

During surgery flap dissection was partially performed by diathermy. Two closed suction drains were kept, one in axilla and other under the flap. Hemostasis was secured by diathermy and sutures. Suction drains were removed in 5-7 days or early if the amount of drainage was less than 30cc. The patients, who developed any wound complications e.g. seroma, wound dehiscence and flap necrosis, remained admitted for treatment.

All the patients were referred to oncologist within 15 days postoperatively with final biopsy report of excised tumor and lymph nodes along with estrogen and progesterone receptor status for further management. The patients were advised for follow-up at monthly interval up to two years.

RESULTS:

One hundred and fifty patients were included in the study with diagnosis of early breast cancer. Age ranged from 30 year to 80 year and majority of patients were between 40 to 60 year with mean age of 52 year. Thirty patients were unmarried or nulliparous. Family history of breast cancer was present in 4 patients. History of breast feeding for

more than one year was present in 90 patients.

Most common complications were seroma, wound infection, flap necrosis and wound dehiscence (table-I). If patients with high body mass index, those with increased amount of total drainage, more use of diathermy and increased number of involved lymph nodes, developed more seroma. Flap necrosis noted in older age group patients, smokers and with seroma formation. Wound infections were more in those cases with prolonged operation time, seroma formation and flap necrosis (table-II).

In our study all patients with seroma formation settled down by multiple aspirations, with pressure bandage or open drainage within one month. The patients with flap necrosis and wound infections were treated with antiseptic dressings, systemic and local antibiotics and debridement. Wounds were later closed by secondary suturing or skin graft. The hospital stay of patients was 3 to 7 days, but patients who developed any early wound complication stayed from 2 to 3 weeks.

DISCUSSION:

Modified radical mastectomy with axillary clearance was the most common surgical procedure performed for early cancer of breast along with chemoradiation (multi model therapy). In this study majority of patients were between 40-60 year of age seroma, wound infection and flap necrosis occurred commonly in patients > 50 year of age. This is comparable to other studies that showed advance age as a major risk factor for seroma formation.⁸ In our study the most common complication was seroma formation which occurred in 50 patients, and it was seen more in patients in whom the drain was removed early and the total drainage was >1000 ml. The same results were observed in other studies.⁹⁻¹² It was observed that the use of closed suction drain decrease the frequency of seroma formation. The length of time drain remained, varied in different studies. In some studies drain was removed in early postoperative period without considering the amount of drainage.¹³ This is

Complications	Number of Patients (n=150)	Percentages
Seroma	50	33.3%
Wound infection	15	10%
Skin flap necrosis	04	2.6%
Wound dehiscence	02	1.3%

Table II: Characteristics of the Patients with Early Wound Complications

Characteristic	No.	Seroma	Wound infection	Flap necrosis	Wound dehiscence	
Age	<50 years	82	15	05	00	00
	>50 years	67	35	10	04	02
Body Mass Index kg/m ²	<25	53	05	02	01	00
	25-30	82	15	05	01	01
	>30	15	30	08	02	01
Diabetes mellitus	15	05	02	02	01	
Hypertension	37	10	06	02	01	
Smoking	15	05	02	02	01	
Duration of operation	<150 min	110	10	05	01	01
	>150 min	40	40	10	03	01
Amount of discharge on 1 st day	<200 ml	95	15	04	01	00
	>200 ml	55	35	11	03	02
Amount of Total discharge	<500 ml	50	07	3	1	0
	500-1000 ml	70	18	4	1	1
	>1000 ml	30	25	8	2	1
Drainage time	< 5 days	55	10	05	1	0
	> 5 days	95	40	10	4	2
Involved lymph nodes	Nil	25	20	6	0	0
	1-3	60	12	4	1	0
	>3	65	18	5	3	2

contradictory to our observation. Seroma is uncomfortable complication and need multiple aspirations with pressure bandage. This results in prolonged hospital stay which is an economic burden on the patients. This observation is comparable to a study in which hospital stay was increased for more than two weeks and delayed adjuvant therapy.¹⁴

In our study wound infection was seen in 15 (10%) patients, wound dehiscence in 2 patients and flap necrosis in 4 patients. The seroma may become infected and cause flap necrosis.^{15,16} Wound infection rate in our study is higher as compared to other studies which showed 3.6%¹⁷ and 3.5%¹⁸ but is closer to studies done in Pakistan (5.4 to 11.4%).^{7,12} As in other studies we observed that seroma formation can be prevented by improving the surgical techniques i.e. proper skin flap harvesting, less use of diathermy, obliteration of dead space, use of tissue glue, restriction of the shoulder movements, and removal of drain when empty for 24 hours.¹⁹

Advance age may be related with impaired circulation and atherosclerosis. Seroma interrupts the interaction between flaps and under lying tissue causing necrosis. Comorbids observed for complications in present study were body mass index >30 kg/m², hypertension, diabetes mellitus, advanced age, smoking, amount of discharge in drain. Same factors were also observed in other studies.²⁰ The seroma formation is a major risk factor for wound infection because seroma does not contain some humoral factors like complement and fibronectin.²¹

It is also reported that low concentration of albumin and transferrin in the seroma may contribute to inability of the fluid to support lymphocyte blastogenesis and wound healing process.²²

CONCLUSIONS:

Seroma is the most frequent and common complication after radical mastectomy with axillary clearance. Many factors lead to seroma formation and other early wound complications like wound

infection, wound dehiscence and flap necrosis in breast surgery which can be avoided or decreased if proper preventive measures are taken.

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