



Long-Term Complications Associated With Mastectomy And Axillary Dissection

KEYWORDS

Mastectomy, complications, morbidity

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ABSTRACT SUMMARY

- Long-term arm morbidity and its related factors were evaluated for 30 patients operated for breast carcinoma.
- Pain was the most prominent complaint.
- Other complaints were arm swelling, paresthesia and numbness, stiffness of shoulder and loss of strength in order of frequency.
- In analysis; the factors related with the pain were age < 50, radiotherapy and arm swelling.
- Factors related with paresthesia and numbness were age < 50 .
- Loss of strength were age < 50, operation on the left breast and arm swelling.
- While the factors related with stiffness were arm swelling and radiotherapy ,
- The factors related with restricted mobility were diabetes and arm swelling.
- The factor related with increased infection was arm swelling.

INTRODUCTION

The most frequent malignancy for women is the breast cancer. Modified radical mastectomy (MRM) is the most frequently used surgical options. But surgery related complications are observed in 2/3 of the patients (1).

Mastectomy related complications are in 2 groups as Early (within the first month of surgery) and long term complications.

- Early complications are seroma formation , wound infection , deep vein thrombosis , pulmonary embolism and myocardial infarction .
- Long-term complications are lymphedema , atrophy of pectoralis major muscle, restricted arm mobility, neuralgia , wound induration , hypertrophied scars and sinus formation .

Pain is long-term complication, is seen in 53.3% of patients. Its believed to be related with the damage to the intercostobrachial nerve during surgery . This damage also restricts arm and shoulder movements.

Tasmuth et al. had reported that chronic pain was more frequently encountered after BCS-AD than MRM (33% vs 17%) .

In this study, numbness and paresthesia was seen in 43% of the patients

Restricted mobility of the shoulder was reported in 16-23% of the cases,

Extensive surgery, late onset shoulder and arm physiotherapy, radiotherapy (RT) to axilla and the presence of lymphedema were responsible for its occurrence.

MATERIALS and METHODS

Inclusion Criteria----

Thirty patients that had been operated with MRM have been enrolled in this study. All the cases had been operated by the Department of Surgery in SKN Hospital And

Medical College, Pune and completed their adjuvant treatments at least 6 months prior to enrollment.

N. thoracicus longus, n thoracodorsalis and medial and lateral pectoral nerves were tried to be preserved and n. intercostobrachialis was routinely transected during surgery.

Shoulder movements were allowed during postoperative first week and physiotherapy programme was started at the 2 nd post-operative day.

Demographic features, complaints and physical examination findings were evaluated. Age, educational status, occupation, concurrent systemic and rheumatological diseases, , surgery, adjuvant treatments, metastatic and total number of dissected lymph nodes and preserved nerves during surgery have been evaluated.

The complaints have been questioned under the headings of pain, loss of strength, restricted mobility ,numbness, stiffness, arm swelling and infection.

The mobility and muscle strength of the arm was evaluated with physical examination in comparison to the non-operated side.

Exclusion Criteria----

The patients with loco-regional or distant recurrence and bilateral breast cancer were not included in this study.

RESULTS

The mean age of the patients was 51.4

The demographic features of the patients are summarized in Table 1.

A) Pain was seen in 14 of 30 patient (56.6%) and 8 patients aged under 50(53.3%) and 6 patient over 50 years (40.1%) . The pain was seen in 8(100 %) of 8 patients that had been given RT. But it was seen in 6 (27.2%) of the 22 patients RT not given.

While the pain was seen in 2 (14.2%) of the 8 patients with arm swelling, it was seen in 12 (54.5%) of 22 without arm swelling.

Table 1. Demographic features of study population.

Headings	Condi-tions	n	%
1.Age	< 50	15	50%
	> 50	15	50%
2.Occupation	House-wife	24	75%
	Worker	06	25%
3.Rheumatoid disease	Present	06	25%
	Absent	24	75%
4.Hypertension	present	19	63.4%
	Absent	11	36.6%
5.Diabetes mellitus	Present	14	43.4%
	Absent	16	46.6%
6.Surgery	MRM**	30	100%
7.Operated side	Right	13	43.3%
	Left	17	56.7%
8.Nerves protected		30	100%
9.Total number of LNs	> 20	5	16.6%
	10-20	16	53.3%
	< 10	9	30%
10.Metastatic LNs	Yes	19	63.4%
	No	11	36.6%
11.chemotherapy	Given	20	66.6%
	Not given	10	33.3%
12.Hormonotherapy	Given	20	66.6%
	Not given	10	33.3%
13.Radiotherapy	Not given	22	73.4%
	Given	08	26.6%

** MRM: Modified radical mastectomy.

B) Numbness was seen in 60%(9 of 15) of the patients aged under 50 years and 26.6% (4 of 15) of the patients aged over 50 years. Numbness was also seen in 13 (43%) of 30 patient.

Tab le 2. The distribution of complaints.

	N-(30)	%
1.Pain	16	53.3
2.Numbness	13	43
3.Loss of strength	08	26
4.Stiffness	07	23
5.Swelling of the arm	08	26
6.Loss of motion		
7.Non-minimal loss	05	16
8.Moderate-extreme loss	00	00
9.Infection in the arm	00	00

Neuropraxia

At operated site----

1.Atrophy Of Pectoral Muscle	07	23
2.Paresthesia	04	13
3.Wound Induration	03	10
4.Hypertrophied Scar	02	6.6
5.Sinus Formation	00	00

Tab le 3. The distribution of physical examination findings.

	n	%
Loss of strength	08	26
Restricted mobility	05	16

C) Loss of strength was seen in 26% of the patients (8 of 30).

40%(6 of 15) aged under 50 years and in 13.3%(2 of 15) of the patients aged over 50 years.

While the loss of strength was seen in 6 (35.2%) of 17 patients that been operated on the left breast, it was seen

only in 2 (15.3%) of the 13 patients that had been operated on the right breast.

Loss of strength was seen in 62.5% (3 of 8) of the patients with arm swelling and 18.1% (4 of 22) of the patients without swelling.

D) Stiffness was seen in 2 (9.09%) of 22 patients that had not been given RT. But it was seen in 05 (62.5%) of 08 patients that had been given RT . While it was seen in 37.5%(3 of 8) of the patients with arm swelling, the incidence was only 18.18% (4 of 22) for the patients without arm swelling.

Tab le 4. Factors related with complaints -----

1.Pain	Age	< 50	53.33%
		> 50	40.1%
	RT*	given---	100%
		Not given---	27.27%
	Arm swelling	present---	25%
		Not present---	54.5%
2.Numbness	Age	< 50	60%
		>50	26.6%
3.Loss of strength	Age	< 50	40%
		>50	13.3%
	Side	(left) -	62.5%
		Right-	15.3%
	Arm swelling	present-	62.5%
		Absent---	13.6%
4.Stiffness	Arm swelling	present-	37.5%
		Absent---	18.18%
	RT	given---	62.5%
		Not given---	9.09%
5.Restricted mobility	Diabetes mellitus	present---	21.4%
		Absent-	12.5%
	Arm swelling	present-	12.5%
		Absent-	18.18%

E) Restricted mobility was seen in 02 (12.5%) of 16 non-diabetic patients and 3 (21.4%) of 14 diabetic patients. It was seen in 18.18% (4 of 22) of the patients without arm swelling and 12.5% (1 of 8) of the patients with arm swelling.

Majority of loss of motion was terminal extension difficulty while no evidence of any major loss of movement seen in any patient.

G) Infection or evidence of cellulites in arm or at operated site not seen in any patient.

H) Neuropraxia not seen any patient with MRM.

Other local complication at operation site are as follows

I)Atrophy Of Pectoral Muscle---	7(30)	23%
J) Paresthesia	4(30)	13%
K)Wound Induration--	3(30)	10%
L) Hypertrophied Scar--	2(30)	6.6%
L) Sinus Formation-	nil	

DISCUSSION

Standardized criteria to define arm morbidity after mastectomy and axillary dissection are lacking at the present and therefore the incidences are quite different between series. *Pain is most commonly appeared symptoms after MRM. is seen 53.3% patient who presented to our study.

It is more common in age less than 50 (53.3%), radiotherapy given to axilla and chest incidence is 100% and absence of arm swelling 54.5%.

In other studies, Liljegren(01) has reported the incidence as 49.2% for patients aged under 65 and 28.2% for patients aged over 65 and the possible explanation for this was the

more frequent use of the arm in the younger age.

The chronic pain described the chest wall after RT might be related with the periosteal inflammation of the ribs . In our series, pain was also the most frequent complaint of the patients with RT to the chest wall. The decrease in the incidence of pain with fractionated 50 cGy RT has also been reported.

*Numbness is seen 43% patient is second most commonest symptoms encountered in our series ,is more common with age less than 50 years (60%).

Numbness is one of the most frequent complaints and frequently observed on the chest wall and inner aspect of the upper arm. The incidence was between 20-80%.

In a series with 200 patients, Roses et al.(02) reported that numbness was seen in 76.5% of the patients with level I-II axillary dissection during the first year of follow-up and it was completely disappeared in 22% of the cases and found to be stable in 18% of the cases .

Ververs at al.(03) reported that the risk for numbness was 6.79 fold higher for the patients younger than 45, compared with the patients over 65 and the young age was found to be the most important risk factor . One possible explanation for this may be the more extended dissection to increase cure chance of the younger patients.

*Loss of strength seen in 26% cases treated with MRM. Age less than 50 yrs(40%) ,left sided operation (35.2%).

Presence of arm swelling (62.5%) are the important factors for loss of strength.

In a series by Kwan et al.(04) the incidence for the loss of strength was between 17-33% .

*Stiffness is seen in 23 % cases is associated with arm swelling 37.5% and radiotherapy 62.5% in our series.

*swelling of arm seen in 26% cases and most of swelling is minimal rarely seen extensive swelling.

Kwan et al. reported that in the presence of lymphedema, stiffness of the arm and shoulder increases from 2% to 7.1% and 5.9% to 14.2% respectively . The removal of lymphatic tissue with axillary dissection decreases inflammatory response in the arm. Besides, interstitial fluid, rich for proteins and lipids, is a suitable environment for bacterial growth. Infection may also contribute to the pathogenesis of lymphedema .

*Loss of motion seen in 16% patient, associated with diabetes in 21.4% and arm swelling in 12.5 % . is more terminal extension affected.

*Restricted mobility was seen in 2-51% of the patients with mastectomy and as in the case in our study,the most frequently affected movement was abduction .

Gutman and Molinaro(05) had explained the reasons as; post-operative pain, scar tissue, loss of skin, damage to nerves (the medial and lateral pectoral nerves, n. thoracicus longus and n. toracodorsalis) and hyperabduction of the arm during the operation resulting with the brachial plexus damage.

Diabetes mellitus was also one of the factors affecting arm mobility. Neuropathy and vasculopathy caused by diabetes, poor wound healing and increased tendency for wound infections may contribute to this situation.

Other prominent complaints observed are—

- Atrophy of pectoral muscles—seen in 23% patients.
- Paresthesia seen in 13% patients.
- wound induration in 10% cases
- hypertrophied scar in 6.6% cases.
- There is complete absence of symptoms related to infection(cellulites),neropraxia and sinus formation.

CONCLUSION---

MRM is procedure in which there is removal of breast with axillary dissection to remove the lymphatics mets in case of proven carcinoma of breast.

Post operatively these patient have received radio and chemotherapy.

Pain is most commonest complaint followed by numbness and stiffness and loss of movement of shoulder and swelling-lymphoedma are the commonest complaints of patients.

In order to improve the surgical outcome post operative period and to reduce the long term complication associated with mrm,--

*Treating physician need to adopt recent advances in surgery related to mrm like-sentinel lymph node biopsy before carrying out extensive axillary dissection, only proven mets should be operated with axillary dissection.

*Fractionated radiotherapy 50 cGY --to reduce the dose of radiotherapy given to axial and chest wall ,this will reduce the inflammation in ribs also reduce the pain in long run.

*Early institution of physiotherapy in post operative period will reduce the instance of arm swelling .

*Proper control of commonest condition like diabetes which are prominent co morbid condition associated with long term complication of mrm.

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