



Original Research Article

## To Study Role of Breast Conservation Surgery in Comparison with MRM in Same Stage Disease in Carcinoma Breast

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### ABSTRACT

**Introduction:** Carcinoma of breast continues to be one of the most frequent cancers in woman all over world. In Indian woman, it is second to carcinoma of the cervix. The Cosmetic considerations, psychological disturbances, loss of vanity, fear of infertility and social stigmata have always hindered early diagnosis and prompt treatment of breast cancer. But in current era due to increased literacy, mass education and increased awareness about the disease and its “less destructive” form of treatment, patient have started reporting earlier in hope of early diagnosis and treatment.

**Aims and Objectives:** To compare the outcome of breast conservation therapy and Modified Radical Mastectomy (MRM) in terms of operating time, cosmesis, hospital stay, complications of surgery, recurrence, disease free survival.

**Materials and Methods:** During specific period 80 cases of early carcinoma breast were included in current study. After through history, examination and investigations patient belong to stage I and II were subjected to Breast conservation surgery and modified radical mastectomy by cafeteria approach.

**Results:** Results showed that except operation time rest all indicators like cosmesis, hospital stay, complications of surgery, recurrence and disease free survival breast conservation surgery is better than conventional modified radical mastectomy. The axillary nodes status is the most important prognostic factor for operable breast cancer.

**Key words:** Breast conservation surgery; Modified Radical Mastectomy; Breast Cancer.

### INTRODUCTION

Carcinoma of breast continues to be one of the most frequent cancers in woman all over world. In Indian woman, it is second only to carcinoma of the cervix with annual incidence of 17 per 100,000 populations. Incidence is increasing in most countries at a mean rate of 1-2% annually and soon nearly one million will develop this disease throughout the world. Hence study of its clinical features and management details of

utmost importance. Carcinoma of breast presents itself in a variety of ways. Breast carcinoma is a heterogenous disease for which wide range of treatment options are available. Depending upon the staging, surgical treatment with adjuvant radiotherapy and/or chemotherapy, hormonal therapy have improved the life style and increased survival in patients of carcinoma of breast. <sup>[1,2]</sup>

A modified radical mastectomy (MRM) is a procedure in which the entire breast is removed, including the skin, areola, nipple, and most axillary lymph nodes; the pectoralis major muscle is spared. Historically, a modified radical mastectomy was the primary method of treatment of breast cancer. [3,4] As the treatment of breast cancer evolved, breast conservation has become more widely used. [5,6]

With this aim in mind, we undertook this study in a small pilot trial to study cosmetic outcome and acceptability rates without compromising standard oncology principles. Though accrual of patients was small and long term follow up not possible due to constraints of time we feel that this study will be an important advance, and marks a new approach to the management of breast cancer at our institute.

The intent of BCT (Breast Conservation Therapy) is to achieve acceptable cosmetic results as well as a high degree of local cancer control that is comparable to complete removal of breast.

#### ***Aims and Objectives:***

1. To study a series of patients of early carcinoma of breast and evaluate them clinically.
2. To subject patients to breast conservation therapy and MRMs.
3. To study the outcome of breast conservation therapy and compare it with MRMs in terms of breast size, operating time, cosmesis, hospital stay, complications of surgery, recurrence, disease free survival.

#### **MATERIALS AND METHODS**

During period from June 2012 to June 2014 80 cases of early carcinoma breast were included in current study. Patients were seen in outpatient department.

A thorough history of present illness was taken pertaining to symptoms like lump in breast, pain, nipple discharge, lump in

axilla, jaundice, bone pain, cough, hemoptysis and breathlessness.

Details of personal history regarding menarche, parity, breast feeding, along with drug history were taken.

Family history of breast malignancy or other malignancies was enquired.

A detailed and thorough clinical examination was conducted.

The involved breast was assessed for lump with respect to site in the quadrants, size, shape, surface, margins, consistency, fixity to underlying structures, and overlying skin i.e. mobility of lump of breast.

Axilla and supraclavicular fossa were assessed for lymph nodes. Opposite breast and axilla were examined.

Systemic examination was conducted to rule out systemic metastases. X-ray chest and ultrasound of abdomen was done to rule out at lung and liver metastases.

Bone scan was done to negate bone metastases. Mammography was done to confirm the malignant nature of tumour, to rule out multicentricity, multifocality and extensive intraductal component. Fine needle aspiration cytology was done to confirm malignancy in palpable tumours.

All investigations for fitness for anaesthesia were done. After all investigations, clinical staging of carcinoma of breast was done.

Patients belonging to stage I (T1N0M0) and stage II (T2N0M0 and T2N1M0) were given a cafeteria approach. They were explained about MRM, its procedure, its complications, intra-operative and postoperative and final outcome.

Patients were also enriched with knowledge of recent modality of BCT. Patients were motivated to undergo BCT.

Patients undergoing BCT were subjected to lumpectomy with microscopically uninvolved margins (frozen section) along with axillary dissection.

Once the wound healed, they were subjected to irradiation with divided dose of 45 to 55

Gy, 5 days a week for 5 to 7 weeks with an electron boost to the primary site.

Patients were subjected to chemotherapy in form of cyclophosphamide, Adriamycin or Methotrexate and 5 Fluorouracil for 6 cycles. On follow-up examination a detailed clinical examination was done to assess the incidence of loco-regional and distant recurrences as well as the cosmetic outcome, in patients who underwent breast conservation therapy. MRM patients were also subjected to same post operative radiation and chemotherapy.

Institutional ethical committee clearance and written informed consent taken from the patients before enrolled into this study.

**Inclusion Criteria:**

1. Only female cases with early carcinoma breast (stage I, IIA, IIB)
2. Age between 30-70 years.
3. Tumour should be less than 5 cm.
4. Mammography of opposite breast should be normal.

**Exclusion Criteria:**

1. All male cases.
2. All female showing metastases.
3. Previously operated for cancer of either breast.
4. Patient's inability to receive radiotherapy (e.g. pregnancy, previous RT or collagen vascular disorders etc.)

**OBSERVATIONS AND RESULTS**

**Table 1: Age distribution**

Age group	BCT	MRM
31-40	5(12.5%)	6(15%)
41-50	17(42.5%)	16(40%)
51-60	14(35%)	13(32.5%)
61-70	4(10%)	5(12.5%)
Total	40(100%)	40(100%)

**Table 2: Symptoms**

Symptoms	BCT	MRM
Lump	38(95%)	37(92.5%)
Nipple Discharge	1(2.5%)	1(2.5%)
Axillary mass	1(2.5%)	2(5%)
Other complaints	0(0%)	0(0%)
Total	40(100%)	40(100%)

**Table 3: Breast Size**

Breast size	BCT	MRM
Big	30(75%)	0(0%)
Average	10(25%)	4(10%)
Small	0(0%)	36(90%)
Total	40(100%)	40(100%)

**Table 4: Parity**

No. of children	BCT	MRM
0	2(5%)	3(7.5%)
1-3	26(65%)	22(55.5%)
>3	12(30%)	15(37.5%)
Total	40(100%)	40(100%)

**Table 5: Breast feeding**

Breast feeding (months)	BCT	MRM
0-6	5(12.5%)	3(7.5%)
6-12	6(15%)	7(17.5%)
>12	29(72.5%)	30(75%)
Total	40(100%)	40(100%)

**Table 6: Quadrant involved**

Quadrant involved	BCT	MRM
UOQ	28(70%)	24(60%)
LOQ	6(15%)	4(10%)
UIQ	2(5%)	4(10%)
LIQ	4(10%)	8(20%)
Total	40(100%)	40(100%)

**Table 7: Lymph node status**

Palpable Lymph node status	BCT	MRM
N0	39(97.5%)	38(95%)
N1	1(2.5%)	2(5%)
Total	40(100%)	40(100%)

**Table 8: Stage of disease**

Stage of disease	BCT	MRM
Stage I	8(20%)	7(17.5%)
Stage IIA	31(77.5%)	31(77.5%)
Stage IIB	1(2.5%)	2(5%)
Total	40(100%)	40(100%)

**Table 9: Pathological type**

Pathological type	BCT	MRM
Infiltrating duct carcinoma	36(90%)	37(92.5%)
Ductal carcinoma in situ	3(7.5%)	2(5%)
Lobules carcinoma	2(5%)	1(2.5%)
Others	0(0%)	0(0%)
Total	40(100%)	40(100%)

**Table 10: Operating Time**

Operating time	BCT	MRM
More than or equal to 45 mins	1(2.5%)	40(100%)
Less than 45 mins	39(97.5%)	0(0%)
Total	40(100%)	40(100%)

**Table 11: Hospital stay**

Hospital stay	BCT	MRM
>15 days	2(5%)	30(75%)
<15 days	38(98%)	10(25%)
Total	40(100%)	40(100%)

**Table 12: Complications**

Complications	BCT	MRM
Seroma	1(2.5%)	7(17.5%)
Paraesthesia	-	10(25%)
Wound site infection	-	6(15%)
Weakness of arm	-	5(12.5%)
Lymphoedema	-	5(12.5%)
Total	1(2.5%)	40(100%)

**Table 13: Cosmetic outcome**

Cosmetic outcome	BCT	MRM
Excellent	30(75%)	0(0%)
Good	6(15%)	0(0%)
Average	3(7.5%)	1(2.5%)
Poor	1(2.5%)	39(97.5%)
Total	40(100%)	40(100%)

**Table 14: Recurrence**

Recurrence	BCT	MRM
Yes	0(0%)	0(0%)
No	36(90%)	35(87.5%)

## DISCUSSION

For many decades, the standard treatment for stage I, II and resectable stage III breast cancer was the Radical mastectomy, followed by gradual replacement of it with modified radical mastectomy (MRM). But, it was soon realized that the majority of women presenting with apparently localized breast cancer have micrometastatic disease and they die of this rather than loco regional recurrence. As survival is determined by the presence or absence of this micrometastasis, the aim of loco regional treatment is to achieve long term local disease control only. Thus, from this philosophy of management was born, 'Conservative Breast Surgery'.

The high incidence of breast cancer in the west especially in younger women the organ itself associated with sexual overtones, its loss with 'loss of body image', early detection of breast cancer by mammography and self detection programmes and the increasing demand for less mutilating procedures has brought into sharp focus the procedure of CBS-Conservative Breast Surgery. Several large multi institutional trials with hundreds of patients in retrospective analyses and prospective randomized trials have indicated similar local control and survival rates.

If this is the scenario in the west the scene at our institute is grim. We get illiterate poverty stricken villagers from remote places with advanced breast cancer. At the same time, we had highly educated, affluent patients who had early breast cancer.

Cosmetic consideration, psychological disturbances, loss of vanity, fear of infertility and social stigmata have always hindered early diagnosis and prompt treatment of breast cancer from antiquity till today. Thereby, patient comes with huge breast disease, to undergo mutilating surgery, only to lose the breast.

But in current era due to increased literacy, mass education and increased awareness about the disease and its "less destructive" form of treatment, patient have started reporting earlier to clinician in hope of early diagnosis and treatment.

Breast carcinoma is only occasionally seen in the late teens but thereafter there is rapid rise in age specific rates. The cumulative risk of developing breast cancer between ages 20 to 40 is 0.5%, whereas between 50 to 70 it is 5%. This account for the fact that the majority of patients with breast cancer are over the age of 50 years. [7]

During the years 1967 to 1979, 68% of 961 breast cancer patients at Medical College of Wisconsin Affiliated Hospitals were between 40 to 70 years of age with those over 80 years old representing only 7% of the total. The average age was 60 years. [8]

In current study in Table no. 1, maximum number of cases were from age group 41-50: 17 in BCT and 16 in MRM followed by 51-60: 14 in BCT and 13 in MRM. Lowest age was 35 and highest was 69 years.

Edward F. Lewison and Richard T. Smith in their study of 302 patients reported 35.7% as maximum age incidence in group

40-50 years which matches with our study.<sup>[9]</sup>

In a study from Yorkshire Breast cancer group of 1205 patients, 76% presented with a discrete lump out of that 5% present with painful lump.<sup>[10]</sup> In current study as shown in Table no. 2, 95% in BCT and 92.5% in MRM group presented with lump which was painless. No case presented with painful lump.

About 4% of patients present with nipple retraction.<sup>[10]</sup> In current study no patients presented with nipple retraction.

Pierce and associated reviewed 222 biopsies of isolated clinically enlarged axillary lymph nodes and found that 69% contained adenocarcinoma.<sup>[11]</sup> In MRM group presented with axillary mass.

Skin puckering is noted in 1% of cases.<sup>[10]</sup> In current study no case had skin puckering.

Nipple discharge is not a frequent complaint of a frequent sign of mammary carcinoma. No more than 2% of cases were associated with discharge in Devitt's Series.<sup>[12]</sup> In present study, only 2.5% in BCT group and 2.5% in MRM group had nipple discharge.

In current study as shown in Table no. 3, maximum 30 cases in BCT had big breast size. No women with small breast went under BCT. In MRM group 36 cases had small breast size.

Breast carcinoma is more frequent in women who have no children or are unmarried with risk of 1.4 as compared to 0.5 in patients who conceive before age of 20years.<sup>[13]</sup>

In current study as shown in Table no. 4, maximum number of cases had issues between 1-3 i.e. 26 cases in BCT and 22 in MRM followed by group having >3 issues i.e. 12 cases in BCT and 15 cases in MRM.

In current study as shown in Table no. 5, maximum number of cases had breast fed their children for more than 12 months i.e. 29 cases in BCT and 30 cases in MRM.

According to R.C.G. Russell, N.S. Williams and C.J.K. Bulstrode in Bailey and Love's short practice of surgery 23<sup>rd</sup> edition, 60% in UOQ, 12% in UIQ, 10% in LOQ and 6% in LIQ.<sup>[14]</sup> In current study as shown in Table no. 6, 70% cases in BCT and 60% cases in MRM presented in UOQ, 15% of BCT and 10% of MRM in LOQ, 5% of BCT and 10% of MRM in UIQ, 10% of BCT and 20% of MRM in LIQ.

In current study as shown in Table no. 7, clinically palpable nodes were seen in only 2.5% cases in BCT and 5% cases in MRM. The axillary nodes status is the most important prognostic factor for operable breast cancer.<sup>[15]</sup>

Fisher states that nodes are nothing more than prognostic indicators. Thus, according to largely accepted Fisher's view, nodes are an important step in pathogenesis of disease and involvement of axillary nodes implies increased chances of recurrence and reduction in survival.<sup>[16]</sup>

Patients with positive axillary nodes have a worse prognosis than those with negative axillary nodes.

Fisher B. demonstrated only the number of positive nodes is important and not the percentage of positive nodes.<sup>[17]</sup>

A micrometastasis is defined as tumour infiltration less than 2mm in diameter. Micro-metastases account for <10% of the patients with positive nodes and more frequent in patient with a primary tumour size less than 2cms or with 2-3 positive nodes. Macro-metastases is defined as tumour infiltration >2mm in diameter. Patients with microscopic nodal involvement have a better prognosis than those with macroscopic nodal involvement.<sup>[18]</sup>

Survival has been related to the highest level of axillary nodal involvement. Patients with positive nodes level III have a decreased survival when compared to those with positive nodes only at level I or II.<sup>[18]</sup> Extension of tumour beyond lymph node

capsule initially was associated with a greater short term treatment in the NSABP-B-04 study. [16,19]

While the axillary nodal status is an independent prognostic factor for survival of disease free in breast cancer, it is related to tumour size. Fraher B et al have found that a progressive increase occurs in both the incidence of axillary involvement and the number of positive nodes with tumour size. [18,20]

Donegan reported a 28% local recurrence rate if only level I nodes were involved, a 33% local recurrence if level II nodes were involved and 45% local recurrence if level III nodes were involved. [21]

In current study as shown in Table no. 8, 31 cases in BCT were in stage IIA followed by 8 cases in stage I and least 1 case in stage IIB. In contrast, the status of axillary nodes does not affect the breast recurrence rate in patients undergoing conservative surgery for stage II and I breast cancer. This may be related to the fact that patients undergoing conservative surgery and radiation who also receive adjuvant systemic chemotherapy have a decreased risk of breast recurrence. [22]

In current study as shown in Table no. 9, 90% cases in BCT and 92.5% cases in MRM were of infiltrating duct carcinoma followed by ductal carcinoma in situ 7.5% in BCT and 5% in MRM then lobular carcinoma 5% in BCT and 2.5% in MRM. Infiltrating duct carcinoma is the prototypical common adenocarcinoma of the breast presents in a perimenopausal or postmenopausal women in the 6<sup>th</sup> decade as a solitary, non-tender, firm and ill-defined mass. Neoplastic cell are arranged in small clusters or stacked in single rows that occupy irregular clefts between collagen bundles. [23]

In current study as shown in Table no. 10, 39 cases of BCT had operating time < 45 mins while 40 cases of MRM had

operating time > 45 mins and also as shown in Table no. 11 only 2 cases in BCT had hospital stay > 15 days while 38 cases had stay < 15 days. 30 cases in MRM had stay > 15 days.

Danforth and Lippman noticed skin flap necrosis and incisional site infection in 21.4% patients following modified radical mastectomy. [24] In current study as shown in Table no. 12, 15% patients had wound site infection in MRM group Danforth and Lippman noticed approximately 15% patients undergoing MRM developed seromas. In current study, 17.5% patients of MRM group developed seromas.

Ivens D, Hoe al, Podd JJ, observed that paresthesia developed in 70%, weakness in 25%, and lymphoedema in 10% following axillary dissection in current study, paresthesia seen in 25%, weakness in 12.5% and lymphoedema in 12.5% cases. [25]

The factors taken into consideration to decide the cosmetic outcome were: Breast oedema, retraction, fibrosis, telangiectasia and arm oedemas. In current study as shown in Table no. 13, 30 cases in BCT had excellent cosmetic outcome. Only 1 case had poor cosmetic outcome and 39 cases in MRM had poor cosmetic outcome.

Rose, Olivotio and other [26] in the review of article stating long term cosmetic results of conservative surgery and radiation therapy for early breast cancer categorized changes following BCT into: Excellent: Reflecting radiation sequence. Good: Reflecting a change in the breast observable only by trained eye. Fair: Reflecting change quite obvious. Poor: Denoting a severe Deformity or functional impairment such as need of prosthesis or augmentation of affected breast or use of sleeve to control arm oedema.

In current study, as shown in Table no. 14, 87.5% cases in MRM showed no recurrence and 90% cases in BCT showed no recurrence. William L. Donegan [27] observed loco-regional recurrence of 18% at

10 years, Baker et al [28] observed recurrence of 9-14% at 5 years.

## CONCLUSION

Based on the result of current study, there is no significant difference between survival rate post BCT or MRM. In fact BCT was found superior in operating time, hospital stay and cosmesis. MRM was better for small breasts and BCT is ideal for big and average breasts.

We feel that BCT is an equal if not better alternative to MRM in early breast carcinoma if done by taking breast to tumours size into account. BCT is an oncologically sound procedure but availability of chemotherapy and radiotherapy is of prime importance. In BCT radiotherapy postop is compulsory, which becomes a limiting criteria for BCT to be used in peripheral centers while radiotherapy is not compulsory post MRM.

More research has to be done with much more long term follow-up to come to very definite conclusion in comparison of BCT and MRM.

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