

Breast conservation surgery and modified radical mastectomy proportions early breast cancer: Hospital based study

1st Author - Dr.Kamalakanta Pradhan, Associate Professor, Dept.of Anaesthesiology, Govt. Medical College and Hospital,Sundargarh. Odisha.

2nd Author - Dr. Ranjita Mohanty, Associate Professor, Department of Anesthesiology & Critical care, SJMCH, Puri

3rd Author - Dr. Deshish Kumar Panda. Associate professor, Department of paediatric, PGIMER& Capital hospital, Bhubaneswar.

4th & Corresponding Author -

Dr. Kedar Nath Nayak,
Associate Professor,
Department of General Surgery,
Government Medical College and Hospital, Sundargarh, Odisha, India

Abstract

Background:

Breast cancer is the most prevalent cancer among Indian women, and its prevalence is alarming. There is a major change in early breast cancer management, with a greater focus on breast conservation therapeutic interventions. This study aimed to determine the proportion of patients who underwent breast conservation surgery and why they chose breast conservation surgery over modified radical mastectomy in early breast cancer.

Methods:

The information of 41 patients with early breast carcinoma who visited the institute during the study period and who could choose either modified radical mastectomy or breast conservation surgery based on their wishes was entered into an MS Excel data sheet and analyzed using STATA software.

Results:

It was observed that as literacy levels improved, the proportion of women choosing breast conserving therapy increased. Similarly, menstrual status and tumour location have a statistically significant influence on choosing breast-conserving surgery. However, unlike previous studies, we found no statistically significant relationship between age and surgical decision. Similarly, the patient's residence and employment status have no bearing on her decision to undergo breast conservation surgery.

Conclusions:

We need to raise public awareness about the safety of breast conservation treatment in order to popularize it so that more organs can be preserved.

Keywords: Breast conservation surgery, Breast cancer, Modified radical mastectomy, Hospital based

Introduction

In India, breast cancer affects several women and is becoming more prevalent at an astounding rate. Throughout India, 19–34% of all instances of cancer among women are breast cancer.^{1–3} The prevalence of breast cancer is rising and has been determined to eventually overtake cancer of the cervix, according to statistics from the National Cancer Registries and several other Regional Cancer institutes (1984 to 2002). Early identification of breast cancer is a realistic goal due to increased imaging use and improved patient knowledge, and there has been a significant shift in the prognosis of breast cancer.^{4–6} The radical mastectomy, a surgical procedure first described by Halsted in 1894, marks a significant development in managing breast cancer.⁷ The more extreme methods, such as the super-radical or prolonged mastectomies performed with extensive dissection and later developed by Jerome Urban and Wangenstein, were ineffective. Over the last three decades, there has been a significant change in how localized breast cancer is treated. Modified radical mastectomy was the standard of care for stage I or stage II breast cancer until the middle of the 1980s (MRM).

Breast-conserving surgery (BCS), an alternative surgical treatment for early-stage breast cancer, allows for the removal of just the tumour and a cuff of healthy tissue all over it rather than the entire breast.^{8–11} The breast's shape and aesthetic appeal are retained. A separate axillary incision is used to treat axillary nodes. To lessen the regional recurrence, radiation is added as an adjuvant to this surgical procedure.¹² A review of all concluded trials has revealed comparable survival seen between two therapeutic approaches in numerous contemporary, prospective, randomized clinical trials, including the research findings by pioneers in this field Umberto Veronesi of Milan and Bernard Fisher of the United States, making a comparison BCS with mastectomy.^{5,13–15} Patients are frequently asked to participate more actively in selecting surgical treatment since they have a choice between BCS or MRM. Given the well-documented results that are already available, many women are now in a position to choose between these two medical procedures.^{15,16} However, there are significant regional differences in the types of breast cancer surgery. The perspectives of surgeons and patients would then appear to be able to understand such variances. In contrast to the developed world, India has a different attitude toward BCS. In the US, the percentage of women who underwent a mastectomy fell from 40.8% in 2000 to 37% in 2006.¹⁷

The rate of breast conservation in the United Kingdom was 58% in 2002, and a new study from Europe that examined trends from multiple European databases showed a statistically significant decline in the rate of mastectomy from 2005 to 2010 and a present breast conservation rate of 73.3%.^{8,18} Breast-conserving surgery (BCS) is only chosen by 10–12% of patients in India, according to studies from various hospitals, including important institutions like SGPGIMS, Lucknow, and TMH, Mumbai. However, this trend shows an increase from 12.6% in 1997 to 60% in 2001.^{1,2,19,20} Despite any advice the surgeon may have given them, the majority of women who underwent MRI said they already knew they wanted a mastectomy. The majority of breast cancer patients reported that MRM would provide better protection against recurrence

than BCS because they think the affected breast is unhealthy. In addition, they are more accustomed to this conventional style of surgery than the more recent approach. When all the choices had been explained and considered, the decision was made jointly by the patient receiving BCS and their surgeon. Surgical intervention mastectomy continues to be our facility's most popular surgical treatment for early breast cancer. This study aimed to identify the proportion of patients selecting breast conservation surgery and modified radical mastectomy in early breast cancer and factors associated with this selection process at, a tertiary care centre in eastern India.

Methodology

The present study was conducted in study participants who were cancer (Breast) patients attending the out-patient and in-patient department of General Surgery in Government Medical College and Hospital, Sundargarh, Odisha, India. This was a descriptive study which was carried out for a period of one year.

Inclusion criteria – In this study, only breast cancer patients with stage I and stage II will be included.

Exclusion criteria – Those patients with early breast cancer with an extensive in-situ component will be excluded.

Study procedure -In this study 73 patients with early breast carcinoma who visited the medical college and hospital during the study period were included in the study. The data of study participants related to their sociodemographic characteristics and surgery history was collected in the pre-structured proforma. Among those 73 patients, only 59 had a choice to undergo either BCS or MRM as per the tumor and patient characters and they constitute the final study group. Due to relative contraindications such as (i) small breast with large tumour (6 patients), (ii) medical disease contraindicating Irradiation (1 patient), and (iii) central location, the surgeon decided on MRM for the remaining 14 patients (7 patients). A questionnaire was used to re-evaluate the patients' preferences for the procedure. Data analysis The obtained data were entered into MS Excel and analyzed using the Statistical software STATA. The Chi-square test was used to see if there was a difference in surgical decisions based on education, employment, menstrual status, tumour location, and age.

Results

Total number of 59 patients were treated in our medical college with early breast cancer during the study period. When we analyzed these patients, 66% (n=39) of patients underwent modified radical mastectomy (MRM) while the rest, 34% (n=20) underwent breast conservation surgery BCS. The overall distribution of study participants as per age group is provided in Table 1. The youngest patient in our series was 27 years old, and the oldest was aged 64 years. A maximum number of patients belonged to the 41 to 50 years age group (49.1%).

Table 1 Distribution of study participants as per age group

Age group	Total count	MRM	BCS
21-30	1	1	0

31-40	10	6	4
41-50	29	19	10
51-60	16	10	6
61-70	3	3	0

Among the 41 patients, who had the choice to undergo either procedure 39 selected MRM as their surgical procedure. The reasons for opting MRM as surgical procedure is provided in

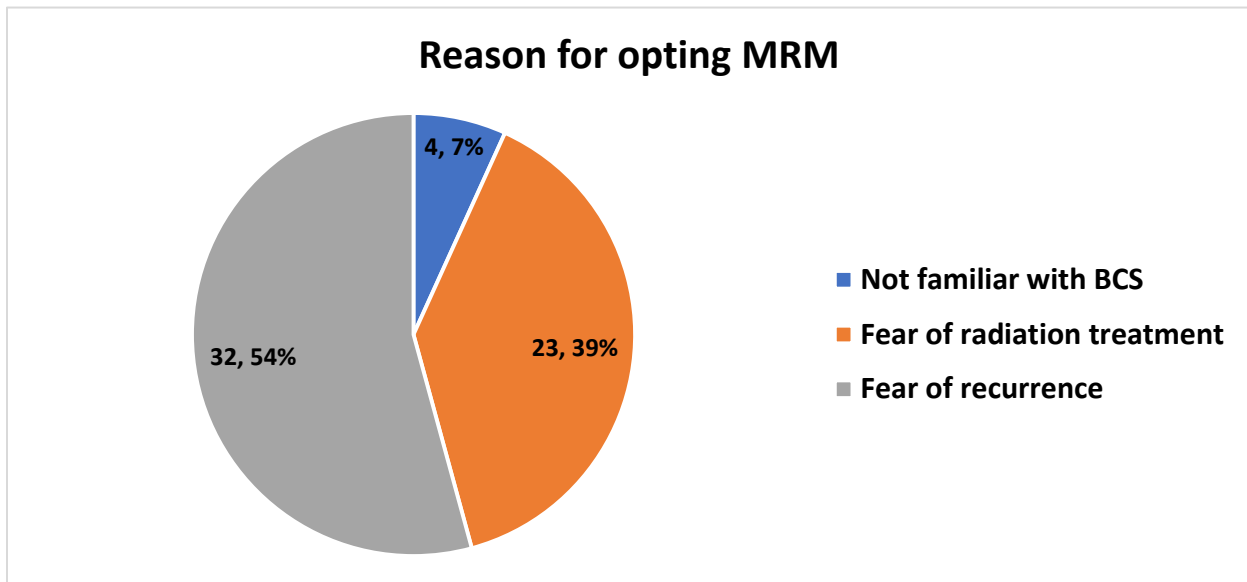


Figure 1 Reasons for opting MRM as surgical procedure.

Figure 1.

When we analyzed the reason for not preferring BCS by this group, 54% (n=32) had fear of recurrence, 39% (n=23) expressed fear of irradiation and 7% (n=4) selected MRM because they were not familiar with the new procedure (Figure1). The sociodemographic characteristics of study participants and relationship with surgical decision is depicted in Table 2. When we compare the education status, in the BCS group 65% (n=13) had graduation or above Education status group only 35% (n=7) were below graduation where as education status. In MRM group 82.1% (n=32) were non graduates and only 17.9 % (n=7) had graduation as education status. There is a statistically significant association present between Graduation status and surgical decision (Chi-Square value = 8.49 , p ≤ 0.05).

Table 2 Sociodemographic characteristics of study participants and relationship with surgical decision

Characteristics		BCS		MRM		X ² value
		N	%	N	%	
Age group	< 40 years	4	20	7	17.9	0.489
	> 40 years	16	80	32	82.1	
Education status	Graduates	13	65	7	17.9	8.49*
	Non- graduates	7	35	32	82.1	

Occupation status	Employed	12	60	30	76.9	1.91
	Unemployed	8	40	9	23.1	
Residential status	Rural	11	55	27	69.2	0.721
	Urban	9	45	12	30.8	
Menopausal status	Premenopausal	11	55	4	10.3	9.947*
	Postmenopausal	9	45	35	89.7	
Location of lesion	Upper outer	14	70	14	35.9	4.41*
	Other quadrants	6	30	25	64.1	

**P value < 0.05*

Similarly on the aspect of menstrual status 55% (n=11) of patients were in premenopausal status and 45% (n=9) postmenopausal stage in the BCS group whereas in MRM group 10.3% (n=4) were premenopausal and 89.7 % (n=35) were postmenopausal. There is a statistically significant association present between menopausal status and Surgical decision. (Chi-Square value =9.94, $p \leq 0.05$). Around forty-seven per cent (n=28) of lesions were located in the upper outer quadrant of the breast. When we compare the location of the lesion with the surgical decision, there is a statistically significant association present between the site of the lesion in the breast and the Surgical decision (Chi-Square value= 4.41, $p \leq 0.05$). When we compare the age group of the study group with the surgical decision, in the BCS group, 20 % (n=4) were below 40 years of age group, and 80% (n=16) were above 40 years. In the MRM group, 17.9% (n=7) were below 40 years old and 82.1% (n=32) above 40 years old. There is a statistically insignificant association present between age group and Surgical decision (Chi-square value=0.489, $p > 0.05$).

In the BCS group, 60 % (n=12) were employed, and 40% (n=8) were unemployed, whereas in the MRM group, 76.9 % (n=30) were employed and 23.1 % (n=9) were unemployed. A statistically insignificant association exists between employment status and surgical decision (Chi-square value=0.1.91, $p > 0.05$). In the BCS group, 55% (n=11) were residing in rural areas, and 45% (n=9) were from urban areas. In the MRM group, 69.2 % (n=27) were residing in a rural areas, and 30.8 % (n=12) were from urban areas. A statistically insignificant association exists between the place of residence and surgical decision (Chi-square value=0.721, $p > 0.05$). Invasive ductal carcinoma is the predominant lesion (n=54, 91.5%). Invasive lobular carcinoma constitutes 6.7% (n=4), and one patient presented with medullary carcinoma.

Discussion

Early breast cancer is prevalent in this study's fifth decade of life. Comparable research comes from the United States and Japan.¹² Upper outer quadrant is a common location for the tumour, and invasive ductal carcinoma is the primary histological type. Breast-conserving surgery in cases of early breast cancer is quite uncommon in our setup. The main reasons given for not choosing breast-conserving therapy include fear of recurrence and radiation therapy. These findings are consistent with a Walsh Dicks study from Canada. Similarly to this, the proportion of women choosing breast-conserving therapy rose as literacy levels improved and was likewise correlated with menstruation status. The tumour's location influences the choice of breast-

conserving surgery as a surgical procedure with a strong statistical correlation.^{6,21,22} Modified radical mastectomy is more frequently performed on older and rural women than on younger and metropolitan women. Contrary to the results of the previous study, we did not discover any statistically significant correlation between age, place of residence, and employment status and the decision to have a breast conservation treatment.

Conclusion

Early breast cancer is prevalent in this study's fifth decade of life. The upper outer quadrant is a common location for the tumour, and invasive ductal carcinoma is the major histological type. Fear of recurrence and radiation therapy are the two main reasons for not choosing breast-conserving therapy. Patients choose either surgery depending on the surgeon's advice or worry about recurrence. Most people did not have problems with their body image. The choice of breast-conserving surgery is influenced by literacy level, menstrual status, and tumour location, with a strong statistical correlation. However, we could not discover any statistically significant correlation between age, place of residence, or employment status with the decision to have a breast-conserving operation.

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