



Effect of Modified Radical Mastectomy on Quality of Life of Breast Cancer Patients

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ABSTRACT

BACKGROUND: We aimed to explore the clinical efficacy of modified radical mastectomy on the quality of life (QoL) in patients with breast cancer. **METHODS:** This was a prospective study of patients who underwent MRM for breast cancer at the Government Cuddalore Medical College and Hospital (GCMCH). **RESULTS:** Fifty patients were included in this study. MRM patients fared better with respect to physical functioning, dyspnea, fatigue, appetite loss, and body image at 6 months. At 6 months postsurgery, MRM patients fared better with respect to physical functioning, role functioning, global health status, body image, sexual enjoyment, dyspnea, emotional functioning and future prospectives.

CONCLUSION: In conclusion, Patients undergoing MRM have a better QOL with respect to various functional and symptom scales at 6 months. The patients undergoing MRM perform better in terms of future perspective and emotional functioning at 6 months.

Keywords: breast cancer; modified radical mastectomy; quality of life.

1. INTRODUCTION

Breast cancer (BC) is the most common malignancy and one of the leading causes of cancer death among women worldwide. Potential risk factors for BC include high body mass index, older age, family history, long menstrual periods, use of oral contraceptives, and exposure to radiation. The vast majority of breast tumors are originated from glandular epithelial cells. Furthermore, invasive ductal carcinoma is the most common type of BC (approximately 70%) followed by lobular, mucinous, comedo, pupillary, tubular and inflammatory carcinomas. With the development of imaging diagnosis, puncture technology and women's health awareness, the early detection rate of BC has been greatly improved.

Early diagnosis and thorough treatment of BC are important for good prognosis. For patients with breast cancer, surgery is the first choice of treatment, and modified radical mastectomy (MRM) is one of the most commonly performed surgeries. However, breast aesthetics are severely affected though MRM preserves the pectoralis major and minor muscles. Breasts are an important secondary sexual characteristic of women whose quality of life (QoL) is seriously impaired after mastectomy.

A modified radical mastectomy is a procedure in which the entire breast is removed, including the skin, areola, nipple, and most axillary lymph nodes, but the pectoralis major muscle is spared. Historically, a modified radical mastectomy was the primary method of treatment for breast cancer.

With the precise treatment of breast cancer, these patients' lifespan is now significantly longer than a few decades ago. Still, how to improve the patients' quality of life after treatments is now a significant challenge.



Traditional modified radical mastectomy (MRM) significantly increases the occurrence of complications such as upper limb edema and paraesthesia, and the surgical scar from on the chest and the axilla will affect the esthetics and limit the movement of the shoulder joint to some extent.

Therefore, we focused on the comparison of the prognosis and post operative QoL hoping to provide strong evidence for MRM.

2.MATERIALS AND METHODS

2.1 General data

This is a prospective study performed in the Department of Surgery, Government Cuddalore Medical College and Hospital (GCMCH), Tamilnadu, India. This study was conducted after Institutional Review Board and Ethics Committee clearance. The duration of the study was from September 1, 2023, to February 29, 2024. The primary objective of the study was to study the QOL of patients undergoing MRM at baseline, 6 months postsurgery period.

The inclusion criteria were Women with pathologically proven early breast carcinoma undergoing primary MRM were recruited for the study.

The exclusion criteria were 1) combined with severe chronic or disabling diseases such as hypertension, diabetes, etc., 2) intellectual or mental factors limiting communication, 3) stage III-IV breast cancer, 4) Pregnant or lactating women and women with bilateral breast cancers were excluded from the study.

2.2 Methods

Modified radical mastectomy

A fusiform incision was made around the lesion and carried to the superficial fascia, followed by free flap dissection and breast resection. A subcutaneous flap lying from the lower edge of the clavicle to the upper edge of the rectus abdominis, and from the lateral edge of the sternum to the leading edge of the latissimus dorsi was dissected. Subsequently, pectoralis major and pectoralis minor muscles were identified carefully, and the excision of flap with a breadth of 3cm around the perimeter of the lesion was conducted. A drainage tube was indwelled after ipsilateral axillary lymph node dissection, and the operation was completed via routine layer-by-layer suture.

Operative procedure

After successful general anesthesia, the patient was placed in the supine position, and the upper limb of the affected side was abducted. After resection, the tumor was sent for rapid pathological examination during the surgery. If malignancy was confirmed, methylene blue injection was injected at multiple areola points, and MRM was performed. A Stewart incision on the affected side was made. The flaps were dissociated, up to the collar bone, down to the costal arch, inward to the midline, and out to the midaxillary line. The breast was removed from the pectoralis major muscle. SLNB was performed using methylene blue. If lymph node metastasis was observed during the intraoperative frozen section, the first, second, and third levels and intermuscular lymphatic.

2.3 Outcome measures

QoL was assessed using the quality of life questionnaire-core 30 (QLQ-C30) and quality of life questionnaire breast cancer module 23 (QLQ- BR23) developed by the European Organization for Research and Treatment of Cancer (EORTC). Main contents of the questionnaires included emotional functioning, social functioning, body image, sexual function and global QoL, with higher scores indicating better QoL. The questionnaire was filled at immediate pre surgery, 6 months postsurgery.

3.RESULTS

Fifty patients were included in the study None of the patients underwent any reconstructive procedure. The patient characteristics are summarized in Table 1. The median age of patients undergoing MRM was 54 years (range: 32–70 years). All patients underwent level I, II, and III clearance. Most of the patients presented in stage II in both the arms. Stage II was also the most common pathological stage. All patients who underwent MRM received adjuvant chemotherapy. They were comparable at baseline (immediate pre surgery) and at 6 months respectively. Table 2 depicts the baseline QOL scores. QOL scores at 6 months are depicted in Table 3. The patients fared significantly better with respect to functional scales of physical functioning and body image. They



also fared better with respect to symptom scales of dyspnea, fatigue, and appetite loss at 6 months postsurgery ($p < 0.05$) (Figs. 1–3).

Table 1 patient characteristics

Age	
31 – 40	4
41 – 50	22
51 – 60	14
60 – 70	10
cT stage	
T1	8
T2	38
T3	4
cN stage	
N0	18
N1	32
Final histopathology	
Stage I	10
Stage II	40
Adjuvant chemotherapy	
Received	50
Not received	0

Abbreviations: MRM, modified radical mastectomy.

Table 2 Comparison of QOL between BCS and MRM patients at baseline and 6 month follow up

Scale	Baseline	6 months
	Mean \pm SD	Mean \pm SD
EORTC QLQ C30		
Functional scales		
Physical functioning	80.14 \pm 14.76	71.42 \pm 12.46
Role functioning	81.41 \pm 19.88	75.86 \pm 21.05
Emotional functioning	75.85 \pm 21.5	74.48 \pm 12.67
Cognitive functioning	86.58 \pm 14.96	84.04 \pm 31.02
Social functioning	82.91 \pm 19.12	60.5 \pm 18.21
Symptom scales		
Dyspnea	10.86 \pm 11.37	5.76 \pm 3.21
Pain	16.24 \pm 20.56	26.02 \pm 15.76
Fatigue	20.86 \pm 22.52	24.48 \pm 15.05
Sleep	20.92 \pm 13.91	27.09 \pm 12.28
Appetite loss	8.96 \pm 21.92	19.09 \pm 11.91
Nausea and vomiting	5.35 \pm 9.86	14.26 \pm 29.01
Constipation	8.92 \pm 8.87	1.13 \pm 2.42
Diarrhea	2.24 \pm 10.3	4.76 \pm 4.31
Financial difficulties	44.18 \pm 35.5	60.31 \pm 18.32
Global health status QOL	67.82 \pm 10.85	69.72 \pm 12.21
EORTC QLQ BR23		
Functional scales		
Body image	87.09 \pm 23.41	52.05 \pm 21.02
Sexual functioning	85.41 \pm 12.89	96.42 \pm 14.62
Sexual enjoyment	17.43 \pm 21.01	68.75 \pm 14.06
Future prospective	57.89 \pm 13.09	62.03 \pm 13.06
Symptoms scales		
Systematic therapy side effects	16.92 \pm 12.23	30.29 \pm 31.09



Arm symptoms	15.48 ± 13.21	62.32 ± 21.01
Breast symptoms	12.76 ± 14.21	39.09 ± 16.07
Hair loss	23.21 ± 25.05	48.08 ± 13.21

Abbreviations: EORTC QLQ, European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire; MRM, modified radical mastectomy; QOL, quality of life; SD, standard deviation.

DISCUSSION

Breast surgery has a great impact on all aspects of a woman's life. With the advent of newer treatments, breast cancer patients have an improved overall survival. QOL measures individual's or group's perceived physical and mental health over time. QoL provide the wholesome treatment that includes the social, psychological, and emotional aspects of the disease, apart from the physical aspect.

Our study explains the QOL post immediate presurgery, at 6 months after surgery, and at 1 year after surgery. The median age of women in the MRM group was 50 years. A single-time measure of QOL carries a lesser value as compared with multiple measures over a period of time. Multiple measures help to study the change over time and to effectively analyses the changes.

In our study, we have measured the QOL at two different time periods with respect to the surgery of breast cancer using the questionnaires. At 6 months postsurgery, MRM patients fared significantly better with respect to physical functioning, dyspnea, fatigue, appetite loss, and body image. In the study by Pandey et al, women undergoing MRM were found to have significant deterioration in physical and functional well being, breast-specific subscale, trial outcome index, and overall QOL.

In breast cancer survivors, sometimes the only reminder of their malignancy is the mutilating scar on their chest. This logically leads to emotional distress and body image issues in all age groups. An Egyptian study showed that women in MRM group had higher level of body image distress among cognitive, affective, and behavioral aspects.

Interestingly, in our study, patients undergoing MRM have fared better in terms of future perspective. Proper counseling goes a long way in allaying the fears of the patients undergoing breast conservation. Although we counsel our patients about the safety of MRM, probably better counseling is required.

Patients undergoing MRM have also fared better in terms of emotional functioning in our study. There are many drawbacks of our study. There is no data about the comorbidities that significantly affect the QOL. None of our patients underwent reconstructive surgery. Reconstruction after MRM improves the body image as compared with mastectomy alone.

CONCLUSION

Patients undergoing MRM fare better in terms of physical functioning, role functioning, and global health status. They tend to have a better perception of their body image and perform better in terms of various symptom scales. Patients undergoing MRM tend to perform better in terms of future perspective and emotional functioning at 6 months.

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