

# Prospective Analysis of Psycho Social and Surgical Outcome of Breast Reconstruction Following Mastectomy

Sudip Sarkar<sup>1</sup>, Shine N Singh<sup>2</sup>, Biswanath Acharyya<sup>3</sup>, Lydia Prusty<sup>3</sup>

## ABSTRACT

**Introduction:** Breast reconstruction (BR) plays a significant role in the woman's physical, emotional and psychological recovery from breast cancer. The presence of a woman with a lack of her breast leads to psychological disorders that can be noticeable. The aim of the study was to determine the outcome of Breast Reconstruction in patients who have undergone mastectomy and to analyze its psycho-social impact and surgical outcome using suitable questionnaire.

**Material and methods:** The present study was conducted among 31 patients of breast carcinoma who underwent Mastectomy and Breast Reconstruction procedures using Lattisimus Dorsi Myocutaneous flaps and Transverse Rectus Abdominis Myocutaneous flaps. All participants were evaluated by the Medical Outcomes Study (MOS) 36-item Short Form Health Status Survey (SF-36, 36 items) and a study-specific questionnaire 6 months after they received the adjuvant therapy. Statistical Analysis was performed using Epi Info (TM) 3.5.3. t-test was used to compare the means. Percentage (%) was calculated of different factors.

**Results:** In this study, 17(54.8%) patients underwent reconstruction using LD flap and 14(45.2%) patients using TRAM flap. As per the survey used in the study, the present study found that there was a decline in all the parameters namely physical role, physical functioning, bodily pain, physical component score, vitality, mental health, social functioning, emotional role, mental component score except general health score, which were all of significant ( $p < 0.05$ ).

**Conclusion:** Steps need to be taken in terms of patient awareness with respect to breast cancer, the treatments available and adequate counselling and time to time physical and psychological support to improve the patient satisfaction and assessment of self, post treatment.

**Keywords:** Breast reconstruction; CA Breast; Patient Satisfaction

## INTRODUCTION

There is an increasing incidence of breast cancer in the Indian population, with breast cancer being the most common cancer in Indian women in Urban cities and the second most common in rural set up. The trends of breast cancer in India pertain to age shifts with increasing number of cases in the young, rising number of cases of breast cancer in India, late stage of presentation with decreased long term survival, lack of awareness and screening and aggressive cancers in the young.<sup>1</sup> Breast reconstruction (BR) plays a significant role in the woman's physical, emotional and psychological recovery from breast cancer. It is increasingly becoming an integral part of interdisciplinary treatment of breast cancer. Loss of body image is one of the critical issues negatively impacting quality of-life of breast cancer survivors. Restoration of body image is an important step toward their rehabilitation.<sup>2</sup> The presence of a woman with a lack of her

breast leads to psychological disorders that can be noticeable.<sup>3,4</sup> The primary goal of reconstruction is to improve a woman's body image and to fulfill her expectations regarding the appearance of her breasts following surgery. In reconstructive surgery it is essential to measure. Patient reported outcome and health related quality of life as there is very little data pertaining to the psychosocial impact on a women's sexuality and body image, and the patient preferences should be explored along with attitudes to risk and illness when obtaining informed consent for breast reconstruction. Complication reporting is poor in the literature and further work is required to establish even better evidence as to the effects of these surgeries on the patient's health related quality of life. The aim of the study was to determine the outcome of Breast Reconstruction in patients who have undergone mastectomy and to analyze its psycho-social impact and surgical outcome using suitable questionnaire.

## MATERIAL AND METHODS

The present prospective observational study was conducted among 31 patients of breast carcinoma admitted in general surgery wards of M G M Medical College and LS K Hospital over a period of 18 months who underwent Mastectomy and Breast Reconstruction procedures using Lattisimus Dorsi Myocutaneous flaps and Transverse Rectus Abdominis Myocutaneous flaps.

Patients aged younger than 60 years with primary breast cancer at stages I and II and patients not candidates for breast conservation surgery (large or central tumors in small breasts, multifocal/ multicentric disease, an extensive in situ component and widespread lymphatic invasion) were included in the present study. The decision to go ahead with breast reconstruction was based on comprehensive preoperative information and advice which was provided in a multidisciplinary setting. An informed consent was obtained from each patient after discussing the details of the operation as well as the possible intraoperative and postoperative sequelae.

Evaluation criteria included operative data, duration of hospital stay, donor site morbidity, abdominal wall integrity, flap related complications, fat necrosis (necrosis sufficient to induce a major disfigurement of the reconstructed breast or to result in patient's dissatisfaction). All participants were evaluated by the Medical

<sup>1</sup>Associate Professor, <sup>2</sup>Senior Resident, <sup>3</sup>Junior Resident, M G M Medical College and L S K Hospital, Kishanganj, Bihar, India

**Corresponding author:** Dr Sudip Sarkar, E-block, MGM Medical College, Room no-202, 2nd Floor, Kishanganj, Bihar -855107, India

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Outcomes Study (MOS) 36-item Short Form Health Status Survey (SF-36, 36 items) and a study-specific questionnaire 6 months after they received the adjuvant therapy. The cosmetic outcome was evaluated comparing pre-operative and post-operative photographs taken at an interval of 6 weeks (post-adjuvant therapy) and at an interval of 6 months. An external panel evaluated standardized photographs of the breasts.

Statistical Analysis was performed using Epi Info (TM) 3.5.3. Using this software, basic cross-tabulation, inferences and associations were performed. t-test was used to compare the means. Percentage (%) was calculated of different factors. After a *t* value was determined, a *p*-value was found using a table of values from Student's *t*-distribution. If the calculated *p*-value was below the threshold chosen for statistical significance (usually the 0.10, the 0.05, or 0.01 level), then the null hypothesis was rejected in favor of the alternative hypothesis.

## RESULTS

In this study, 17(54.8%) patients underwent reconstruction using LD flap and 14(45.2%) patients using TRAM flap. The mean age (mean± SD) of patients was 42.32±9.11 years with range 28-59 years and the median age was 41 years. The mean hospital duration of stay of patients (mean±SD) was 12.16 ± 4.22 days with range 7-23 days and the median stay was 12 days. 3 out of 31 patients had donor site morbidity in the terms of infection and wound dehiscence. This association was not statistically significant (*p*=0.469). No cases of ventral hernia were reported in patients over a post operative period of 4-6 months. Majority (22 patients) of the reconstructions were complication free in terms of seroma and necrosis. 22(71.0%) patients had no flap related complication. In this study, no statistical association was found between flap related complications vs techniques (*p*=0.392) (table 1).

Table 2 and graph 1 shows psychosocial outcome, results of SF-36 Health survey component Scores (Mean) and resultant graphic depiction of pre and post op. There was a decline in all the parameters namely physical role, physical functioning, bodily pain, physical component score, vitality, mental health, social functioning, emotional role, mental component score except general health score, which were all of significant (*p* < 0.05). Table 3 shows distribution of change in health of all patients.

The average panel score was below average in 8 patients who were married by complications of necrosis and seroma formation and some who had received post operative radiotherapy. Rest of the 23 patients, the cosmetic outcome was declared satisfactory as adjudged by the external (table 4).

## DISCUSSION

In this study of 31 patients early breast cancer(stage I and stage II), the surgical and psychosocial outcome of immediate breast reconstruction following autologous tissue transfer using techniques of latissimus dorsi and transverse rectus abdominis myocutaneous flaps was analysed in patients deemed fit and desirable of the procedure. In this study, 17(54.8%) patients underwent reconstruction using LD flap and 14(45.2%) patients using TRAM flap.

Overall the incidence of surgical complications was low. The psycho social outcome of the study was analysed with the help of patient reported outcome measure using Short Form-36

Techniques	LD	TRAM	Total
Donor site morbidity			
Yes	2	1	3
No	15	13	28
Flap related complication			
No complication	11	11	22
Necrosis	0	2	2
Seroma	6	1	7

**Table-1:** Correlation of flap related complication vs techniques all patients

	Pre op	Post op
Role physical	81.45	42.74
Physical functioning	93.87	64.19
Body pain	91.87	51.03
General health	62	63.74
PCS	82.3	49.18
Vitality	77.74	48.06
Social functioning	80.24	39.52
Role emotional	78.48	39.77
Mental health	72.9	59.22
MCS	77.34	46.64

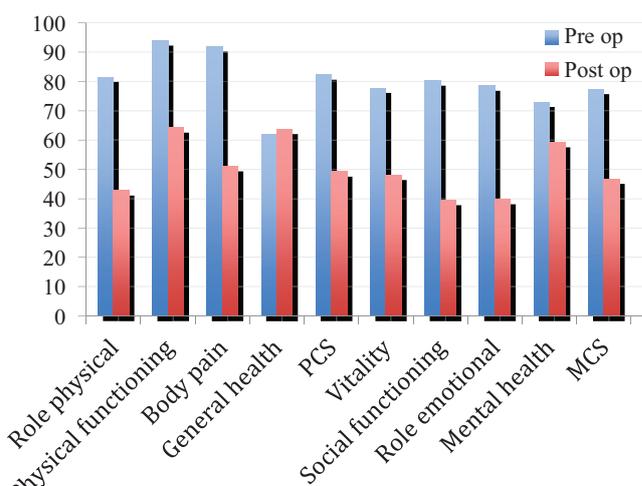
**Table-2:** psychosocial outcome: Results of SF-36 Health survey Component Scores (Mean)

Change in health	Frequency	Percent
Better	8	25.8%
No Change	14	45.2%
Worse	9	29.0%
Total	31	100.0%

**Table-3:** Distribution of Change in health of patients

Average panel score	Frequency	Percentage
<4 (bellow average)	8	25.8%
4-6 (average)	23	74.2%
Total	31	100.0%

**Table-4:** Distribution of Average panel score all patients



**Graph-1:** Resultant graphic depiction of psychosocial outcome of breast reconstruction patients

Health Survey.<sup>5</sup>

Only these two techniques of flap reconstruction were used,

as the autogenous tissue transfer was easily available and the unavailability of tissue expanders or expensive implants. Immediate reconstruction offers the best aesthetic outcomes if postmastectomy radiation therapy is not needed, but if postmastectomy radiation therapy was required, delayed reconstruction is preferable to avoid potential aesthetic and radiation-delivery problems. Unfortunately, the need for postmastectomy radiation therapy cannot be reliably determined until review of the permanent tissue sections.<sup>6</sup> 5 out of 31 patients were given post-reconstruction radiotherapy after reviewing their permanent tissue sections.

The mean age (mean $\pm$  SD) of patients was 42.32 $\pm$ 9.11 years with range 28-59 years and the median age was 41 years. The mean hospital duration of stay of patients (mean $\pm$ SD) was 12.16  $\pm$  4.22 days with range 7-23 days and the median stay was 12 days. In the study published by O'Brien et al,<sup>7</sup> the mean post-operative duration of hospital stay was 4.4 days in patients undergoing reconstruction using tissue expanders, implants, LD and TRAM flaps and in the study by Foster et al<sup>8</sup> the mean hospital stay was 5.2 days. The increased length of the stay in the present study can be ascribed to the total stay considered and not just the post-operative stay as well as the time taken for patient preparation, physical and mental, along with co-ordinating the schedules of the oncological and the plastic surgical team and final discharge after managing the short term complications.

Flap related complications that were taken into consideration were seroma formation and flap necrosis either in part or as a whole. Majority (22 patients) of the reconstructions were complication free in terms of seroma and necrosis.

The necrosed parts were regularly debrided, with frequent change of dressings and eventual remodelling and suturing of the flap was done for closure with longer stay in the hospital and below satisfactory final cosmetic outcome. The cases which presented with seroma were regularly aspirated and compression bandages given. The final outcome was more or less satisfactory on cosmetic terms and involved a slightly longer hospital stay.

Most studies in the past evaluating breast reconstruction practice have focussed on clinician- reported outcomes, such as surgical complications that may or may not be relevant to patients as evidenced by Morrow M et al.<sup>9</sup> Greater emphasis has been laid on evaluating the patient's self assessment, evaluation and satisfaction post reconstruction using patient reported outcome measure with the help of 36-item Short Form Health Survey.

As per the survey used in the study, the present study found that here was a decline in all the parameters namely physical role, physical functioning, bodily pain, physical component score, vitality, mental health, social functioning, emotional role, mental component score except general health score, which were all of significant ( $p < 0.05$ ) nature, however in the study conducted by Schain et al,<sup>10</sup> which evaluated the psychological adjustment of mastectomy patients who had immediate, early (within 1 year), or delayed (after 1 year) breast reconstruction to determine whether a delay between ablative surgery and reconstruction had a positive or negative impact on psychological adjustment, social adaptation, and satisfaction with reconstruction outcome. Results show that immediate and early reconstruction had significantly less recalled distress about their mastectomy than delayed reconstruction. Immediate or delayed reconstruction had similar levels of psychological symptoms, which were

slightly lower than those reported by early reconstruction. The wish to wear a wider range of clothes and to be rid of the external prosthesis were common motivations for reconstructive surgery. The desire to improve sexual relations or marital state was less common and should be viewed with caution when presented as the primary motivation for breast reconstruction.

Al-Ghazal SK et al<sup>11</sup> assessed anxiety, depression, body image, self-esteem, sexuality and satisfaction among reconstruction patients and reported that anxiety and depression were decreased and body image, self-esteem and sexual feeling of attractiveness and satisfaction were significantly superior in the immediate reconstruction group compared with that of the delayed reconstruction group. Patients who had immediate reconstruction recalled less distress and had better psychosocial well being than those who had delayed reconstruction.

In the study conducted by Kroll S et al<sup>12</sup> where a review of 325 postmastectomy breast reconstructions was done, the aesthetic quality of the result and the risk of unsuccessful outcome were compared for three techniques: tissue expansion (105 breasts), latissimus dorsi myocutaneous flap (47 breasts), and TRAM flap (173 breasts). The aesthetic successes achievable with the three methods were similar, and some excellent results were achieved with each of them. For immediate breast reconstruction, the TRAM flap was the most aesthetically successful technique.

Metcalfe KA et al<sup>13</sup> conducted a descriptive study regarding satisfaction with breast reconstruction in women with bilateral prophylactic mastectomy and reported that the majority of women were satisfied with the cosmetic results of breast reconstruction after prophylactic mastectomy. Women who overestimated their breast cancer risk had lower satisfaction levels. Correcting overestimation of breast cancer risk in women who have prophylactic mastectomy may improve satisfaction with reconstruction following prophylactic mastectomy.

Elder EE et al<sup>14</sup> carried assessed patient satisfaction in breast cancer patients after immediate breast reconstruction and reported that the most common reason for immediate reconstruction was the desire to avoid an external prosthesis. Most women were satisfied with immediate reconstruction, and the major determinant of aesthetic satisfaction was completion of the procedure. Although many factors may influence quality of life, 1 year after breast cancer surgery with immediate reconstruction scores are equivalent to those of the normal population.

Although overall satisfaction with breast reconstruction is undoubtedly determined by multiple and complex clinical, emotional, and psychological factors, this study suggests that postoperative complications are a particularly important indicator of dissatisfaction with reconstruction.<sup>15-17</sup>

Taking note of the limitations, the SF-36 form was used for its simplicity and easy scoring where by decreased physical quality of life was found post-operatively, in comparison to the preoperative state, at a mean follow up of 6 months. In spite of the decreased rate of surgical complications, the mental state in the post-operative period depended on a multitude of factors including the recovery, patient care, post-discharge family care and outlook of the patient and the family towards the disease and the modality of treatment. The decrease was statistically significant for the sample size. However, despite the perceived fall in physical quality of life, the aesthetic outcome of the

immediate reconstruction procedure was satisfactory in majority of the patients.

## CONCLUSION

As this being an isolated study with the number of patients being very small and no randomisation in the institution of treatment, the results cannot be extrapolated to immediate breast reconstruction results in general and a greater population. Better patient reported outcome measures and adaptation of the short form-36 in a more Indian format need to be done for a frank analysis and comment on the psychosocial outcome post reconstruction. Steps need to be taken in terms of patient awareness with respect to breast cancer, the treatments available and adequate counselling and time to time physical and psychological support to improve the patient satisfaction and assessment of self, post treatment.

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