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## Full Length Review Paper

# PSYCHOLOGICAL IMPACT OF IMMEDIATE BREAST RECONSTRUCTION VS NO RECONSTRUCTION AFTER MASTECTOMY: A PROSPECTIVE HOSPITAL BASED STUDY FROM A NORTH INDIAN TERTIARY CARE CENTER

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### Abstract

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**Background:** In the past decade, changing attitudes towards breast reconstruction among both patients and care providers have led a growing number of women to seek breast reconstruction after mastectomy. The present work assesses the effect of immediate breast reconstruction (IBR) and no breast reconstruction on the psychological impact of patients undergoing mastectomy.

**Materials and Methods:** Data were collected prospectively on 120 patients between 2008 and 2014. Standard questionnaires were used to determine the psychological impact suffered by patients who underwent IBR (60 patients) and no reconstruction (60 patients), their degree of satisfaction with the results achieved, and their post-procedure opinions regarding reconstruction options.

**Results:** A total of 120 women were included in the study (60 had only mastectomy and 60 had mastectomy with immediate breast reconstruction). Between two study groups age was comparable (20-50 years- mean age of 37.42 and 39.57 years in reconstruction and non reconstruction group respectively). A significantly greater proportion of the women who underwent no reconstruction suffered psychological problems (anxiety, depression, low self-esteem) than those who underwent reconstruction ( $P = 0.001$ ). Some 86.66% (52) of the women who underwent IBR maintained a post-procedure preference for this option and had positive psychological impact of IBR procedure in them, while in no reconstructive group only 20.0% (12) women had positive psychological impact. 83.66% (50) in reconstructive group had good post-reconstruction breast cosmesis, and 16.33% (10) had fair cosmesis.

**Conclusions:** The women who underwent only mastectomy suffered more emotional problems than those who underwent a reconstruction procedure. In general, all groups reported a post-procedure preference for IBR in their questionnaire answers. The aesthetic results achieved by IBR seem to be those best accepted.

**Keywords:** Mastectomy, Immediate breast reconstruction, Psychological impact, Breast Cosmesis.

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## INTRODUCTION

As the saying goes, “The ideal material to reconstruct any defect is like-tissue”. Breast cancer is one of the most common malignancy affecting women and is responsible for the huge mortality. Mastectomy remains a common surgical option for reasons related to both oncologic treatment and patient preference (Bland et al., 1998; Morris and Royle, 1987; Habermann et al., 2010). The surgical treatment of this disease involves the removal of tumor or mastectomy. Mastectomy is commonly associated with a strong emotional impact because of two reasons, the significance of the disease itself and the psychological importance of the breast. Women usually

experience a loss of femininity and self-esteem or changes in their self-perception and sexuality strong enough to alter their behavior in the family. Some women are also affected at the wider social level, including the workplace. Fortunately, today’s women need not to live her life with an anatomical deficiency and a cosmetic problem, which adversely affects her psychology and her social movement’s. Breast reconstruction and mainly immediate breast reconstruction have come to help these women who have undergone mastectomies (Georgiade et al., 1982). Breast reconstruction can help patients recover an acceptable body image and re-establish psychological equilibrium (Oiz, 2005). Reconstruction can be carried out at the time of the mastectomy [immediate breast reconstruction (IBR)] or after some months or even years have elapsed

[delayed breast reconstruction (DBR)]. In either case, reconstruction should be seen as part of the overall treatment of breast cancer, allow the construction of a breast similar in shape and texture to the patient's natural breast, and avoid the need for any form of external prosthesis. The surgical options available for breast reconstruction include the use of prosthetic implants (Ferna' ndez Delgado *et al.*, 2007) (normally a sub muscular prosthesis or a tissue expander) or autologous tissues (flaps).

During the Halstedian era, which lasted about 60 years, radical mastectomy was the treatment for carcinoma breast. In fact Halsted warned against closure of the breast wound after the surgery (Halsted, 1924). Hence attempts to reconstruct breast (process of recreating a breast mound aiming to match the remaining natural breast) after mastectomy had to wait for many years. Despite the condemnation of the reconstruction of breast, Vincent Czerny tried it for the first time in 1895 by transplanting a large lipoma of the flank to the mastectomy site, and it was reported that the patient was doing well after one year (Goldwyn *et al.*, 1978). Tansini described the use of the latissimus dorsi myocutaneous flap for the first time in 1906 for a breast reconstruction (Bostwick *et al.*, 1980). In 1942 Sir Harold Gillis of England described pedicled flap from abdomen in multiple stages for reconstructing breast (Mendelson, 1982). It was Manchots landmark work on vascular territories to develop different types of flaps including axial flap (Manchot *et al.*, 1989). The development of muscle, musculo-cutaneous, and fasciocutaneous flaps and microsurgical transplantation has had a tremendous impact on breast reconstruction. IBR appears to be less associated with anxiety and depression and seems to invest patients with a better body image and greater self-esteem (Reza *et al.*, 2005). The present study collected information from patients to try to assess the psychological impact of breast reconstruction, to assess their satisfaction with the results achieved, and to investigate their post-procedure preferences for IBR and no reconstruction. Our study project was approved by the independent ethics committee/ethical review board of the Government Medical College Srinagar and its associated SMHS Hospital Srinagar (Kashmir India).

## MATERIALS AND METHODS

The study was conducted by Plastic and Reconstructive Surgeon and General Surgeons from 2008-2014 on 120 patients prospectively in the department of General Surgery SMHS Hospital Srinagar, Kashmir, a tertiary care centre at the extreme of North India. All the patients included in this study were explained in detail about the procedure by both the Plastic and Reconstructive and General Surgeons of the department. All our patients gave their consent for the procedure (mastectomy and breast reconstruction) and subsequent publication of the work. A detailed clinical history, general physical examination, relevant systemic examination, thorough local examination and routine investigations as well as specific investigations were done in all the study patients.

The Inclusion criteria for study in both the groups were,

- Stage of disease.  
Stage I, II and IIIa patients.
- Age of the patient.

20 – 50 years of age.

- Likely anatomical deficiency after mastectomy. This especially applied to patients having good- sized breasts, which if removed would have certainly left behind an unacceptable anatomical deficiency.
- Mental make-up of patient. Reconstruction was offered to only those who had a very positive frame of mind and to those who could be brought to that state after adequate counseling.

A group of women who underwent only mastectomy during the same period were randomly selected to form a comparison group. Comparison of age was adopted in order to achieve optimal results. Before offering reconstruction option to the patient, her general health and physique was taken in to consideration. A day before the surgery, a proper plan to do the procedure was done. This was done jointly by general and plastic and reconstructive surgeons. The mastectomy site and flap site (e.g. TRAM or VRAM flap) was properly marked with a permanent marker with special emphasis on the mastectomy incision and donor site incision. Mastectomy and axillary dissection was done by general surgeon. All the specimens were sent for for histopathological examination, Estrogen, Progesterone and Her-2 receptor status. Post-mastectomy primary breast reconstruction was done with a pedicled Rectus Abdominis Myocutaneous (Transverse {TRAM} or Vertical {VRAM}) flap. In our study we used single pedicled TRAM or VRAM of ipsilateral as well as of contralateral side. After achieving complete hemostasis, drains (suction) were placed in the area of the mastectomy site, axilla and the donor site. We used to send all our patients to radiation oncology department for possible chemo-radiotherapy. Four months after the procedure, the patients used to participate in an interview involving the questionnaire, containing ten statements (Table 2). Each question was allotted "1" score for a "Yes" and "0" score for a "No". A score of "6" or more was considered an overall "positive" effect. The  $\chi^2$  test was used to compare the percentage of women showing psychological abnormalities in each treatment group and their level of satisfaction with treatment outcome. Significance was set at  $P < 0.05$ .

## RESULTS

The mean age in reconstructive group was 37.42 (range 20-50 years) with S.D of 4.69 years. Mean age in non-reconstructive group was 39.57 (range 20-50 years) with S.D of 5.84 years. The difference was statistically insignificant (p. value = 0.643). The mean hospital stay of patients in reconstructive group was 8.8 days with S.D of 1.8 days and mean hospital stay of patients in non-reconstructive group was 7.9 days with S.D of 1.6 days. The difference was statistically insignificant (p. value = 0.482). Out of 60 patients in reconstructive group, 52 patients (86.6 %) had a positive psychological impact of the surgery on them, and 8 patients (13.3 %) had negative psychological impact of the surgery. In non-reconstructive group, out of 60 patients, 48 patients (80 %) had negative impact of surgery on them, and 12 patients (20 %) had positive impact of surgery on them (Table1). The difference was statistically significant (p.value = 0.001). The psychological effects of the procedure were evaluated with the help of a questionnaire containing ten

statements (Table 2). Each question was allotted “1” score for a “Yes” and “0” score for a “No”.

age in non-reconstructive group was 39.57 (range 20-50 years) with S.D of 5.84 years.

**Table 1. Psychological impact on patients life**

Psychological Impact	with Reconstruction		Without Reconstruction		Total		P.Value
	n	%	n	%	n	%	
Positive	52	86.6 %	12	20.0 %	64	53.3 %	= 0.001
Negative	8	13.3 %	48	80.0 %	56	46.6 %	

**Table 2. Questionnaire to assess psychological effects of the procedure**

Statements	Scores	
Feel whole.	Yes ( 1 )	No ( 0 )
Feel normal.	Yes ( 1 )	No ( 0 )
Feel balanced / Symmetrical.	Yes ( 1 )	No ( 0 )
Feel feminine.	Yes ( 1 )	No ( 0 )
Satisfied with appearance.	Yes ( 1 )	No ( 0 )
Can wear all types of clothes.	Yes ( 1 )	No ( 0 )
Presence of anxiety, depression.	Yes ( 1 )	No ( 0 )
Normal social interaction.	Yes ( 1 )	No ( 0 )
Satisfied with feel of reconstructed breast.	Yes ( 1 )	No ( 0 )
Decreased thoughts of cancer.	Yes ( 1 )	No ( 0 )
Overall psychological effect.	Positive if => 6	

**Table 3. Winchester and Cox scoring system for post-reconstruction breast cosmesis**

Findings ( Winchester & Cox ).	Cosmesis
Treated breast almost identical to untreated breast.	Excellent
Minimal difference between treated & untreated breast.	Good
Obvious difference between treated & untreated breast.	Fair
Major functional & aesthetic sequelae in treated breast.	Poor

A score of “6” or more was considered an overall “positive” effect. In the reconstructive group, out of 60 patients, 50 patients (83.33%) had good post-reconstruction breast cosmesis, and 10 patients (16.66%) had fair post-reconstruction breast cosmesis. Patients were assessed according to Winchester and Cox scoring system for post-reconstruction breast cosmesis (Table 3). Our patients were reluctant to second operation for reconstruction of nipple-areola complex, that is the reason for not having excellent cosmesis. Out of 60 patients in reconstructive group, 8 patients (13.3%) had skin flap complications, in the form of partial flap failure (2 patients) and superficial skin necrosis (6 patients). In reconstructive group, all patients underwent IBR (immediate breast reconstruction). 40 patients (66.66 %) had undergone TRAM (Transverse Rectus Abdominis Myocutaneous) flap and 20 patients (33.33%) had undergone VRAM (Vertical Rectus Abdominis Myocutaneous) flap reconstruction.

## DISCUSSION

The present study was conducted in the department of general surgery in SMHS hospital of Government Medical College Srinagar Kashmir-a tertiary care center at the extreme of North India. A total of 120 cases were included prospectively in the study. Skin-Sparing Mastectomy (SSM) has afforded plastic surgeons an unparalleled opportunity to reconstruct a life-like breast ensuring simultaneously a complete removal of the tumor bearing tissue (Veronesi *et al.*, 1990; Schain *et al.*, 1985; Noone *et al.*, 1982). In this series only those patients were included who could fulfill the inclusion criteria. These strict criteria were adopted so as to minimize peri-operative morbidity and achieve optimal results for the different techniques employed. The mean age in reconstructive group was 37.42. (range 20-50 years) with S.D of 4.69 years. Mean

The difference was statistically insignificant (p.value = 0.643). The mean hospital stay of patients in reconstructive group was 8.8 days with S.D of 1.8 days, and mean hospital stay of patients in non-reconstructive group was 7.9 days with S.D of 1.6 days. Similar results were observed by L. Franklyn Elliott *et al* (Franklyn Elliott *et al.*, 1993). In their study, they found hospital stay ranging between 6-9 days. Since 1952, when Renneker and Culter (Renneker and Culter, 1952) first described the dual emotional trauma of mastectomy (Psychological reactions of both the breast loss and the diagnosis of cancer), it has been clear that psychological reactions of despair, depression, decreased self-esteem, diminished sexuality and loss of feeling of femininity are related more to the loss of breast than the anxieties about the cancer. The immediate reconstruction also seems to eliminate the need to grieve and adjust to a loss. Laurie A. Stevens, *et al.* (Laurie and Stevens, *et al.*, 1983) did a study in 1983 on 25 patients. Data were elicited about the psychological impact of the cancer, the mastectomy, and the reconstruction.

It was concluded that immediate breast reconstruction is accompanied by a lower incidence of psychological morbidity post-operatively, and they recommended that immediate breast reconstruction be offered as an alternative to women with early breast cancer. In our study, among reconstructive group, 52 (86.66 %) patients had a good psychological impact of the surgery. In non-reconstructive group, out of 60 patients only 12 (20 %) patients had good psychological impact of surgery. When compared, the difference was statistically significant (p value = 0.001). Al Ghazal *et al.* (Al-Ghazal *et al.*, 2000) in 2000 in England, reported that among a total of 121 patients who underwent different types of breast reconstruction, were assessed for anxiety, depression, body image, self esteem, sexuality and satisfaction. 95% of patients who underwent

breast reconstruction preferred the technique and 76 % of the patients in delayed reconstruction group would have preferred the immediate reconstruction.



Defect after mastectomy. And TRAM flap site



TRAM flap transposed to mastectomy site



Immediate post-operative picture



After 1 week of reconstruction



After 3 months of reconstruction



After 1 year of reconstruction



After 5 years of reconstruction

In our study, in reconstructive group, the patients were assessed for post-reconstruction breast cosmesis. Patients were assessed according to Winchester and Cox scoring system for post-reconstruction cosmesis. In our study out of 60 patients in reconstructive group, 50 (83.33%) patients had good cosmesis, and 10 (16.66%) patients had fair cosmesis. Mamoon Rashid et al. (Mamoon Rashid *et al.*, 2005) in their study of skin-sparing mastectomy and immediate breast reconstruction had excellent aesthetic restoration in 82% of patients, good restoration in 3.5% of patients and fair in 14% of patients. Excellent restoration actually depends on the reconstruction of nipple-areola complex. In our study patients were reluctant for nipple-areola reconstruction, because they did not want to undergo one more surgery. Surgical complications of skin-sparing mastectomy have been reviewed in previous studies. Skin flap complications remain the special concern as

they are specific to this operation and may threaten the success of the breast reconstruction. The skin flap complication rates described by Slavin and colleagues (Slavin *et al.*, 1998) (21.6%) and Carlson and co-workers (Hartrampf *et al.*, 1982) (10.7%) were comparable with those in the present study (13.3%).

## Conclusion

The use of mastectomy in conjunction with immediate breast reconstruction (IBR) is a team effort that requires close cooperation between the general surgeon and plastic and reconstructive surgeon. Observing our patients undergoing simultaneous mastectomy and breast reconstruction, we developed an impression that whole-life attitudinal differences were present in these women compared with those who had been subjected to simple mastectomy without reconstruction. The things which were seen in the follow-up of these patients were post-operative depression, lowered self-esteem, concerns about the cancer, and impaired sexual, social and occupational functioning. We believe that the use of mastectomy with immediate breast reconstruction (IBR) has improved our breast reconstruction outcomes and has thereby enhanced the quality of life of our patients. So reconstruction of post mastectomy breast should be undertaken whenever possible preferably IBR. Our preliminary results with this study and technique have been encouraging and further studies are warranted before it is accepted as standard of care.

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