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Original Research Article

Assessment of Satisfaction Level and Quality of Life in Patients Undergoing Oncoplastic Breast Surgery

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ABSTRACT

Introduction: Benign and malignant diseases of the breast are surgically dealt often with the solitary aim of complete disease removal with little concern to the cosmesis of the breast and subsequent psychological morbidity following tumor surgery. A concept of Oncoplastic Breast Surgery (OBS) has thus emerged as a new generation subspecialty, which utilizes the intelligent and simultaneous use of, oncological and plastic surgical principles ensuring complete disease removal with acceptable cosmesis.
Aim: To assesses the satisfaction level and quality of life (QOL) of the patients after OBS for either benign or malignant breast disease.
Sample: Total 46 patients (19- Operable benign breast lumps (OBBL); 12- Carcinoma breast with OBS; 15- Carcinoma breast without OBS) at CSM Medical University, Lucknow, from August 2006-July 2007. A tool utilizing EORTC-QOL C-30 and 5-points Likert scale was used to assess the four basic aspects of quality of life (Physical, Social, Emotional and Functional).
Observation: This prospective case series analysis of only one-year follow-up of 46 patients has precluded any hard statistical analysis. Perception of body deformity, shape and symmetry of the breasts, sexual life, self-confidence, feminity and functional QOL were rated significantly lower by the patients without OBS than the patients who underwent OBS. Further studies are however required to gain higher level of evidence and expertise in oncoplastic breast surgery. Nevertheless, it can be said that concept of oncoplastic breast surgery is very appealing one and it has a high scope for wider applicability in India.

Key words: Oncoplastic Breast Surgery, Breast Cancer, Quality of life issues.

INTRODUCTION

Forms, contour, shape and functioning of the breasts have a profound psychosocial and sexual impact in women, but only few surgeons take into account of conserving form and function of breast while treating a breast disorder surgically. The primary aim of the surgeon, especially in the presence of cancerous lesions is to get rid of the disease disregarding the psychological morbidity that may lead to on account of altered shape, disfigurement and function. More recently however a new crop of surgeons have evolved the concept of "Oncoplastic Breast Surgery" which brings together the basic principles of plastic surgery and surgical oncology, to cure the patients without disturbing or minimally disturbing the normal anatomy of breast or else if a large amount of breast tissue is to be sacrificed it is replaced or reconstructed

by some structures such that it simulates the normal looking breast.

Oncoplastic breast surgery has emerged out as a new generation philosophy in recent years. It exclude the surgeries which are performed purely for cosmetic purposes on a previously normal breasts e.g. augmentation or reduction mammoplasty where only the plastic surgical principles are considered with no onus to treat a disease in the breast. It also excludes the purely oncological surgeries where the emphasis is only on the complete removal of disease and cosmetic outcome is considered secondary or unnecessary for the patient. Also, it may be prudent to mention that the 'breast reconstruction surgery' is a type of oncoplastic breast surgery, which employs different techniques to create a breast mound that closely matches the shape, size and feel of the breast that is removed.

However, to define, Oncoplastic Breast Surgery refers to *"several such surgical techniques that utilize the intelligent use of oncological and plastic surgical principles at the same time in order to maximally benefit the patient by ensuring complete disease removal with acceptable cosmesis and function".*

Oncoplastic breast surgery comprises of four basic components [1] viz. planning of skin incision and parenchymal excision; reshaping of gland after parenchymal excision; reshaping of nipple-areola complex to the center of new breast mound and correction of contralateral breast to improve symmetry.

Scope of oncoplastic breast surgery in India cannot be underestimated. Most of the Indian population lives in areas where the super-specialty facility is not easily accessible. Thus general surgeons who need to have a basic knowledge of oncoplastic breast surgery for improved patient satisfaction deal most of the breast disorders. Surgeons can do oncoplastic breast surgery without formal training in plastic surgery but with additional help and conceptual thinking. The approach is technically achievable with relative ease with forethought and planning with desirable surgical results. Once the surgeons begin to adopt these procedures, they will find modifications and approaches that can be adapted to unique situations, the ultimate goal of which is to improve the care of the patient and increased satisfaction for the surgeons and the patients.

Many studies [2,3] have been conducted from time to time comparing the satisfaction and quality of life of the patients undergoing either of the breast surgical procedure and also with normal population but unfortunately all these studies are conducted in the developed nations where, the circumstances are entirely different from a developing country like India. Thus broad based studies regarding the quality of life of patients following the oncoplastic breast surgery need to be conducted in India. This study is among the initial steps in this direction.

Aims and Objectives

To Study the technological advances and fundamental requirements of oncoplastic breast surgery and the applicability and feasibility of breast reconstruction in Indian setup; to collect objective and subjective data in a case series during the period of study where oncoplastic breast surgical principles were used; to assess the satisfaction level and the QOL of the patient after an oncoplastic breast surgery, either due to a benign or malignant breast disease.

MATERIALS AND METHODS

Sampling source and patient selection

The current study was undertaken in the department of general surgery and plastic surgery at the King George`s Medical University, Lucknow, India. All the patients who underwent surgery for the benign or the malignant breast lumps were taken into the study. **Study type:** Case series analysis- longitudinal data. Sample consisted of 46 patients who were broadly grouped into cancer breast without OBS, cancer breast with OBS, and operable benign breast lumps (OBBL). A highly

structured tool was designed using EORTC-QOL C-30 based on 5 points Likert scale [4] ranging from total disagreement to total agreement.

1=not at all; 2=a little bit; 3 = somewhat; 4=quiet a bit; 5 = very much

A matrix of questions was generated from invoking tearoom focus group discussion in Department of Surgery at Lucknow on various aspects of quality of life (physical, social, emotional and functional). Each aspect was evaluated using 5 items, which were asked in pre-operative, immediate post-operative (1-4 weeks), early post-operative (1-3 months) and late post-operative period (3-12 months). The satisfaction scores of the close relative, the operating surgeon and a peer surgeon were also assessed. Besides the structured questions as shown in annexure, open-ended opinions of the respondents were also taken. All the questions were framed in such a manner that higher scores reflect better quality of life and satisfaction. Some of the questions were deliberately duplicated to test the internal consistency. A pilot study was also done among group of 5 patients for face validity, content validity and reliability. In addition to this the detailed account of the pre-operative evaluation of the patient and the intervention done was also noted.

Methods

Each patient was explained in detail about the whole range of oncoplastic options and that the surgery is meant to reduce the deformity and improve the aesthetic outcome of an ablative surgery without any compromise in disease removal and with no added extra risk or cost to the patient. In operable benign breast lumps Incision designs used in patients with fibroadenoma were either circumareolar or curvilinear along the lateral or inferior mammary folds, depending upon the location, size and number of the tumors, and the tumour was excised via retromammary approach. Two patients with operable breast cancer were treated with skin and nipple-areola sparing mastectomy using a curvilinear incision along the lateral mammary fold and placing a permanent textured saline filled implant in the subcutaneous space under strict aseptic conditions. Axillary clearances were done with separate incisions. Three patients with locally advanced breast cancer were treated with Patey's mastectomy and immediate breast reconstruction using ipsilateral transverse rectus abdominis myocutaneous pedicle flap. The abdominal wall defects were strengthened with prolene mesh. In another patient with locally advanced breast cancer, Patey's mastectomy was done followed by immediate latissimus dorsi flap reconstruction. In six patients with early breast cancer breast conserving surgery using a wide margin parallelogram incision with fish tailing given around the tumour, a full thickness excision of tumour and axillary dissection with volume displacement of surrounding tissue was done to fill the defect. Preoperative and post-operative assessments of patient's satisfaction were carried out on 5-point Likert scale and the results were obtained using SPSS techniques. The analysis was done using preoperative assessment, planning, operative execution, results of cosmetic and functional outcome, photographic assessment and subjective assessment of the satisfaction and the quality of life of the not only the patients and their relatives but also critical evaluation of the operating surgeon and the peer surgeon was also taken into account.

For the purpose of analysis, a comparison of carcinoma breast patients who did not undergo oncoplastic breast surgery (OBS) has been made with those who underwent OBS, while the data obtained from patients with operable benign breast lumps (OBBL) have been analyzed separately.

OBSERVATIONS AND RESULTS

In the study, out of 27 patients with breast cancer, 12 patients underwent either of the oncoplastic breast procedure, whereas

15 patients had modified radical mastectomy alone. Their age ranged from 27 years to 70 years with a mean age of 44.27±11.67 years for carcinoma breast without OBS and 40.75±8.31year for patients with OBS (p=0.388). Patients with upper social class managed to get OBS more frequently with 75% of patients undergoing OBS belonged to upper and upper middle class. Patients with higher socioeconomic status (SES), higher education and occupation had been found to have higher chances for opting OBS. A statistically significant (χ^2=9.603 (df= 4), p=0.048) difference was noted between socioeconomic status and the educational status of the two groups. All the patients in the study were married. Similarly all the patients had invasive ductal carcinoma in different stages. Patients with tumor size Tx T4 & T3 with lymph nodes N1 N2 or N3 were clubbed as advanced breast carcinoma and patients with tumor size T1 T2 and lymph nodes N0 N1 were clubbed as early breast cancer. None of the patients had metastatic disease. We found a trend towards not opting breast reconstruction in patients with advanced breast cancer.

Out of 27 patients of carcinoma breast, modified radical mastectomy (MRM) was done in 19 patients, super lateral quadrantectomy was done in 6 patients and skin and nipple areola sparing mastectomy was done in 2 patients. All reconstructions were done along with mastectomy. One patient with MRM had latissimus dorsi myocutaneous (LD) flap and 3 patients had transverse rectus abdominis myocutaneous (TRAM) flap reconstruction. 2 patients with skin and nipple areola sparing mastectomy (SSM) had subcutaneous permanent saline implant placement and 6 patients with super lateral quadrantectomy (SLQ) had utilized the principle of reduction mammoplasty with volume displacement. All patients received adjuvant chemotherapy. In addition 6 patients with advanced breast cancer received neo-adjuvant chemotherapy and no reconstructive procedure was done in these patients. All patients with breast conserving therapy (BCT) received adjuvant radiotherapy.

Table 1: Types of Oncological Plastic Procedures Done

Procedure Done (n=27)	Numbers
Modified Radical Mastectomy	15
Modified Radical Mastectomy with LD flap reconstruction	1
Modified Radical Mastectomy with TRAM flap Reconstruction	3
Skin and Nipple areola sparing mastectomy with Subcutaneous permanent saline implant	2
Superolateral Quadrantectomy with reduction mammoplasty and volume displacement	6

Post operatively four patients without OBS developed marginal flap necrosis whereas among patients with OBS one patient developed marginal flap necrosis, one patient developed hematoma, one patient developed Seroma, one patient with TRAM flap reconstruction developed hypertrophied abdominal scar. None of the patient developed recurrence during the period of follow up.

In the view of the demographic profile discussed above, on comparing the physical quality of life (Table 2) it was found that following cancer removal, there was significant improvement in satisfaction levels of the patients, but the patients without OBS were no longer satisfied with the deformity left especially when they saw themselves topless in front of mirror, they significantly responded that they have distorted body image, on the contrary the patients with OBS were much satisfied with the contour and symmetry of their breast and their satisfaction scores increased with the passage of time.

On comparing the social QOL (Table 3), it was found that all the patients who were brought to the hospital for treatment, got full support from their family and spouse and they were well accepted in society, but during intimate moments the patients without OBS felt themselves incomplete, hesitant and less confident. Their sexual drive decreased markedly and felt inferiority complex while undressing themselves. Most of them felt that owing to their disfigurement, their partners don't

initiate as they did earlier. Similarly their spouse, also affirmed that their sexual life is not like before, as they don't want to put undue stress on there already suffering wives. In contrast patients with OBS were more confident during intimate moments with their partners and with passage of time, their postoperative mean satisfaction score reached nearly to their pre-illness levels. The satisfaction levels of the patients with breast implants and BCT were betters than autologous tissue breast reconstruction.

Table 2: Comparison of Physical Quality of Life in Cases of Carcinoma Breast with and without OBS

Items	Satisfaction Scores (Mean±SD)							
	CA Breast without OBS (n=15)				CA breast with OBS (n=12)			
	Patient	Next of Kin	Surgeon 1	Surgeon 2	Patient	Next of Kin	Surgeon 1	Surgeon 2
Lack of Energy								
Preoperative	3.200± 1.265	3.600± 1.242	3.133± 1.302	3.133± 1.302	2.000± 1.477*	2.417± 1.311*	2.750 ±1.055	2.833± 1.030
Immediate Post operative	3.400± 1.056	3.733± 0.961	3.533± 0.915	3.533± 0.915	3.167± 1.267	3.333± 1.231	3.167± 1.030*	3.273± 1.104
Early post operative	4.111± 1.054	4.111± 1.054	4.111± 1.054	4.111± 1.054	4.400± 0.516	4.400± 0.516	4.500± 0.527	4.500± 0.527
Late Post operative	4.000± 1.000	4.000± 1.000	4.000± 1.000	4.000± 1.000	4.667± 0.516	4.667± 0.516	4.667± 0.516	4.667± 0.516
Feeling of pain								
Preoperative	4.333± 0.900	4.467± 0.915	4.133± 0.915	4.133± 0.915	4.083± 1.564	4.083± 1.676	4.167± 1.030	4.083± 0.996
Immediate Post operative	3.267± 1.223	3.333± 1.345	3.400± 1.056	3.400± 1.056	3.583± 0.900	3.250± 1.055	3.750± 0.622*	3.636± 0.924
Early post operative	4.222± 1.202	4.222± 1.202	4.333± 1.000	4.333± 1.000	4.400± 0.516	4.400± 0.516	4.500± 0.527	4.500± 0.527
Late Post operative	5.000± 0.000	5.000± 0.000	5.000± 0.000	5.000± 0.000	4.667± 0.516	4.667± 0.516	4.667± 0.516	4.667± 0.516
Stay in bed								
Preoperative	3.600± 1.121	3.867± 1.246	3.533± 1.125	3.667± 1.113	2.583± 1.505	2.750± 1.357*	3.167± 0.937	3.083± 0.996
Immediate Post operative	3.533± 0.990	3.667± 1.047	3.733± 0.884	3.800± 0.941	3.167± 1.193	3.250± 1.138	3.500± 1.087	3.818± 0.751
Early post operative	4.000± 1.000	4.000± 1.000	4.222± 0.833	4.222± 0.833	4.800± 0.422*	4.600± 0.843	4.700± 0.675	4.800± 0.422
Late Post operative	4.200± 0.837	4.200± 0.837	4.200± 0.837	4.200± 0.837	4.667± 0.516	4.500± 0.837	4.667± 0.516	4.667± 0.516
Distorted Body Image								
Preoperative	2.867± 1.187	3.133± 1.125	3.000± 1.414	3.133± 1.457	1.917± 1.240	2.250± 1.138	3.500± 1.087	3.417± 1.165
Immediate Post operative	2.000± 1.134	2.533± 1.407	2.133± 1.302	1.933± 1.387	3.167± 0.718*	3.083± 0.900	3.250± 0.754	3.182± 0.751*
Early post operative	1.444± 0.726	1.444± 0.726	1.222± 0.667	1.222± 0.667	4.100± 0.316*	3.900± 0.568*	3.800± 0.632*	3.900± 0.738*
Late Post operative	1.200± 0.447	1.200± 0.447	1.000± 0.000	1.000± 0.000	4.167± 0.408*	4.000± 0.632*	3.833± 0.753*	4.000± 0.632*
Inadequate Shape and Symmetry								
Preoperative	2.733± 1.438	3.200± 1.146	3.267± 1.580	3.267± 1.580	1.917± 1.240	2.083± 1.165*	3.667± 1.155	3.667± 1.155
Immediate Post operative	1.800± 1.373	2.333± 1.496	1.867± 1.246	1.800± 1.207	3.083± 0.669*	3.083± 0.793	3.250± 0.754	3.182± 0.751*
Early post operative	1.222± 0.441	1.222± 0.441	1.000± 0.000	1.000± 0.000	4.000± 0.471*	4.000± 0.471*	3.700± 0.483*	3.700± 0.483*
Late Post operative	1.000± 0.000	1.000± 0.000	1.000± 0.000	1.000± 0.000	4.167± 0.408*	4.167± 0.408*	3.833± 0.753*	3.833± 0.753*

Table 3: Comparison of Social Quality of Life in Cases of Carcinoma Breast with and without OBS

Items	Satisfaction Scores (Mean±SD)			
	CA Breast without OBS (n=15)		CA breast with OBS (n=12)	
	Patient	Next of Kin	Patient	Next of Kin
Support from friends & family				
Preoperative	5.000± 0.000	5.000±0.000	5.000± 0.000	5.000±0.000
Immediate Post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Early post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Late Post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Acceptance of illness by family				
Preoperative	5.000± 0.000	5.000±0.000	5.000± 0.000	5.000±0.000
Immediate Post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Early post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Late Post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Support from Spouse				
Preoperative	5.000± 0.000	5.000±0.000	5.000± 0.000	5.000±0.000
Immediate Post operative	5.000±0.000	4.923±0.277	5.000±0.000	5.000±0.000
Early post operative	5.000±0.000	4.875±0.354	5.000±0.000	5.000±0.000
Late Post operative	5.000±0.000	5.000±0.000	5.000±0.000	5.000±0.000
Partner satisfied with current sex life				
Preoperative	3.923± 0.641	3.846±0.987	4.333± 0.651	4.333±0.778
Immediate Post operative	3.692±0.751	3.692±0.947	4.833±0.389*	4.750±0.452*
Early post operative	3.000±1.309	3.125±1.246	4.900±0.316*	4.900±0.316*
Late Post operative	3.600±0.548	3.400±0.548	5.000±0.000*	5.000±0.000*
Acceptance at Social gatherings				
Preoperative	4.800± 0.414	4.800±0.414	5.000± 0.000	5.000±0.000
Immediate Post operative	4.667±0.488	4.667±0.488	5.000±0.000*	5.000±0.000*
Early post operative	4.556±0.527	4.667±0.500	5.000±0.000*	5.000±0.000*
Late Post operative	4.600±0.548	4.600±0.548	5.000±0.000	5.000±0.000

Pertaining to emotional QOL (Table 4), both the categories of patients were preoperatively somewhat worried and hopeless but following treatment, their worry decreased and hope increased but there was always a sigh present among patients without OBS about losing their breast and subsequent disfigurement Whereas patients with OBS were found to be more satisfied and hopeful with the disease removal as well as the preservation of form and contour of the body.

Table 4: Comparison of Emotional Quality of Life in Cases of Carcinoma Breast with and without OBS

Items	Satisfaction Scores (Mean±SD)			
	CA Breast without OBS (n=15)		CA breast with OBS (n=12)	
	Patient	Next of Kin	Patient	Next of Kin
Hopelessness				
Preoperative	3.533±1.246	3.867±1.187	3.167±1.403	3.333±1.371
Immediate Post operative	4.000±1.000	4.000±1.134	4.667±0.778	4.667±0.778
Early post operative	4.333±0.866	4.333±0.866	4.900±0.316	4.900±0.316
Late Post operative	4.000±1.414	4.000±1.414	4.833±0.408	4.833±0.408
Worry about death				
Preoperative	3.533±1.187	3.867±1.060	3.917±1.564	4.583±0.793
Immediate Post operative	4.200±0.862	4.267±0.961	4.833±0.389*	5.000±0.000*
Early post operative	3.889±1.764	3.889±1.764	5.000±0.000	5.000±0.000
Late Post operative	4.000±1.414	4.400±1.342	5.000±0.000	5.000±0.000
Worry about condition getting worse				
Preoperative	1.600±0.986	2.067±1.335	1.833±1.267	1.667±1.303
Immediate Post operative	2.600±1.352	3.133±1.302	3.667±0.651*	3.167±1.193
Early post operative	4.000±1.000	4.000±1.000	4.800±0.422*	4.800±0.422*
Late Post operative	4.200±1.304	4.200±1.304	4.667±0.516	4.667±0.516
Ability to feel like woman				
Preoperative	4.133±1.187	4.333±0.816	3.833±1.030	3.917±0.996
Immediate Post operative	3.600±1.298	3.933±1.033	4.583±0.515*	4.583±0.515
Early post operative	3.667±1.225	3.778±1.302	4.900±0.316*	4.900±0.316*
Late Post operative	3.800±1.304	3.800±1.304	4.833±0.408	4.833±0.408
Acceptance of illness				
Preoperative	4.067±0.704	4.200±0.862	3.833±1.528	4.167±1.267
Immediate Post operative	4.200±0.862	4.533±0.640	4.083±1.564	4.083±1.564
Early post operative	4.222±0.972	3.778±1.716	4.900±0.316	4.900±0.316
Late Post operative	4.400±0.894	4.400±0.894	4.833±0.408	4.833±0.408

Table 5: Comparison of Functional Quality of Life in Cases of Carcinoma Breast with and without OBS

Items	Satisfaction Scores (Mean±SD)			
	CA Breast without OBS (n=15)		CA breast with OBS (n=12)	
	Patient	Next of Kin	Patient	Next of Kin
Ability to work at home/office				
Preoperative	3.800±1.207	4.067±0.799	3.000±1.044	3.000±1.044*
Immediate Post operative	3.600±1.121	3.933±0.704	3.417±0.996	3.417±0.996
Early post operative	3.333±1.581	3.333±1.581	4.800±0.422*	4.800±0.422*
Late Post operative	3.800±1.789	3.800±1.789	4.833±0.408	4.833±0.408
Ability to Sleep well				
Preoperative	4.000±1.000	4.133±1.060	3.667±1.557	3.667±1.557
Immediate Post operative	3.933±0.884	4.133±0.834	4.167±1.193	4.250±1.055
Early post operative	3.556±1.333	3.778±1.302	4.900±0.316*	4.900±0.316*
Late Post operative	4.400±0.894	4.400±0.894	4.833±0.408	4.833±0.408
Enjoying amusing things				
Preoperative	3.133±1.187	3.533±1.060	3.250±1.545	3.000±1.477
Immediate Post operative	3.333±1.397	3.733±1.163	3.750±1.422	3.833±1.337
Early post operative	3.111±1.691	3.111±1.691	4.900±0.316*	4.900±0.316*
Late Post operative	3.800±1.643	3.800±1.643	4.833±0.408	4.833±0.408
Can wear any clothes				
Preoperative	4.400±1.056	4.467±1.060	2.917±1.443*	3.750±1.357
Immediate Post operative	3.200±1.521	3.200±1.521	2.833±1.115	2.833±1.115
Early post operative	3.444±1.509	3.444±1.509	4.500±0.527	4.500±0.527
Late Post operative	4.000±1.414	4.000±1.414	4.667±0.516	4.667±0.516
Ability to breastfeed[@]				
Preoperative	–	–	–	–
Immediate Post operative	–	–	–	–
Early post operative	–	–	–	–
Late Post operative	–	–	–	–

Table 6: Comparison of Change in Physical Quality of Life following Treatment among patients of Operable Benign Breast Lump

Item	Change in Satisfaction Scores (Mean±SD)								
	Baseline vs Imm. Post-op. (n=19)			Baseline vs Early Post-op. (n=17)			Baseline vs Late Post-op. (n=14)		
	Change	"t"	"p"	Change	"t"	"p"	Change	"t"	"p"
Patient									
Lack of energy	1.000±1.155	3.775	0.001	1.647±1.618	4.197	0.001	1.714±1.541	4.163	0.001
Feeling of pain	0.737±1.147	2.800	0.012	1.353±1.320	4.226	0.001	1.357±1.277	3.975	0.002
Stay in bed	0.947±1.353	3.052	0.007	1.412±1.583	3.676	0.002	1.286±1.437	3.347	0.005
Distorted body image	1.579±1.170	5.883	0.000	2.235±1.437	6.412	0.000	2.286±1.590	5.380	0.000
Inadequate shape and symmetry	1.368±1.535	3.885	0.001	2.353±1.320	7.349	0.000	2.357±1.550	5.692	0.000
Next kin									
Lack of energy	1.053±1.224	3.750	0.001	1.647±1.656	4.101	0.001	1.714±1.541	4.163	0.001
Feeling of pain	0.632±1.383	1.991	0.062	1.353±1.320	4.226	0.001	1.214±1.311	3.465	0.004
Stay in bed	1.105±1.370	3.516	0.002	1.412±1.698	3.429	0.003	1.357±1.550	3.277	0.006
Distorted body image	1.211±1.398	3.776	0.001	1.824±1.334	5.636	0.000	1.929±1.774	4.067	0.001
Inadequate shape and symmetry	0.842±1.979	1.854	0.080	1.824±1.629	4.615	0.000	1.929±1.685	4.281	0.001
Surgeon 1									
Lack of energy	0.895±1.197	3.258	0.004	1.588±1.583	4.136	0.001	1.500±1.557	3.606	0.003
Feeling of pain	0.737±0.872	3.684	0.002	1.294±1.160	4.600	0.000	1.143±1.167	3.663	0.003
Stay in bed	1.000±1.202	3.627	0.002	1.000±1.837	2.244	0.039	1.071±1.542	2.599	0.022
Distorted body image	0.632±1.212	2.272	0.036	1.588±1.460	4.484	0.000	1.643±1.737	3.539	0.004
Inadequate shape and symmetry	0.632±1.165	2.364	0.030	1.647±1.320	5.144	0.000	1.643±1.598	3.846	0.002
Surgeon 2									
Lack of energy	0.895±1.100	3.545	0.002	1.529±1.505	4.190	0.001	1.429±1.453	3.680	0.003
Feeling of pain	0.737±0.933	3.441	0.003	1.294±1.312	4.068	0.001	1.143±1.351	3.166	0.007
Stay in bed	1.105±1.243	3.877	0.001	1.059±1.886	2.314	0.034	1.071±1.639	2.446	0.029
Distorted body image	0.526±1.467	1.564	0.135	1.588±1.460	4.484	0.000	1.571±1.828	3.217	0.007
Inadequate shape and symmetry	0.526±1.349	1.701	0.106	1.529±1.328	4.747	0.000	1.571±1.697	3.465	0.004

The functional QOL of patients with OBS was found to be more satisfactory than their counterparts with MRM alone (Table 5). Patients with OBS were well relaxed and enjoyable. They were less choosy in the dresses; they were easy wearing the low cut blouses whereas those patients without breast reconstruction tend to hide their chest by over clothing it. None of the respondent was lactating, so this function could not be commented upon.

Similarly, total 19 patients of operable benign breast disorders were studied. All the patients in the study were young with mean age of 23.26±6.71 years and most of them had good socioeconomic status, 10 patients in the study were graduate. 14 patients in the study were unmarried. Depending upon the type of the lesion, the relevant oncoplastic procedure was planned and executed and the satisfaction levels in the form of QOL assessed. In eight patients with OBBL Galliard-Thomas approach along inferior and lateral mammary folds were used, in seven patients circumareolar incision and in four patients incision directly over the lump was given. Post operatively two cases had recurrence, one patient had hematoma and one patient had seroma. One patient who was lactating developed galactocele following tumor excision. None had nipple and areolar deformity.

Table 7: Social Quality of Life in Cases of Operable Benign Breast Lump at different time intervals

Items	Satisfaction Scores (Mean±SD_	
	Patient	Next of Kin
Support from friends & family		
Preoperative (n=19)	5.000±0.000	5.000±0.000
Immediate Post-operative (n=19)	5.000±0.000	5.000±0.000
Early Post Operative (n=17)	5.000±0.000	5.000±0.000
Late Post Operative (n=14)	5.000±0.000	5.000±0.000
Acceptance of Illness by family		
Preoperative (n=19)	5.000±0.000	5.000±0.000
Immediate Post-operative (n=19)	5.000±0.000	5.000±0.000
Early Post Operative (n=17)	5.000±0.000	5.000±0.000
Late Post Operative (n=14)	5.000±0.000	5.000±0.000
Support from Spouse		
Preoperative (n=19)	5.000±0.000	5.000±0.000
Immediate Post-operative (n=19)	5.000±0.000	5.000±0.000
Early Post Operative (n=17)	5.000±0.000	5.000±0.000
Late Post Operative (n=14)	5.000±0.000	5.000±0.000
Partner satisfied with current sex life*		
Preoperative (n=19)	4.200±0.447	4.200±0.447
Immediate Post-operative (n=19)	4.400±0.548	4.400±0.548
Early Post Operative (n=17)	5.000±0.000	5.000±0.000
Late Post Operative (n=14)	5.000±0.000	5.000±0.000
Acceptance at social gatherings		
Preoperative (n=19)	4.737±0.933	4.737±0.933
Immediate Post-operative (n=19)	4.789±0.918	4.789±0.918
Early Post Operative (n=17)	4.765±0.970	4.765±0.970
Late Post Operative (n=14)	4.733±1.033	4.714±1.069

Though the condition was benign, it distressed the patient due to bumpiness and

perception of deformity, which was reflected in their physical activities. Following oncoplastic breast surgery there was marked improvement in physical QOL of the patient (Table 6). Patients were more satisfied with the soft feel and shape of the breast with minimal and imperceptible scarring.

Social QOL of these patients was quiet good both preoperatively and postoperatively. There was no significant change in the level of satisfaction of these patients. (Table 7)

The emotional quality of life was significantly improved in patients following OBS (Table 8). It was seen that as the time passed and their wound healed their worry subsided and their confidence and feminity boosted-up. They become more cheerful and shared their problems more openly.

It was also seen that following OBS, their work efficiency increased markedly, they slept soundly, enjoyed lively and didn't hesitate in wearing modern dresses they liked. Only one respondent was lactating in this study. She developed galactocele following lump excision, which considerably hampered her breast-feeding function.

The inter-observer variations among the patient, kin, operating surgeon and the peer surgeon were not significant and they all agreed with the above observations.

Table 8: Comparison of Change in Emotional Quality of Life following Treatment among patients of Operable Benign Breast Lump

Items	Change in Satisfaction Scores (Mean±SD)								
	Baseline vs Imm. Post-op. (n=19)			Baseline vs Early Post-op. (n=17)			Baseline vs Late Post-op. (n=14)		
	Change	"t"	"p"	Change	"t"	"p"	Change	"t"	"p"
Patient									
Hopelessness	0.105±1.410	0.325	0.749	0.294±1.611	0.753	0.463	0.143±1.610	0.332	0.745
Worry about death	-0.105±1.410	0.325	0.749	-0.235±1.715	0.566	0.579	-0.286±1.899	0.563	0.583
Worry about worst condition	1.737±1.593	4.752	0.000	2.412±1.839	5.407	0.000	2.357±1.946	4.533	0.001
Ability to feel like woman	2.421±1.305	8.090	0.000	1.588±1.372	4.773	0.000	1.571±1.505	3.908	0.002
Acceptance of illness	0.421±0.838	2.191	0.042	0.588±1.121	2.163	0.046	0.714±1.204	2.219	0.045
Next kin									
Hopelessness	0.211±1.548	0.593	0.561	0.412±1.734	0.979	0.342	0.286±1.773	0.603	0.557
Worry about death	0.105±1.595	0.288	0.777	0.000±1.904	0.000	1.000	0.000±2.112	0.000	1.000
Worry about worst condition	1.632±1.739	4.090	0.001	2.294±1.829	5.171	0.000	2.286±1.939	4.412	0.001
Ability to feel like woman	1.158±1.302	3.876	0.001	1.588±1.326	4.940	0.000	1.643±1.447	4.249	0.001
Acceptance of illness	0.368±0.831	1.933	0.069	0.529±1.125	1.941	0.070	0.643±1.216	1.979	0.069

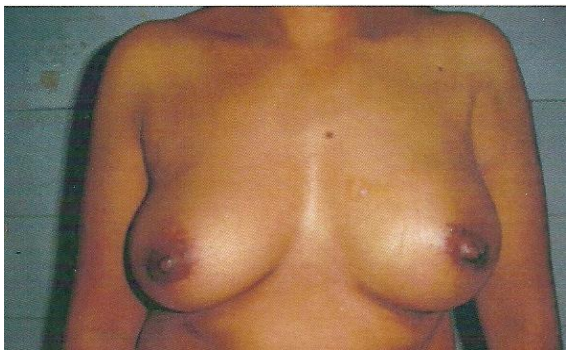

Figure 1a: Preoperative

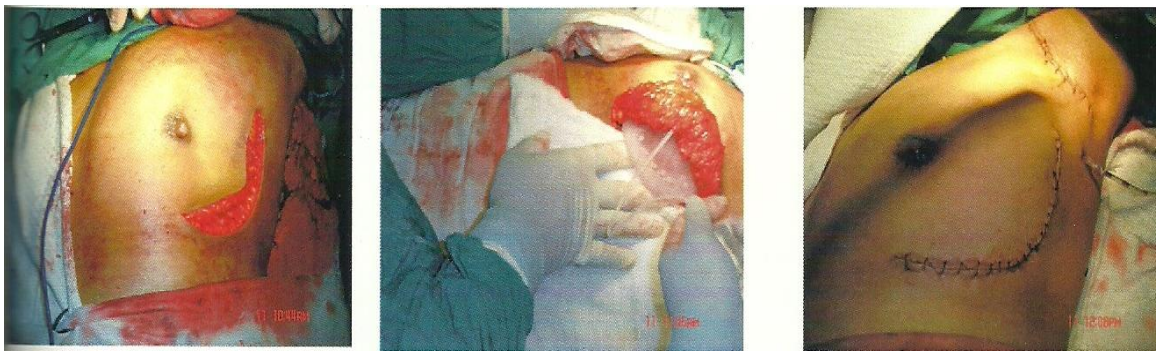

Figure 1b: Peroperative

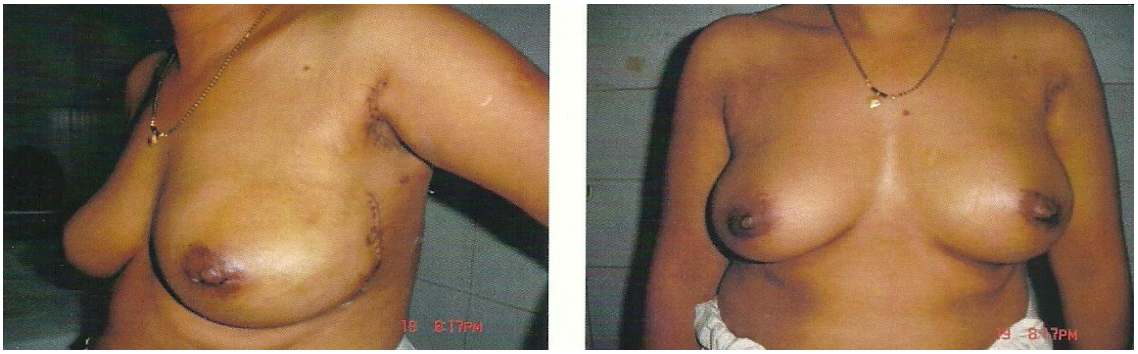

Figure 1c: Postoperative

Figure 1: Cosmetic outcome in a patient with Breast Implant

Breast Conserving Treatment

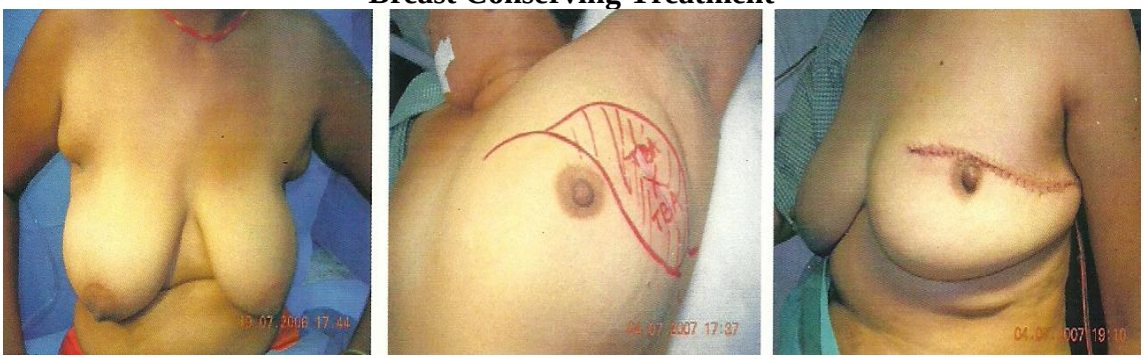

Figure 2.1a Preoperative **Figure 2.1b Peroperative** **Figure 2.1c Immediate Postoperative**

(Note: wide margin parallelogram incision with fish tailing which prevents the dog ear formation on skin closure)

TRAM Flap

Figure 2.2a Preoperative **Figure 2.2b Immediate Post-operative** **Figure 2.2c Postoperative**

Figure2. Photographic Assessment of cosmetic outcome of Various Oncoplastic Surgical Procedures in operated breast cancer patients

DISCUSSION

Since time both benign and malignant conditions of the breasts are surgically dealt with little or no respect to the form and function of the breast. It is generally held that the primary aim of the surgical treatment is the complete removal of the disease with little or no concern to the resultant form and contour of the breast following tumor excision and subsequent psychological morbidity. Breast surgeries being one of the most common surgeries a surgeon does in his practice. With the early detection and improved adjuvant care in breast cancer the breasts are being conserved in a large subset of patients and when combined with plastic surgical principle even a better cosmetic and functional outcome is anticipated. This has given birth to a new crop of surgeons and the concept of oncoplastic breast surgery.

The oncoplastic breast surgery brings the basic principles of plastic surgery and surgical oncology, so as to cure the

patient without disturbing or minimally disturbing the normal anatomy of the breast, or else if a large amount of breast tissue is to be sacrificed it is replaced or reconstructed by some structures such that it simulates the normal looking breast. [5] Unfortunately though this term is widely used, it is poorly understood.

It excludes the surgeries which are done for purely cosmetic purpose on a previously normal breast, e.g. reduction and augmentation mammoplasty, where only the plastic principles are considered with no onus to treat a breast disease, it also excludes purely oncologic surgeries where the emphasis is only on the complete removal of disease and cosmetic outcome is considered secondary or unnecessary for the patient. Oncoplastic breast surgery has thus evolved as a new millennium concept with a more enthusiastic and holistic trans-disciplinary scientific approach to deal with both benign and malignant breast lesions at the time of primary surgery itself, by achieving maximum cosmetic and functional outcomes without any compromise with the achievable cure of the disease. [6]

There is no global definition of oncoplastic breast surgery that we could find in the literature however, following extensive literature search, we have defined it as *"several such surgical techniques that utilize the intelligent use of oncological and plastic surgical principles at the same time in order to maximally benefit the patient by ensuring complete disease removal with acceptable cosmosis and function"*.

India being developing country with no speciality services available everywhere, most of the breast surgical problems are dealt with by general surgeons, who need to have basic knowledge of oncoplastic breast surgery for improved patient satisfaction. The approach is technically achievable with relative ease without any formal training in plastic surgery but with a conceptual thinking, forethought and planning with desirable surgical results.

Since the introduction of the concept of oncoplastic breast surgery, many studies have [7,8] been conducted from time to time comparing the satisfaction levels and quality of life of the patients undergoing various oncoplastic procedures, but unfortunately all these studies are conducted in the developed nations, where the conditions are quiet different from India. Western women are economically sound, well educated, extrovert, motivated and they don't hesitate in communicating their desires. Contrary to this Indian women are shy and introvert, they neglect their body image and suppress their desires for the convenience of their family. These factors lead to high demand of broad based studies in India to study the quality of life of patients undergoing oncoplastic breast surgeries, addressing all these factors. This study is among the initial steps in this direction.

The QOL was assessed by analyzing its four aspects- physical, emotional, social and functional in preoperative, immediate postoperative (1-4 weeks), early postoperative (1-3 months) and late postoperative (3-12 months) periods. Satisfaction level was scored by the patient herself, her next of kin, the operating surgeon and the peer surgeon. For the purpose of analysis all the questions were framed in such a manner that higher scores reflected better quality of life and satisfaction. A comparison of breast cancer patients who did not undergo OBS was made with those who underwent OBS while the data obtained from patients with OBBL had been analyzed separately. All the data compiled and eyeballed and was been found that the mean age of patients with OBS was 40.75±8.31 years and patients without OBS was 44.27±11.67 years and there was no statistically significant difference (p=0.388). Almost similar results have been observed by previous studies. [9,10]

Patients with higher SES, higher education and occupation had been found to have higher chances for opting OBS. These patients were educated, motivated, extrovert and most of them are working. They go out

to work and interact with people and were thereby more conscious of their look, they considered worth spending for oncoplastic breast procedure, whereas purely homely, uneducated and low socioeconomic females and their family were satisfied with the disease removal only, they though desirous, didn't consider it worth spending. In this study, as none of the patient was unmarried, an association of OBS and marital status cannot be inferred. Study showed a trend towards not opting breast reconstruction in advanced breast cancer patients. Similar results have been given by workers in past. [11,12]

In the view of the demographic profile discussed above on comparing the physical quality of life it was found that following cancer removal, there was significant improvement in satisfaction levels of the patients, excepting the patients without OBS who were no longer satisfied with the deformity left especially when they saw themselves topless in front of mirror, they significantly responded that they have distorted body image, on the contrary the patients with OBS were much satisfied with the contour and symmetry of their breast and their satisfaction scores increased with the passage of time. [13,14]

On comparing the social QOL, it was found that all the patients who were brought to the hospital for treatment, got full support from their family and spouse and they were well accepted in society, but during intimate moments the patients without OBS felt themselves incomplete, hesitant and less confident. Their sexual drive decreased markedly and felt inferiority complex while undressing themselves. Most of them felt that owing to their disfigurement, their partners don't initiate as they did earlier. Similarly their spouse, also affirmed that their sexual life is not like before, as they don't want to put undue stress on their already suffering wives. In contrast patients with OBS were more confident during intimate moments with their partners and with passage of time, their postoperative mean satisfaction score reached nearly to their pre-illness levels. The satisfaction levels of the patients with breast implants and BCT were betters than autologous tissue breast reconstruction. [15]

Pertaining to emotional QOL, both the categories of patients were preoperatively somewhat worried and hopeless but following treatment, their worry decreased and hope increased but there was always a sigh present among patients without OBS about losing their breast and subsequent disfigurement Whereas patients with OBS were found to be more satisfied and hopeful with the disease removal as well as the preservation of form and contour of the body. [16,17]

The functional QOL of patients with OBS was found to be more satisfactory than their counterparts with MRM alone. Patients with OBS were well relaxed and enjoyable. They were less choosy in the dresses, they were easy wearing the low cut blouses whereas those patients without breast reconstruction tend to hide their chest by over clothing it. None of the respondent was lactating, so this function could not be commented upon. [18,19]

A glance on demographic data shows the patients become more satisfied with the soft feel and shape of the breast and with minimal or imperceptible scarring.

Analyzing OBBL all the patients in the study were young with mean age of 23.26±6.71 years and most of them had good socioeconomic status, 10 patients in the study were graduate. 14 patients in the study were unmarried. Depending upon the type of the lesion, the relevant oncoplastic procedure was planned and executed and the satisfaction levels in the form of QOL assessed. [20,21]

Though the condition was benign, it distressed the patient due to bumpiness and perception of deformity which was reflected in their physical activities. Following oncoplastic breast surgery there was marked improvement in physical QOL of the patient. Patients were more satisfied with the soft feel and shape of the breast with minimal and imperceptible scarring.

Social QOL of these patients was quiet good both preoperatively and postoperatively. There was no significant change in the level of satisfaction of these patients.

The emotional quality of life was significantly improved in patients following OBS. It was seen that as the time passed and their wound healed their worry subsided and their confidence and feminity boosted-up. They become more cheerful and shared their problems more openly. [22,23]

It was also seen that following OBS, their work efficiency increased markedly, they slept soundly, enjoyed lively and didn't hesitate in wearing modern dresses they liked.

Only one respondent was lactating in this study. She developed galactocele following lump excision which considerably hampered her breast feeding function.

The inter-observer variations among the patient, kin operating surgeon and the peer surgeon were not significant and they all agreed with the above observations.

CONCLUSION

This prospective case series analysis of only one year data accumulation and 6 months of follow up could gather a rather smaller sample size of 46 patients precluding any hard statistical analysis. A longer follows up and a larger sample size is however required to draw any hard evidence. Yet, we believe that this study is a first attempt in this direction to document systematically oncoplastic breast surgical procedures in this part of the world. This study provides a doorstep to have a perfunctory look at the science and art of conserving breast function and cosmesis while attempting to surgically treat breast disease. Till date no study regarding the quality of life (QOL) of patients undergoing oncoplastic breast surgery (OBS) has been published from India. This study provides a base line for the future works on clinical and quality of life assessment of patients with breast disease undergoing surgical treatment with or without the consideration of oncoplastic breast surgery.

This study has found no significant differences between the age groups and the marital status of the patients undergoing breast surgery with or without oncoplastic breast procedure. Patients with higher socioeconomic status, education and occupation had higher chances for opting in favour of oncoplastic breast surgery. Early breast cancer patients were more frequently chosen for oncoplastic breast surgery than those with advanced breast cancer. Careful selection of an oncoplastic procedure for each case was done and the comparison was made between the preoperative and postoperative quality of life using validated scales and instruments. This small case series has demonstrated a global increase in the satisfaction scores of not only the patients who underwent oncoplastic breast surgery but also of their relatives the operating surgeon and a peer surgeon. Marked differences were noted in the perception of body deformity, shape and symmetry of the breasts, sexual life of the patient, self confidence, feminity and functional quality of life, which the patients without oncoplastic breast surgery rated significantly lower than patients with oncoplastic breast surgery. It is found that patients with breast implants and breast conserving therapy somewhat had greater satisfaction scores, they were more satisfied with their breast contour and rated 80-85% satisfaction than those patients with autologous tissue flap reconstruction of breast. Similarly, there was significant improvement in the mean satisfaction scores of all the aspects of quality of life of patients, who underwent oncoplastic breast surgery in operable benign lumps. With time these results became comparable to their pre-illness level because the disease was cured and the functional and cosmetic deficiency was minimized. There was one patient in the study in whom following a lump excision; she developed a galactocele that considerably affected her breast-feeding. The utility of excising a benign

lump during lactation or in a potentially lactation person despite an oncoplastic approach was thus questioned. Coup d'oeil above, further studies are required to gain higher level of evidence and expertise in oncoplastic breast surgery. However, it can be most humbly said from the first hand experience gained during collection of these data that concept of oncoplastic breast surgery is very appealing one and it has a high scope for wider applicability in India with a very good overall patient and surgeon satisfaction. This study was performed in a public sector hospital catering to rather lower socioeconomic status patients. A similar study in higher socioeconomic status surgical breast patients or in a more westernized city population is likely to yield even higher levels of satisfaction.

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