

Original Research Article

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Oncological outcome of patients treated surgically with oncoplastic breast surgery: a single centre analysis

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ABSTRACT

Background: Oncoplastic breast surgery is a well-established approach that aims to maintain the quality of life by using plastic surgery techniques without compromising the oncological outcome. This study aimed to demonstrate the effective oncoplastic surgical practice with low rates of perioperative complication and high patient reported outcome.

Methods: A prospective observational and systematic review comprised of 50 patients with T1- T3 and T4B lesions treated with Level I and Level II oncoplastic breast surgery techniques in a single centre. Patient demography, procedure and outcome data were collected. The patient satisfaction and quality of life were assessed using Breast Q Module questionnaire.

Results: The greatest number of cases were seen in the age group 30-40 years with T2 lesions with next T4B lesions in the same age group. Three patients (6%) experienced complication requiring intervention, and all patients had margins free of tumour. Patient satisfaction scores were higher in the postoperative period.

Conclusions: Our study even though has a smaller number of patients and less duration of study period showed a good result with regards to the patient reported outcomes.

Keywords: Oncoplastic breast surgery, Breast cancer, Plastic surgery

INTRODUCTION

Breast cancer ranks among the leading causes of female cancer-related deaths in the world.¹

Surgical management remains the standard of care for non-invasive and localized invasive breast cancer, which may get combined with systemic endocrine therapy, chemotherapy, and/or radiation. National Surgical Adjuvant Breast and Bowel Project (NSABP) B-06 trial, showed equivalent disease-free survival, distant disease-free survival, and overall survival among women undergoing partial mastectomy with irradiation compared to radical mastectomy, breast conservation therapy (BCT) became standard of care for patients with tumors under 4

cm.² After a 20-year follow-up of the NSABP B-06 trial, breast conservation therapy, when combined with radiation, became the standard of care for localized intraductal breast cancers (ductal carcinoma in situ: DCIS). This came into being after the NSABP B-17 trial, where the addition of radiation significantly decreased the recurrence rate of non-invasive and invasive breast cancers.³

Breast conservation therapy advantages includes reduced operative time, diminished psychological burden when compared with mastectomy, improved cosmetic outcomes, and limited side effects.⁴ The term “oncoplastic surgery” first originated in the 1990s. The American Society of Breast Surgeons defines OPBS as

oncologic partial mastectomy with ipsilateral defect repair using volume displacement and volume replacement techniques with contralateral symmetry surgery as appropriate.⁵ Oncoplastic BCS (OBCS) with or without neoadjuvant therapy facilitates tumor excision with a wide margin of resection followed by immediate reconstruction of the defect (partial breast reconstruction), thus preserving a natural breast shape in woman and improving cosmetic outcome.

The study aimed at effectiveness of OBCS by analysing both oncological outcome and quality of life with patient reported measures.

METHODS

A Prospective Observational and Systematic review of 50 cases of Carcinoma Breast with Stage 1- Stage 3 with or without neoadjuvant therapy was conducted in State Cancer Institute, Guwahati for a period of one year from July 2021 to June 2022 after getting approval from the Institutional Ethics Committee.

Inclusion criteria

Inclusion criteria were patients of carcinoma breast with T1-T3, T4b lesions with or without neoadjuvant therapy, aged 18-70 years.

Exclusion criteria

Exclusion criteria were any patient with T4a lesion, metastatic breast cancer, patients with comorbidities, patient refusal. The selected patients were carefully examined and accordingly given neoadjuvant therapy based on T stage and also based on Surgeon's discretion in T2 tumors with small breast volume.

OBCS procedure of level 1 or level 2 were decided according to the T Stage, breast volume, density of breast. Breast Q module questionnaire were given to the patients preoperatively as a baseline for patient satisfaction outcome. In the intra-operative period, margin status were analysed using frozen section. The margin status of final histopathological report is also taken into consideration both for invasive component and DCIS. The DCIS margin followed was 2 mm. In the post-operative period, any local complications were monitored. The surgical site infection, haematoma, seroma, wound dehiscence, wound gaping, if any were taken in consideration.

Breast Q module questionnaire were again given to the patients at 3 months, 6 months and 12 months and the results noted.

Statistical analysis

Descriptive statistical analysis has been carried out in the present study. Results on continuous measurement are

presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in number (%). Significance for Breast Q scores were assessed using Unpaired t-test and the results were significant at $p<0.0001$.

RESULTS

Patient demography and tumour characteristics

A total of 50 patients met our inclusion criteria. The patient demography and tumour characteristics are reported in Table 1. The most number of cases were seen in the age group 30-40 years with T2 lesions with next T4B lesions in the same age group. The majority of the lesions were in the upper outer quadrant. Invasive ductal carcinoma was the most common pathology. Patients were often estrogen receptor/progesterone receptor positive with Her2 neu negative. The triple negative breast cancer was often seen in the age group of late twenties to late forties.

Table 1: Demographic data oncoplastic study cohort (n=50).

Age group (in years)	Tumour lesion T stage		
	T2	T3	T4B
21-30	0	1	3
31-40	10	1	4
41-50	7	5	3
51-60	6	4	1
61-70	1	1	2
>70	1	0	0

Procedure type performed

Both level I and level II oncoplastic techniques were performed. Level I was performed in 28(56%) patients. The remaining underwent level II oncoplastic procedure, with most of the patients undergoing racquet mammoplasty as shown in Figure 1. The second technique used was the round block mammoplasty. The other techniques performed were latissimus dorsi flap and grissotti flap in 1 case.

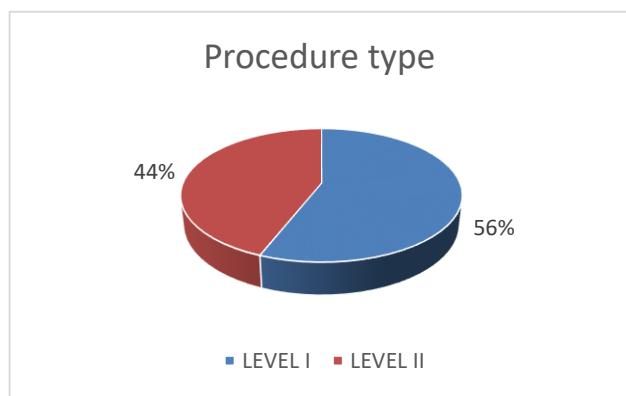


Figure 1: Procedure type performed.

Post-operative complications is shown in Table 2. Patients had complications out of which one needed intervention of resuturing the wound, rest of the complications were managed conservatively.

Table 2: Postoperative complications.

Post-op complications	Number	%
Seroma	4	8
Surgical site infection	2	4
Wound dehiscence	1	2
None	43	86
Total	50	100

Patient satisfaction outcome

The breast Q breast conservation module was used to measure the patient satisfaction outcome pre-operatively and post-operatively during follow-up period at 3 months, 9 months and 12 months. The satisfaction with breast and physical well-being were evaluated. Both had statistically significant outcome of $p<0.0001$ in the follow-up period compared to the pre-operative period. Figure 2 depicts the satisfaction with breast.



Figure 2: Quality of life - satisfaction with breast.

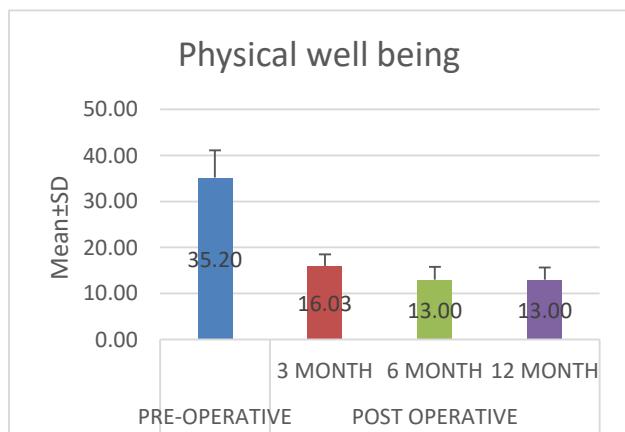


Figure 3: Quality of life - physical well-being.

DISCUSSION

Oncoplastic BCS techniques are well validated alternative to standard BCS for carcinoma breast patients, with little or no differences in complications and similar outcomes in the number of local recurrence and metastases. Aesthetic outcomes after OBS and BCS are also considered important, along with the oncologic outcome, which is the primary goal of therapy.⁶

In this study, we focused on the oncological safety in breast cancer patients undergoing OBS along with the aesthetic and patient satisfaction outcome.

In an English study, the authors compared the characteristics of the tumors of 980 patients who underwent three types of breast surgery: extensive local excision (n=558), mastectomy (n=318), and oncoplastic surgery (n=104). In comparison with the groups, they observed that the presence of tumors >2 cm, grade 3, with lymph node involvement, and negative hormone receptors were similar between the mastectomy and the oncoplastic surgery groups.⁷

Therefore, the characteristics of the tumours most frequently treated with oncoplastic surgery show that this technique is an important tool to be used in patients who would frequently be candidates for mastectomy or nononcoplastic breast-conserving surgery with unfavourable esthetic results.⁸ Young patients have greater aesthetic requirements and less comorbidity, such as diabetes and hypertension, which are factors that support the use of oncoplastic surgery.⁹

In our study, the demographic profile of age group with more number of cases were in between 30-40 years of age with most of them with T2 tumours followed by T4B lesions in the same age group.

The procedure type performed most was level I oncoplastic surgery with 56% and level II for 44% of patients.

In our study tumour margins were assessed in the intra-operative period using Frozen section where if DCIS present in the margin another revised margin was sent. The DCIS margin of 2 mm was achieved using Frozen section. The final Histopathological examination report of the Margin status showed free of tumour for all the cases (100%) in our study. The post-operative complications were minimal with Seroma in only 4 cases (8%), SSI in 2 cases (4%), and wound dehiscence in 1 case.

The quality of life was assessed using breast Q module questionnaires for satisfaction of breast pre-operatively and in the post-operative period at 3 months, 6 months and 12 months. It is evident from the results and observation that Satisfaction with breast was statistically significant ($p<0.0001$). Patients in our study were highly

satisfied with their breast outcomes aesthetically after surgery. The breast Q scores were higher in the 6 and 12 months than the baseline. The results for physical well-being was also statistically significant ($p<0.0001$). The Breast Q scores were lower in the subsequent 6 and 12 months, showing improvement in the well-being post-surgery and in the subsequent follow-up period.

Thus, our study shows that patient reported oncological outcome are not compromised when oncoplastic techniques are used. The quality of life, physical well-being, psychosocial well-being can improve significantly in the long term after this type of surgery despite the devastating diagnosis of breast cancer.

Limitations

One of the main limitations of our study was the lack of control group of patients undergoing traditional mastectomy. All our patients underwent oncoplastic breast conserving surgery.

Another limitation was the smaller number of patients put for the study and also the duration of the study period. A longer duration of study period is required to assess the recurrence rate outcome following the oncoplastic breast surgery. A larger group of patients are required to assess for the complication rate post-operatively and also for the margin status, re-excision rates in cases of positive margin with mastectomy if no adequate breast volume post re-excision.

Another potential drawback of using patient related outcome measures is the tendency of patient to downplay their dissatisfaction with the outcome

CONCLUSION

Oncoplastic breast surgery has the potential to offer the patients superior cosmetic results without compromising oncological outcome and giving a good quality of life with psychosocial well-being which one would not have attained following mastectomy. Our study even though has a smaller number of patients and less duration of study period showed a good result with regards to the patient reported outcomes.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee of State Cancer Institute, GMC

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