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Short Communication

Oncoplastic breast surgery: Initial experience in an Oncology Center

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ABSTRACT

Background: Oncoplastic breast surgery (OBS) encompasses surgical procedures designed to achieve successful breast tumour excision with good cosmesis. A relatively well established technique in western world, the same is gaining interest in Indian subcontinent too. We present our initial experience with the said technique.

Methods: A retrospective analysis of a series of cases of carcinoma breast who underwent oncoplastic breast surgery procedure over one year period was carried out in an Oncology center of a Command Hospital.

Results: In the study period, a total of 18 eligible cases underwent OBS. All patients were female with mean age 33.4 yrs(± 5.7). Total nine cases underwent volume replacement procedure in which six patients underwent modified radical mastectomy(MRM) with TRAM flap. Two patients underwent breast conserving surgery with latissimus dorsi myocutaneous flap (LDMF) reconstruction and one underwent MRM with LDMF reconstruction. Total nine cases underwent volume displacement technique wherein five, two, one and one patients underwent lateral mammaplasty, medial mammaplasty, wise incision and batwing incision respectively. Median follow up has been 05 months. Three patients developed surgery related complications. Early results show acceptable cosmetic results.

Conclusion: Oncoplastic breast surgery combines the principles of surgical oncology with those of plastic and reconstructive surgery and our initial experience shows that OBS leads to aesthetically pleasing and oncologically sound results.

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Introduction

Breast conservation surgery is the norm today for management of breast cancer patients. The term oncoplastic breast surgery (OBS) does not imply any particular procedure. Rather it represents a comprehensive approach using oncosurgical and reconstructive surgery principles to

achieve wide surgical margin, reduced local recurrences and optimized cosmetic outcome for breast cancer patients.¹ A retrospective review of a series of cases of oncoplastic breast surgery carried out at our center over an one year period is presented here. The study focused on the indications, type of oncoplastic procedure used, and complications faced.

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Material & methods

A retrospective analysis was carried out of all cases of OBS done at an Oncology Center at a tertiary level hospital from Jun 2012–13. Patients who underwent OBS were as follows:

- (i) Patients of early breast cancer (EBC) who are eligible for breast conservation surgery (BCS).
- (ii) Patients of locally advanced breast cancer (LABC) who are eligible for breast conservation after receiving neo-adjuvant chemotherapy (NACT).
- (iii) Patients of EBC as well as post-neoadjuvant chemotherapy LABC who are eligible for MRM.

At time of initial examination, both the breasts were examined keeping in mind tumour site and size; tumour to breast size ratio; degree of breast ptosis and position of nipple areolar complex (NAC) in relation to tumour. All procedures were done under standard general anaesthesia. Based upon, the estimate of degree of breast parenchyma loss anticipated, one of the following three techniques were used to resituate breast symmetry and architecture.

- (i) Rotation Advancement technique (RAT)
- (ii) Mini- Lattisimus Dorsi Myocutaneous flap
- (iii) Pedicled TRAM flap

Patients who had relatively small defects were reconstructed using RAT. Initially, a lumpectomy was done ensuring 1 cm margin then rest of the breast was mobilized over the pectoral fascia and approximated in two layers (base and skin). The choice of incision depended on the site of tumour and included: Wise pattern, lateral mammoplasty and medial mammoplasty incisions. Care was taken to mobilise the dermoglandular pedicle in such a way as not to compromise blood supply to NAC. Hence, the most common pedicles utilised by us were superior and inferior pedicles.

LDMF (based on thoracodorsal flap) was used in patient in which large amount of skin loss was anticipated (poorly sited biopsy incision and pre- NACT skin involvement by tumour).

Pedicled TRAM (based on superior epigastric artery), single pedicle/bipedicled was utilised in cases where patient was not eligible for BCS and had to undergo MRM.

Suction drain was placed in all the patients and kept for 2–5 days. Patients were nursed in the ward till drains were removed and then discharged. Suture removed on the 14th post-operative day. Note was made of any complications related to surgery.

Results

In the study period, a total of 18 eligible cases underwent OBS. All patients were female with mean age 33.4 yrs (± 5.7). The resection and reconstruction procedures used in the 18 patients and their indications are outlined in Table 1.

Six patients underwent MRM followed by reconstruction with pedicle TRAM. Out of these, four patients were those of post-NACT LABC with extensive skin involvement; one

Table 1 – Procedures done and their indications.

Procedure	Indication	Number (n = 18)
MRM + pedicle TRAM	Total volume replacement plus skin cover	06
BCS + LD myo cutaneous flap	Partial volume replacement plus skin cover	02
MRM + LD myo cutaneous flap	Total volume replacement plus skin cover	01
BCS + Rotation advancement flaps	Correct breast asymmetry and Reconstruct breast shape	09

patient had a large residual tumour in a relatively small breast and one patient was EBC who refused BCS.

Two patients underwent BCS followed by LDMF. One out of these two patients was EBC but with a poorly sited biopsy scar, and one patient was post-NACT LABC. In both these patients, there was partial volume loss and large skin loss. One patient of post-NACT LABC had residual skin involvement, hence she underwent MRM with LDMF. In this patient, LDMF was considered sufficient as she had small contralateral breast.

Nine patients underwent BCS followed by RAT. Out of these five (5/9) had lateral lesions hence required a lateral mammoplasty incision with a superior pedicle based dermoglandular rotation [Fig. 1]. Two (2/9) had medial lesion which required a medial mammoplasty incision with a superior pedicle based dermoglandular rotation [Fig. 2] One (1/9) had a central quadrant lesion which required a wise pattern incision

Fig. 1 – Case of EBC who underwent BCS and dermoglandular rotation advancement thorough a lateral mammoplasty incision (a) Appearance of ipsilateral breast after suture removal and prior to start of adjuvant therapy (b) Cosmetic result in late post-op stage. Note the asymmetry with contralateral breast. Planned for mastopexy of contralateral breast after complete adjuvant treatment over.

Fig. 2 – Case of post-NACT LABC who underwent BCS and dermoglandular rotation advancement through a medial mammaplasty incision (a) Residual breast lesion and medial mammaplasty incision marked (b) immediate post-operative cosmetic appearance.

followed by inferior pedicle based dermoglandular rotation. One (1/9) had a lower outer quadrant lesion which required a bat wing incision with a medial pedicle based dermoglandular rotation.

Three cases (3/18) developed complications severe enough to delay adjuvant treatment. Details are as per Table 2.

Discussion

Oncoplastic surgery is tumour specific immediate breast reconstruction. It is based on three surgical principles: ideal breast cancer surgery with free tumour margins, immediate breast reconstruction, and immediate symmetry with the other breast.² The term oncoplastic breast surgery was proposed by the US plastic surgeon John Bostwick III in 1996. He described, not only techniques preventing the consequences of conservative treatment but also a whole range of techniques involving partial or total immediate post-mastectomy reconstruction (immediate breast reconstruction), correction of their consequences (delayed breast reconstruction), and immediate repair of the surgical treatment of locally advanced tumours and recurrences in the chest wall.³ It is this definition which has been used in context of the present study.

Majority of our cases (9/18, 50%) underwent BCS followed by rotation advancement techniques (volume displacement) to achieve breast shape. Up to 30% of patients who have undergone standard BCS end up with a poor cosmetic outcome.^{4–6}

OBS is superior to standard BCS (lumpectomy) in terms of early and late cosmesis.

It is known that a larger proportion of our patients report with LABC than their western counterparts. BCT in post-NACT cases needs to encompass the *original* tumour margins hence necessarily the radial resection margins are much more, entailing greater volume loss. It is well documented that oncoplastic breast-conserving surgery is more successful than standard wide local excision in obtaining wider radial margin.⁷ Hence OBS is more suitable than standard wide local resection when operating upon post-NACT LABC cases.

However, in some cases of LABC with extensive skin involvement, it may not be feasible to do BCS even after downstaging with NACT. In these cases there would be a large amount of skin loss as well as volume loss. This would also be true for cases of EBC with badly sited biopsy scars. In these cases mere volume displacement techniques would not be sufficient. These would need total or partial volume replacement with or without skin cover. In our series, 9/18 (50%) cases underwent volume replacement with/without skin cover for these reasons.

In our practice, we mark the margins of resection with hemoclips. The clips serve as a guide to radiation oncologists for radiation therapy, especially in the delivery of an appropriate boost dose. Since our follow-up has been short so far, we haven't observed local recurrence in our series as yet.

It would be noted in our series that no attempt has been done to symmetrize the contralateral breast in the same sitting. Radiation causes involution and edema of the ipsilateral breast. The treated breast will become firmer and often rise up on the chest wall. For this reason, we would prefer to perform the contralateral symmetrizing reduction in a two-step delayed procedure. Similarly, some authors like Fitoussi et al⁸ have showed a preferential shift from synchronous reconstruction to delayed contralateral symmetrizing reduction.

There were no procedure related complications noted in our series of RAT cases. However, one complication of necrosis of skin noted in single pedicle TRAM was probably because a large skin paddle had been harvested in order to reconstruct ipsilateral breast to match the contralateral large breast. The second case of necrosis of skin was probably the result of venous congestion in the flap resulting compression on venous drainage of contralateral rectus muscle.

We haven't made an attempt to quantify the aesthetic results or oncologic outcomes in our series as yet because most of our patients are still on adjuvant therapy. However, review of literature reveals that OBS produce excellent aesthetic results which leads to a high degree of patient satisfaction, both on short as well as long term basis. The oncologic outcomes in terms of local recurrences, disease free and overall survival too have been documented to be equivalent to standard BCS and MRM.⁹

Table 2 – Complications developed.

Procedure	Complication	Number (n = 03)
MRM + pedicle TRAM	Full thickness skin necrosis at edges of flap	02
BCS + Rotation advancement flaps	Wound infection	01

Conflicts of interest

All authors have none to declare.

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