Oncoplastic Breast Surgery - Our Experiences in the Breast Clinic, IPGME&R, Kolkata

Diptendra Kumar Sarkar · Abhiram Maji ·
Sujitesh Saha · Jayanta Kumar Biswas

Received: 11 January 2011 / Accepted: 21 March 2011 / Published online: 22 April 2011
© Indian Association of Surgical Oncology 2011

Abstract Oncoplastic breast surgery is the fusion of oncological and surgical principles to gain successful breast tumour excision with good cosmesis. It is an widely accepted and popular method in the western world. However, the picture is different in India. The major issues here, like late detection and advanced tumours, poor socio-economic status overriding quality of life issue and shortage of dedicated oncoplastic surgeons result in a poor acceptance and practice of oncoplastic breast surgery. This article explores the use of various oncoplastic techniques in clinical practice and discusses future directions in this emerging field in an Indian perspective. In our institute (breast care unit, I.P.G.M.E&R, Kolkata), we performed a retrospective study over a period of five years (2005–2009). It included a sample size of 30 patients with diagnosed breast cancer or Phylloides Tumor (PT). The study focused on the indications, type of oncoplastic procedure used, cosmetic outcome (shape / volume replacement, ptosis correction & chest wall coverage), complications faced and response to subsequent therapy. The indications, for which oncoplastic techniques were applied, were DCIS (2), LCIS (1), IDC (19)

and phylloides tumor (8). Of the 30 patients, RAT was used in 8, LDMF (of various types and volume) was used in 16, pedicled TRAM flap was used in 3 and reduction mastopexy in 3.

The procedural indications of reconstruction were total glandular replacement by TRAM flap, mini-LDMF to fill volume loss after BCS or wide local excision, rotation advancement technique for reshaping / symmetry maintenance after BCS or wide local excision, LDMF for chest wall coverage after MRM and reduction mastopexy after wide local excision. From patient's point of view the outcome of surgery was highly satisfactory (score 3 or more) in 19 out of 30 patients (63.33%). LDMF was the most commonly used (16 out of 30) oncoplastic procedure with least complication rates (0 out of 16). 4 out of 30 patients had complications related to the procedure. Chest wall coverage after MRM still forms the main indication of oncoplastic surgery in this country.

Keywords Breast · Oncoplastic · Surgery

Abbreviations

DCIS	ductal carcinoma in situ
LCIS	lobular carcinoma in situ
IDC	infiltrating ductal carcinoma
PT	Phylloides tumor
NACT	neo adjuvant chemotherapy
BCS	breast conservation surgery
WLE	wide local excision
RAT	rotation advancement technique
LDMF	lattisimus dorsi myocutaneous flap
MiniLDMF	mini lattisimus dorsi myocutaneous flap
TRAM	total rectus abdominis muscle
PTRAMF	Pedicled total rectus abdominis muscle flap

D. K. Sarkar · S. Saha · J. K. Biswas
I.P.G.M.E&R,
Kolkata, India

D. K. Sarkar
e-mail: diptendrasarkar@yahoo.co.in

S. Saha
e-mail: drsujiteshsaha@yahoo.co.in

A. Maji (✉)
N.R.S. Medical College,
Kolkata, India
e-mail: dr.abhiram09@gmail.com

Figs. 1, 2 Mini-LDMF after BCS

Introduction

Breast is the symbol of femininity, attractiveness and motherhood. Loss or disfiguration of this organ results in loss of feminine attractiveness, an altered body perception and a painful remainder of the cancer-all leading to intense psychosexual problems and mental depression.

Breast surgery has evolved over the past century since Halstead first introduced the radical mastectomy. Both the Milan trial and the National Surgical Adjuvant Breast and Bowel Project studies which started in the 1970 s have now successfully established that breast conservation is equivalent to radical mastectomy in terms overall survival-

thus producing 'a drift towards less radicality. The diagnosis and management of breast cancer has not only been influenced by new technologies but by the social and cultural aspects of the disease. Today the demand for breast cosmesis is high among women suffering from this disease. Michael Baum in the breast editorial, 2003 regretted that"....nowhere along the line did I have the opportunity to train in plastic surgery - the one skill, I would have needed to be considered a complete breast man." and with the changing philosophy of breast cancer management today's surgeon believe "a subspeciality of oncoplastic breast surgery is needed to meet the demand" (BMJ' 2003).

Figs. 3, 4, 5, 6 Reduction mastopexy after WLE of PT

Figs. 7, 8 Chest wall coverage with LDMF after MRM

The term oncoplastic surgery does not imply to 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]. Increasingly breast surgery is performed by surgeons trained in oncoplastic techniques contributing oncological and aesthetic procedures in one operation and having excellent therapeutic and economic benefits [2, 3].

This article explores the different aspects of oncoplastic surgery, summarizes the use of various techniques in clinical practice and discusses future directions in this emerging field in an Indian perspective.

Materials & Methods

This Study is a retrospective study spanning a period of 5 years, from 2005 to 2009, on breast cancer patients using oncoplastic techniques. It included a sample size of 30 patients attending breast care unit of Institute of Post Graduate Medical Education & Research, Kolkata. Patients with diagnosed breast cancer or Phylloides Tumor (PT) were included in this study. All the patients were counseled and informed consent was taken. Patients who declined consent or had previous surgery involving the axilla or irradiation were excluded from the study.

Figs. 9, 10, 11 PTRAMF after MRM (also showing marginal flap necrosis)

Fig. 12 RAT after BCS

The study focused on the indications, type of oncoplastic procedure used, cosmetic outcome (shape / volume replacement, ptosis correction & chest wall coverage), complications faced and response to subsequent therapy.

5 different techniques were used - [Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12]

- 1) Rotation Advancement Technique (RAT)
- 2) LDMF with de epithelialization
- 3) LDMF of variable volume
- 4) Pedicled TRAM flap
- 5) Reduction Mastopexy (RM).

All the procedures were performed by same group of surgeons, all of whom were trained in breast oncoplastic procedures.

Patients having small defect were reconstructed using RAT. Initially a sector or quadrant of breast is removed; rest of the breast is mobilized over the pectoral fascia and approximated in three layers (base, subcutaneous tissue and skin). Suction drain was given in all the patients and kept for 2 to 5 days.

The second group of patients who have large volume loss (>25%) after breast conservation underwent mini-LDMF (based on thoraco dorsal vessels). The skin the flap was de epithelialised (PAPP technique) and the dermal thickness was then utilized to add more bulk.

The third group of patients in whom neo adjuvant chemotherapy could not adequately down sizes the tumor

Table 1 Spectrum of cases (Histopathological diagnosis) ($n=30$)

Histology	Number of patients
DCIS	2
LCIS	1
IDC	19
PT	8

Table 2 Reconstruction procedures done ($n=30$)

Procedures / Flaps	Number of patients
RAT	8
LDMF / Mini-LDMF	16
PTRAMF	3
Reduction Mastopexy	3

(to achieve mastectomy), LDMF was used to achieve chest wall coverage.

In the fourth group where primary reconstruction of the breast was contemplated after mastectomy, TRAM flap (based on superior epigastric vessels) was used.

In the fifth and the last group the principles of reduction mastopexy based on inferior based flap was used to fill the volume and correct ptosis in cases of large phylloides tumors.

Results

The indications for which oncoplastic techniques were applied, were DCIS (2), LCIS (1), IDC (19) and phylloides tumor (8) (Table 1).

All the 30 patients were subjected to oncoplastic procedures primarily and none of the patient had secondary reconstruction.

Of the 30 patients, RAT was used in 8, LDMF (of various types and volume) was used in 16, pedicled TRAM flap was used in 3 and reduction mastopexy in 3 (Table 2).

The procedural indications of reconstruction were total glandular replacement by TRAM flap in 2 cases of DCIS and one case of LCIS. Mini-LDMF was used to fill volume loss after BCS or wide local excision in 4 cases of IDC and 2 cases of phylloides tumor. Rotation advancement technique was used in 5 cases of IDC and 3 cases of phylloides tumor. In 10 patients adequate downsizing was not achieved after 6 cycles

Table 3 Indications of oncoplastic breast surgery ($n=30$)

Indications	Procedures/ Flaps	Number of patients				
		DCIS	LCIS	IDC	PT	Total
Total Glandular Replacement	TRAMF	2	1	-	-	3
Partial Fill up after BCS/WLE	Mini-LDMF	-	-	4	2	6
Reshaping / Symmetry Maintenance	RAT	-	-	5	3	8
Chest wall coverage after MRM	LDMF	-	-	10	-	10
Volume replacement & ptosis correction after WLE	RM	-	-	-	3	3

Table 4 Cosmetic outcome as per patient's assessment ($n=30$)

Indications	Procedures/Flaps	Cosmetic outcome (Number of patients)				
		Total	Excellent	Good	Average	Poor
Total Glandular Replacement	TRAMF	3	1	2	-	-
Partial Fill up after BCS / WLE	Mini-LDMF	6	-	6	-	-
Reshaping / Symmetry Maintenance	RAT	8	1	6	-	1
Chest wall coverage after MRM	LDMF	10	-	-	5	5
Volume replacement & ptosis correction after WLE	RM	3	2	1	-	-

of NACT. These patients underwent MRM followed by skin coverage using LDMF. In cases of large phylloides tumor wide local excision was followed by volume replacement and correction of ptosis was achieved using principles of reduction mastopexy in 3 patients (Table 3).

The outcome of surgery was assessed from patient's point of view and the surgeon's evaluation. The patients were recalled 3 months after their procedure and were asked to assess the cosmetic outcome using a score of 1 to 4 (1 - poor; 2 - average; 3 - good; 4 - excellent) (Table 4).

- A) Of the 3 patients who underwent TRAM flap, 2 were good and 1 was excellent.
- B) Of the 8 patients who underwent RAT, 6 scored good, 1 excellent and 1 poor
- C) Out of 6 patients in whom partial fill up was done with LDMF after BCS, all 6 scored good.
- D) In 10 patients undergoing chest wall coverage for inoperable breast cancer, 5 gave a score of 1 and another 5 gave average.
- E) In case of reduction mastopexy technique 2 patients opined excellent and one opined good.

From the surgical point of view, in case of RAT all 8 patients had good shape & ptosis correction but in 6 of them nipple areolar complex was asymmetrical in comparison to the normal breast. Volume replacement and ptosis correction was satisfactory in all patients undergoing partial fill up using LDMF. Though in 10 patients of LDMF with chest wall coverage, volume

replacement was inadequate and cosmetic outcome was poor, adjuvant therapies could be started within 3 to 4 weeks of surgery. In reduction mastopexy group both volume and ptosis corrections were excellent in comparison to the contra lateral side (Table 5).

4 out of 30 patients had complications related to the procedure. 2 patients of TRAM flap and 1 patient of reduction mastopexy had marginal flap necrosis. 1 patient had partial flap loss after TRAM flap (Table 6).

Discussion

Presence of screening programme and high population awareness leads to early diagnosis of breast neoplasm in the western world. Thus in most circumstances local excision is not associated with gross loss of breast volume and asymmetry. In patients with multifocal disease where total mastectomy are performed the major issue is to achieve complete glandular replacement [4, 5].

In India, the indications are completely different. In 33% of the patients, oncoplastic procedures are used only to achieve the skin coverage so that early adjuvant therapy can be initiated. If we remove the load of phylloides tumor from the study (8 out of 30) then 45.45% (10 out of 22) reconstructions are done to achieve skin coverage (better palliation). Thus indication wise the scenario is completely different from that of the west. This therefore makes oncoplastic training mandatory for surgeons who take up breast surgery. This is

Table 5 Cosmetic outcome as per surgeon's assessment ($n=30$)

Indications	Procedures/Flaps	Cosmetic outcome (Number of patients)				
		Total	Excellent	Good	Average	Poor
Total Glandular Replacement	TRAMF	3	3	-	-	-
Partial Fill up after BCS / WLE	Mini-LDMF	6	-	-	6	-
Reshaping/Symmetry Maintenance	RAT	8	-	8	-	-
Chest wall coverage after MRM	LDMF	10	-	-	-	10
Volume replacement & ptosis correction after WLE	RM	3	3	-	-	-

Table 6 Complications ($n=30$)

Complications	Number of patients
Marginal Flap Necrosis	3 (PTRAMF - 2; RM - 1)
Partial Flap Loss	1 (PTRAMF)

more important in perspective of Indian patients where LABC forms the major load of patients.

This study further emphasizes the fact that the procedural complication rate (major 1 in 30 and minor 3 in 30) is acceptable in hands of surgeons with training in oncoplastic procedures. More emphasis should therefore be placed on training of surgeons so as to target the large volume of LABC patient population.

LDMF was the most commonly used (16 out of 30) oncoplastic procedure with least complication rates (0 out of 16). This flap therefore is not only safe but also the most useful technique in breast surgery. RAT, though very safe and cosmetically quite acceptable (6 scored good, 1 excellent and 1 poor), has little role in LABC which is the main problem of this subcontinent. TRAM flap has an excellent cosmetic acceptance but was found to be quite unpredictable. This study shows minor or major complications in almost all cases. However, the relatively small sample size may be responsible for this apparent bias and larger samples therefore would likely bring down the complication rate. Of all the oncoplastic procedures, mastopexy approach was found to be most cosmetically acceptable from patient's point of view (2 patients opined excellent and one opined good) as well as

from the surgeon's point of view (both volume and ptosis correction were excellent). In this study all the patients undergoing reconstruction using this technique were PT. Though various studies have found this technique to be oncologically safe [6, 7], we are unable to comment about its oncological outcome. Moreover, the technique is complex and has a steep learning curve.

References

1. Lebovic GS, Anderson BO (2009) Oncoplastic breast surgery: Current status and best candidates for treatment. *Current Breast Cancer Reports* 1(2):118–123
2. Baildam AD (2002) Oncoplastic surgery of breast. *Br J Surg* 89:32–33
3. Khoo A, Kroll SS, Reece GP et al (1998) A comparison of resource cost of immediate and delayed breast reconstruction. *Plast Reconstr Surg* 101:964–968
4. Andretsch WP (1998) Reconstruction of partial mastectomy defect: classification and methods. In: Spear SL (ed) *Surgery of the breast*. Lippincott Raven Publishers, Philadelphia, pp 155–196
5. Petit JY, Reijens M, Garusi C, Perry C (1998) Integration of plastic surgery in the course of breast conserving surgery for cancer to improve cosmetic results and radicality of tumour excision. *Recent Results Cancer Res* 152:202–211
6. Caruso F, Catanuto G, De-Meo L et al (2008) Outcomes of bilateral mammoplasty for early-stage breast cancer. *Eur J Surg Oncol* 34:1143–1147
7. Chang E, Johnson N, Webber B, Booth J et al (2004) Bilateral reduction mammoplasty in combination with lumpectomy for treatment of breast cancer in patients with macromastia. *Am J Surg* 187 (5):647–651