

Original article

Oncoplastic surgery and cancer relapses: Cosmetic and oncological results in 489 patients

G. Semprini^{a,*}, F. Cattin^b, L. Vaienti^c, M. Brizzolari^b, C. Cedolini^b, P.C. Parodi^a^aPlastic and Reconstructive Surgery Department, University of Udine, Gemona del Friuli, Udine, Italy^bGeneral Surgery Department, University of Udine, Italy^cPlastic and Reconstructive Surgery Department, University of Milan, Italy

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ABSTRACT

During the past 20 years, breast conservation has become the preferred treatment modality for breast carcinoma, and in recent times there is an increased expectation from breast cancer patients to retain their “normal breast appearance”. For large tumor-to-breast ratio excision, the subspecialty of oncoplastic surgery is born, helping to achieve a good oncologic and esthetic result. In our study we have considered 767 patients undergone a mastectomy or quadrantectomy, and especially 489 undergone quadrantectomy. We have used our protocol for breast reshaping and analyzed our data in terms of oncologic safety and esthetic results. Considering the lesions, they were placed like this: 214 (44%) in the SEQ, 58 lesions (12%) in the SIQ, 54 lesions (11%) in the IEQ, 24 lesions (5%) in the IIQ, 45 lesions (9%) respectively in the CQ and between the SQ, 39 lesions (8%) between the EQ, 5 lesions (1%) respectively between the internal quadrants and between the inferior quadrants. We have chosen simple breast reshaping in case of operations on the superior quadrants, while, in case of operations on the inferior quadrants, we have chosen complex techniques, like reshaping according to a “key hole” reductive mammoplasty, which requires also a contralateral reshaping. We have done simple and monolateral reshaping respectively in 372 (76%) and 296 (60.5%) cases. We have had early complications in 98 (20%) cases: 12 infections (2.4%), 10 hematomas (2%), 11 seromas (2.2%), 65 liponecrosis. As late complications, we have found scar retractions and minus areas in 20 cases (4.08%), while we have found asymmetries and bigger deformities in 34 cases (6.95%). We have not found any cancer relapse after one year of follow up, while we have had 3 cases of relapse (0.6%) after 5 years of follow up, respectively after 5, 4 and 2 years. This result has to be attributed to our preoperative project of surgery derived from many factors, among which stands out the MRI done in all the cases. We think that an immediate breast reshaping following quadrantectomy is the best esthetic and psychologic option for breast cancer patients.

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Introduction

A shift in the paradigm for breast cancer management began in the late 1970s, when pioneers demonstrated that the overall mortality rates achieved with mastectomy could be equaled with breast-preserving tumor excision and radiotherapy [1]. In the past 20 years, breast conservation has become the treatment approach for breast carcinoma preferred by surgeon and patient alike [2]. Breast preserving surgery maintains the overall breast shape, with cosmetic, functional and psychosocial advantages [3].

Breast cancer patients have recently come increasingly to expect to retain the “normal appearance” of their breast after surgery and, ideally, breast-conserving therapy should result in a normal-

looking breast, with no asymmetry or residual deformity [4]. The excision of no more than 10–15% of the breast’s volume generally produces acceptable results, while for excisions with a larger tumor-to-breast ratio, the new subspecialty of oncoplastic surgery now combines well-established plastic surgery techniques with the oncological procedure to anticipate and thereby prevent poor outcomes [5].

After breast-conserving treatment for cancer, 30–40% of patients reportedly have poor cosmetic results, with residual deformities of the treated breast [6], often due to patient’s refusal of contralateral symmetrization or due to radiotherapy (Figs. 3 and 4). Oncoplastic approaches are recommended for large quadrantectomies, for breast cancers treated preoperatively with medical therapies, and for small- to medium-sized breast cancers to prevent breast deformities [7].

Among the main reconstructive options, local flaps, reduction mammoplasty and distant flaps are the most commonly-used

* Corresponding author.

E-mail address: semprini-gloria@libero.it (G. Semprini).

techniques. There is still no consensus on which technique to use, however, nor any generally-approved treatment algorithm [8–10].

This study was conducted to analyze the diagnostic and therapeutic pathway, the reconstruction options adopted, and the results achieved at the Plastic and Reconstructive Surgery Department in Udine (north-east Italy), comparing them with other reports in the literature.

Materials and methods

The study concerned a total of 767 patients operated at the Plastic and Reconstructive Department and General Surgery Department of the University of Udine between November 2005 and December 2010. The patients were between 32 and 91 years of age (mean age 65 years), and the characteristics of their lesions had been assessed at the outpatients breast clinic. All patients were operated by a surgical team comprising general and plastic surgeons, and all the procedures had at least one surgeon in common. The patients' body mass index (BMI) was calculated to check for any potential weight-related risk of a poor reconstructive result: it was between 18 and 29 (mean 25). The number of smokers was also recorded, and amounted to 121 (15.7%).

All patients were studied according to our standard diagnostic pathway. They were evaluated by the breast surgeon if a lesion was suspected on mammography and breast ultrasonography, and the diagnostic workup included fine needle biopsy to confirm the diagnosis of disease before surgery. The internal protocol adopted by the Udine breast cancer group also includes mammary magnetic resonance imaging (MRI) in all cases except for those with extremely adipose breasts (in whom mammography is extremely sensitive), and those excluded because of comorbidities or metal implants. The decision to perform MRI routinely in all patients, not just in dubious cases, was prompted by the likelihood of small satellite lesions with dimensions below the detection threshold of the usual diagnostic radiological studies; such lesions can lead to cancer recurrences if they are left in the remaining breast tissue. MRI is also useful for assessing the exact extension of wide lesions with hazy edges, as in ductal carcinoma *in situ* (DCIS), and it has often induced us to change the surgical plan. The use of MRI to assess the dimension of cancer lesions is anyhow still debated in the Literature: for instance articles do exist considering MRI unnecessary for oncologic purposes [12]. In any case of non-metastatic breast cancer, with the exception of the triple negative one (which generally is treated with mastectomy, which is not object of our study), our pathway does not include any neoadjuvant therapy. This decision has been taken in agreement with the oncologic department in our hospital, and is induced by the clinical consideration that surgically removing as much neoplastic tissue as possible before chemotherapy increases its effects, and that no cytoreduction could lead to a smaller surgical resection, as small neoplastic cores may survive in a tissue in which there is no more evidence of macroscopic nodules. After surgery, radiotherapy is considered mandatory to complete treatment, generally with a whole amount of 50 Gy fractionated in 25 following sessions, and when considered feasible (negative hormone receptors, young age) also chemotherapy is performed, using antraciclins and taxane or capecitabine, generally fractionated into 6 sessions and always before radiotherapy. In case of positive HER2 receptors, trastuzumab is provided, and our breast cancer group participates also to a multi-center double blinded study in which, in case of positive HER2 receptors, pertuzumab is given patients.

Before surgery, all patients were assessed by the plastic surgeon, who designed the best breast reconstruction, considering the dimensions of the tissue being removed and of the breast as a whole. In every case in which a resection of more than 20% of breast tissue is needed, oncoplastic surgery is considered and projected. In the

vast majority of cases, breast reconstruction was completed immediately after tumor excision provided by the general surgeon, during the same surgical procedure. We prefer immediate reconstruction (with contralateral breast symmetry correction where necessary) to a delayed procedure because the former is psychologically far more tolerable for the patient, and because it is better able to limit breast asymmetries, scar retractions and the need of second surgical corrections in general. Antibiotics are not routinely used during oncoplastic surgery.

Our algorithm involves:

- **Supero-external quadrant (SEQ):** in 96% of cases we performed simple breast reshaping; while in 4% of cases we used fasciocutaneous flaps based on the thoraco-dorsal perforating vessels (Fig. 1A and B);
- **Between superior quadrants (SQ):** in 80% of cases we performed breast reshaping corresponding to reductive mammoplasties with an inferior pedicle; in the remainder we designed simple reshaping with adipo-glandular flaps from the medial and lateral quadrants, combined with a nipple-areola complex (NAC) replacement;
- **Supero-internal quadrant (SIQ):** in 97% of cases we have opted for simple breast reshaping with NAC replacement; in the remaining cases, we performed complex remodelings, such as periareolar mastopexies with a supero-lateral pedicle;

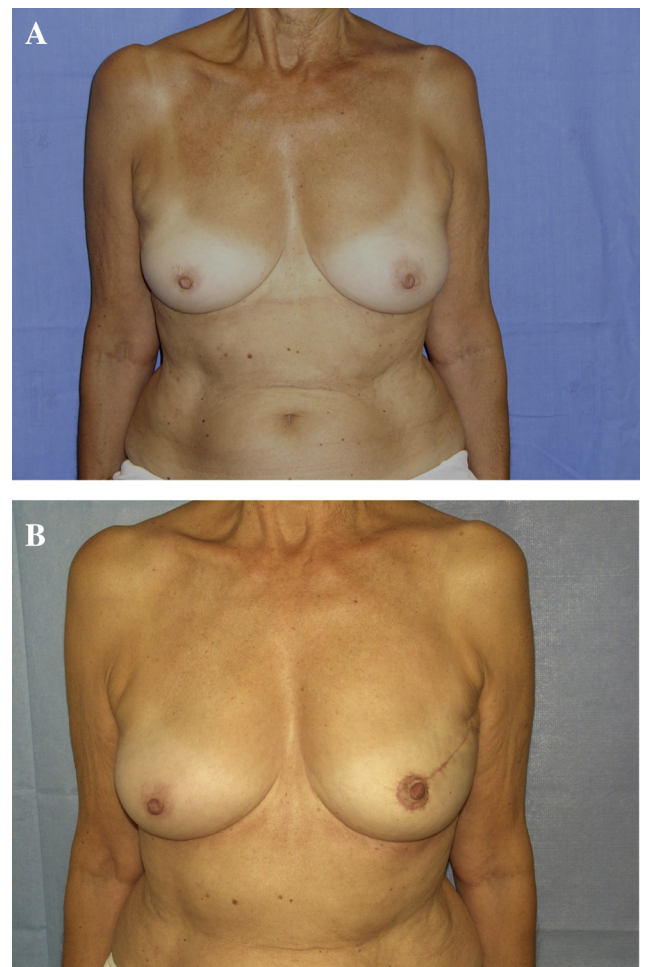


Fig. 1. A: Patient affected by neoplasm in the left SEQ. B: Result 1 year after SEQ quadrantectomy.

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