

# Oncoplastic Surgery: The Evolution of Breast Cancer Treatment

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■ **Abstract:** Oncoplastic surgery is an established approach that combines conserving treatment for breast cancer and plastic surgery techniques. It allows wide excisions and prevents breast deformities by immediate reconstruction of large resection defects. The procedures are mostly useful for resection of 20–40% of the breast – a group of patients normally treated by mastectomy in the past. Four features are integral to oncoplastic breast surgery: (i) Appropriate surgery for cancer excision. (ii) Partial reconstruction to correct wide excision defects. (iii) Immediate reconstruction with the full range of available techniques. (iv) Correction of volume and shape asymmetries relative to the contra-lateral healthy breast. There are two fundamentally different approaches: (i) volume-replacement procedures, which combine resection with immediate reconstruction by using local flaps (glandular, fasciocutaneous, and latissimus dorsi mini-flaps), and (ii) volume-displacement procedures, which combine resection with a variety of different breast reduction and reshaping techniques, according to the location of the tumor. Oncoplastic surgery increases the oncological safety of breast-conserving treatment because a much larger breast volume can be excised and wider surgical margins can be achieved. Moreover, a “surgical screening” of the contra-lateral breast allows the diagnosis of occult cancers. Among oncoplastic approaches, a very unique technique is the possibility of implant use (augmentation mammoplasty) in case of quadrantectomy and simultaneous delivery of intra-operative radiotherapy to the tumor bed. ■

**Key Words:** breast cancer, conservative treatment, implants, oncoplastic

The conservative treatment for early breast cancers allows the preservation of the mammary gland providing similar chance of cure when compared to mastectomy (1). The final outcome of the preserved breast should be satisfactory and one of the primary end points. In the last decade, the help of a plastic surgeon has been frequently advocated to avoid poor cosmetic results after large quadrantectomies. Nowadays oncoplastic surgery is becoming an emerging approach that combines conserving treatment for breast cancer and plastic surgery techniques. It allows wide excisions and prevents breast deformities by immediate reconstruction of large resection defects. Moreover, it provides the opportunity to enlarge the indications of conservative treatment (2).

Oncoplastic approaches are recommended for large quadrantectomies, for breast cancers treated by preoperative medical therapies, for poorly located tumors (inferior quadrants) resulting in anesthetic scarring

and outcomes without any reshaping, and for small-to-medium size cancers in small breasts to prevent breast deformities(3,4).

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Four features are integral to oncoplastic breast surgery:

1. Appropriate surgery for cancer excision.
2. Partial reconstruction to correct wide excision defects.
3. Immediate reconstruction with the full range of available techniques.
4. Correction of volume and shape asymmetries relative to the contra-lateral healthy breast.

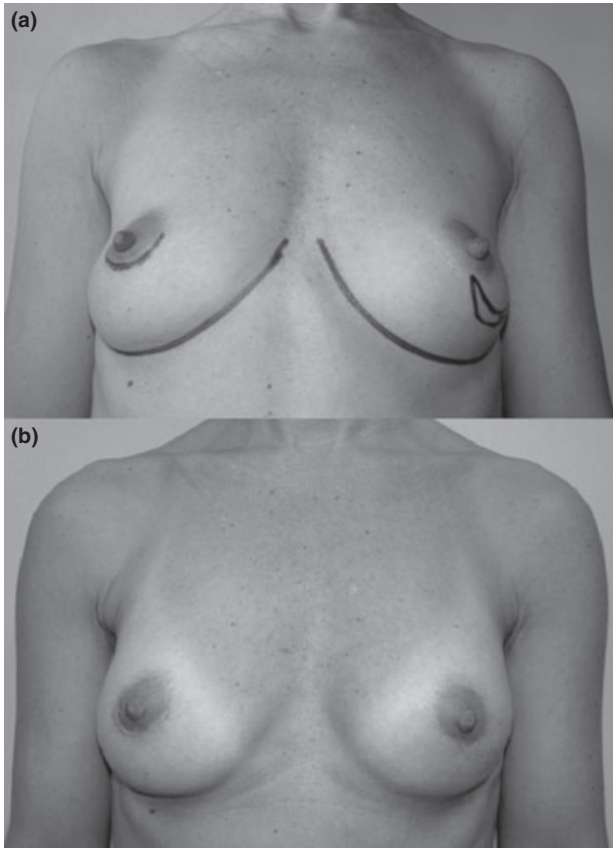
There are two fundamentally different approaches: (i) volume-replacement procedures, which combine resection with immediate reconstruction by using local flaps (glandular, fasciocutaneous, and latissimus dorsi mini-flaps) and (ii) volume-displacement procedures, which combine resection with a variety of different breast reduction and reshaping techniques, according to the location of the tumor.

Oncoplastic surgery increases the oncological safety of breast-conserving treatment as a much larger breast

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**Figure 1.** (a) Preoperative view with surgical markings. The tumor is located in the external–inferior quadrant of the left breast. (b) Postoperative view after left quadrantectomy and sentinel node biopsy, intraoperative radiotherapy with electrons and bilateral breast augmentation.

volume can be excised (5) and wider surgical margins can be achieved (6). Moreover, a “surgical screening” of the contra-lateral breast allows the diagnosis of occult cancers (7,8).

Among oncoplastic approaches, a very unique technique is the possibility of implant use (augmentation mammoplasty) in case of quadrantectomy and simultaneous delivery of intraoperative radiotherapy with electrons (9). Intraoperative radiotherapy has been proposed as a single exclusive treatment of limited staged unifocal invasive breast cancer in postmeno-

pausal women conservatively treated as an alternative to conventional postoperative fractionated radiotherapy. The rationale is based on the findings that the majority of local relapse (up to 85%) occurs in the same quadrant of the primary tumor. Radiation is delivered only to the tumor bed, sparing the skin, the surrounding glandular tissue, the pectoralis major muscle, and chest wall. In these patients, implants can be placed bilaterally behind the pectoralis major muscles because no external large field irradiation is necessary to complete cancer treatment increasing the risk of capsula contracture in the diseased breast (Fig. 1a,b). Moreover, patients with small breasts previously augmented can maintain their prostheses after breast conservative treatment.

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