Oncoplastic Breast Reconstruction

Should All Patients be Considered?

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KEYWORDS

• Breast cancer • Breast preservation • Oncoplastic surgery • Reconstructive surgery • Cosmesis

KEY POINTS

- Partial mastectomy with radiation therapy results in a poor cosmetic outcome requiring additional surgery in up to 30% of patients.
- Poor cosmetic outcome after partial mastectomy can be due to either volume loss, scar contracture, or malalignment of the nipple areolar complex.
- Oncoplastic techniques can be used in all sizes of tissue defects after partial mastectomy to reduce the poor cosmetic outcome.
- Collaborating with a plastic surgeon can increase the number of patients that are candidates for breast preservation and allow larger volumes of resection and contralateral symmetry procedures.
- Oncoplastic surgery focuses on maintaining the normal breast contour and the blood supply and position of the nipple and areola.

INTRODUCTION: NATURE OF THE PROBLEM

Surgical techniques involving breast cancer have recently evolved in 3 important areas: patient recovery, oncological safety, and optimal cosmetic outcome.[1] The first recorded surgical management of breast cancer dates back to 3000 to 2500 BC as described in *The Edwin Smith Surgical Papyrus*, the oldest known surgical treatise.[2]

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No significant advancements took place until the first century AD when a Greek physician named Leonidas developed a surgical approach through incision and cautery.[1] For the next few centuries, progress was minimal and few individuals contributed to the improvement of mastectomy. Some of those who contributed were Galen, Jean Louis Petit, Joseph Pancoast, and Samuel Gross.[1,3] Due to high mortality rates from infection and the intolerable postoperative pain, mastectomy was not popular until the introduction of anesthesia in the nineteenth century. Dr William Halsted[4] is credited with developing the technique to safely perform a radical mastectomy. Dr Halsted used anesthesia and the concept of sterilization and disinfection to dramatically improve the outcome of the procedure. From that time on, procedures for breast cancer gained momentum and breast cancer surgical therapy started to evolve toward less invasive approaches while maintaining optimal oncologic outcomes; for example, Patey[5] and Handley[6] described the modified radical mastectomy, sparing the pectoralis major muscle.

In the twentieth century, surgical management of the breast further evolved to breast conservation therapy, taking advantage of increased understanding and use of hormonal therapy, chemotherapy, and radiotherapy.[7–9] This change in surgical management was made possible by the completion of large randomized clinical trials in the 1970s and 1980s, which demonstrated that in specific patient populations the less extensive surgical approach of partial mastectomy has equivalent oncological outcomes to mastectomy when performed with appropriate adjuvant therapy.[7,10]

The improvements in surgical techniques have not only addressed survival but also cosmesis. Breast reconstruction after mastectomy is available to most women. One of the earliest records of breast reconstruction after mastectomy is from the French surgeon Verneuil in 1887, who performed autologous tissue transfer from the healthy breast to the diseased breast.[11] Since then, other approaches have been developed, including both autologous and prosthetic reconstruction. The initial efforts focused on reconstruction of mastectomy defects. Only recently has reconstruction of the breast after partial mastectomy been considered important. Surgeons are now expanding the indications for breast preservation, resulting in more extensive partial mastectomies that increase the risk for cosmetic deformity.[12]

A critical aspect that should be considered when performing breast cancer surgery, either partial mastectomy or mastectomy with reconstruction, is to maintain the natural look and shape of the breast, anticipating the effects of radiation on the partial mastectomy cavity and the mastectomy flaps. It has been reported that up to 30% of women undergoing partial mastectomy with radiation therapy will develop breast disfigurement requiring further surgical correction.[13] To address the cosmetic defects that result from partial mastectomy, breast reconstruction procedures have been developed or adapted from breast cosmetic procedures. In the early 1990s, Audretsch[14] suggested integrating plastic surgery principles with breast conservative surgeries.[14–16] Currently, integrating oncological surgical techniques and plastic surgery techniques is referred to as oncoplastic breast surgery, which aims to provide the optimal oncological safety outcomes in addition to achieving a favorable breast cosmesis for patients undergoing breast preservation. The term oncoplastic is Greek in origin for molding of tumor.[17] John Bostwick III introduced the term tumor-specific immediate reconstruction in 1996 and proposed his classification for oncoplastic breast surgery.[18,19]

Four main factors influence the extent of breast deformity after breast conservation: (1) tumor location, (2) tumor to breast size ratio, (3) use of radiotherapy, and (4) surgical resection approach.[16] Oncoplastic breast surgical approaches have evolved over the years. To achieve optimal outcomes, patient selection criteria and several surgical approaches were studied and proposed. It is vital for all surgical oncologists

approaching breast cancer to consider these factors. Each will be considered in describing the available oncoplastic procedures. The indications for oncoplastic procedures and when to pursue preoperative plastic surgery consultation is discussed based on those factors.

SURGICAL TECHNIQUE

Preoperative Planning

The decision of which surgical approach to be used for the oncoplastic procedure is heavily based on patient and tumor characteristics (Fig. 1). Mansfield and colleagues[17] reported the following factors for consideration before surgery: volume of tissue to be excised, tumor location, breast size and glandular density, adjuvant therapies, and patient-related risk factors, particularly smoking, obesity, diabetes, and previous surgery. The patient's clinical disease presentation, imaging, pathologic test review, anticipated adjuvant therapy needs, anticipated skin resection, and appropriateness for breast conservation therapy are thoroughly evaluated. Other considerations include prior breast surgery and surgical scars, prior radiation history (partial breast radiation therapy for prior breast cancers and mantle radiation for prior lymphomas), and bra cup size (both current and desired), as well as back or neck pain due to large breasts, intertriginous rashes, breast ptosis, body mass index, smoking history, and lactation history. These factors guide surgeons in selecting those patients who will benefit from oncoplastic surgery and what extent of tissue rearrangement will be optimal. The most obvious example is a large-breasted woman with back and neck pain, intertriginous rashes, and a small tumor in the lower pole of the breast, who would obviously benefit from a breast reduction at the time of the partial mastectomy, with the tumor being removed as part of the reduction specimen. More complex decision-making is required for a woman with prior breast augmentation who has parenchymal atrophy and may require a mastopexy technique to redistribute the parenchyma evenly with respect to the nipple areolar position. In this case, it may be preferable to perform mastectomy and implant removal with immediate total breast reconstruction, allowing avoidance of radiation-associated capsular contracture.[20] Women with tumors in the upper quadrants and lactational breast deflation may benefit from oncoplastic techniques to prevent deformity due to ptosis or

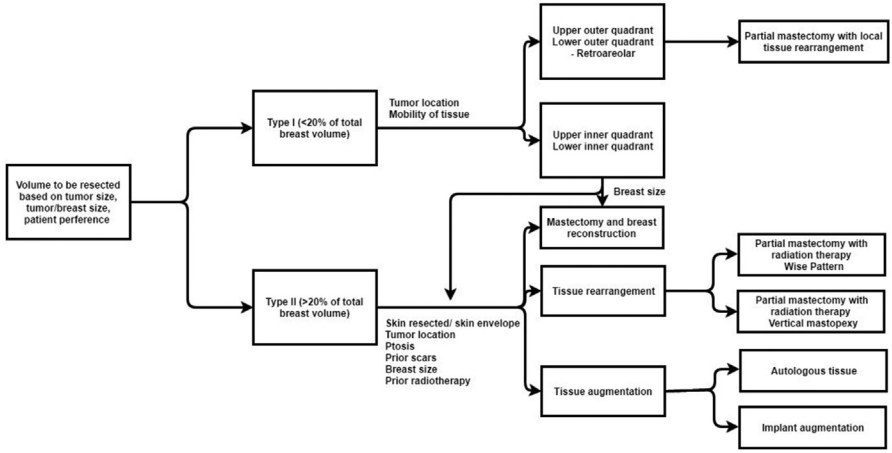


Fig. 1. A summary algorithm for approaches to performing oncoplastic procedures.

pseudoptosis. Each of the previous examples describes patients with significant benefit from plastic surgery consultation and oncoplastic surgery. However, most women will have smaller defects that can be closed primarily without breast distortion and do not need plastic surgery assistance. In patients with smaller defects, there are still advantages to locally rearranging the remaining breast tissue. This tissue rearrangement is done to reduce the scar contraction, tethering of the skin, and distortion of the location of the nipple and areola.

Preoperative considerations for surgical planning include the previously discussed 4 main factors that affect the extent of deformity and several others. The location of the tumor will dictate the available local tissue that can be used to close the defect. Tumors in the upper outer quadrant generally have ample surrounding tissue that can be used to close the defect and tissue loss in this location is less cosmetically noticeable. Tumors in the upper inner quadrant have little surrounding tissue to close the defect; scarring in this location is more noticeable because it is a more visible location in the breast.

The use of radiation therapy after partial mastectomy significantly reduces the risk of tumor recurrence in the breast and is recommended in all but rare exceptions. The cosmetic effect of the radiation therapy results in less pliable skin, firmness of the breast parenchyma, and scar contraction. The location of the defect combined with the radiation therapy can result in asymmetry of the breast volume and asymmetry in the position of the nipple and areola. Tumor to breast size ratio will influence the volume loss, resulting in breast size discrepancies. The larger the tumor and the smaller the breast, the more significant the volume deficit. Patient's with more than a 20% volume loss should have a preoperative plastic surgery consultation. Similar to the breast size to tumor ratio, the planned skin resection to skin envelope ratio is a key measure for cosmetic outcome. The location of the skin resection will affect the location of the nipple areolar complex and symmetry with the contralateral breast. Surgical scars may limit the oncoplastic techniques available if the blood supply to portions of the parenchyma or nipple areolar complex have previously been disrupted and may require a more sophisticated analysis of a volume replacement strategy to prevent postoperative ischemic necrosis. Patients with prior history of smoking, previous radiation, obesity, or a high body mass index will be at higher risk of postoperative complications. Previous mantle irradiation is a contraindication for breast preservation in some cases, depending on the location of the tumor and the prior radiation fields. Patients with previous partial breast radiation therapy may still be candidates for breast preservation depending on the site of the recurrent tumor. In cases in which breast preservation after prior radiation is considered an option, tissue rearrangement using oncoplastic techniques may be necessary to maintain the contour of the breast and the position of the nipple areolar complex. Each of these factors should be considered preoperatively in determining the need for plastic surgery consultation and in planning the location of incisions and tissue rearrangement needed to close the partial mastectomy defect.

Anticipated Breast Deformities After Partial Mastectomy

Anticipating the deformity created is the first step to understanding when to use oncoplastic techniques. Excised breast tissue volume has been reported to be the most predictive factor for breast deformity, especially when the resected volume is greater than 20% of the total breast tissue volume.[21] Risk of deformity is also associated with location of the tumor within the breast. Tumors in the upper outer quadrants have more favorable results, whereas tumors in the upper inner quadrants or in the lower pole have higher risks of deformity.[22] In the upper inner quadrant, the volume loss

creates an unfavorable concavity of the medial cleavage of the breast. In the lower quadrants, the nipple can settle into a downward position overhanging a concavity in the lower pole, creating a bird-beak deformity.

Nipple Areolar Location

One key element involved in planning oncoplastic reconstruction involves maintenance of the relationship of the nipple-areolar complex (NAC) to the breast mound. Partial mastectomy defects, once irradiated, can create movement of the NAC toward the defect. Both the surgical scar and the partial mastectomy cavity will contract, creating contour deformities and possible nipple malposition. By preserving or relocating the NAC strategically within the skin envelope in a central position, and rearranging the breast parenchyma to fill the partial mastectomy defect, the effects of radiation and scarring on the breast mound can be mitigated.[20,22] This problem can occur with all lumpectomies and, therefore, some consideration for tissue rearrangement to reduce the partial mastectomy defect should be considered.

With planned incisions and parenchymal reconstructions, the pertinent blood supply to the nipple areolar complex must be considered. Skin incisions should be personalized with respect to skin quality, amount of breast ptosis, and prior surgical incisions. For larger volume resections or for patients with factors that predict a poor cosmetic outcome, coordination with a plastic surgeon can facilitate joint planning of incisions to best access the tumor while maximizing perfusion to the critical components of the breast. In addition, many patients will benefit from a symmetry procedure on the contralateral breast. Kronowitz and colleagues[20] described a management algorithm for reconstructing partial mastectomy defects, based on the location of the tumor within the breast, and did recommend a multidisciplinary breast team to guide the patient to determine the best approach.

PREPPING AND PATIENT POSITIONING

All patients should be marked in a standing position before surgery by the plastic surgeon and the oncologic surgeon. Midline, lateral and inframammary breast folds, and breast meridians should be marked. Tumor location, nipple location (both current and anticipated location), and planned incisions, including skin resections and dermoglandular pedicles, should also be marked. One advantage to using the vertical mastopexy or Wise-pattern skin incisions is the access gained to the axilla for sentinel node and axillary node dissections.[23] However, there is a valid argument that, in some cases, undermining the lateral Wise skin flap can compromise blood supply to the skin closure and should be discussed by the surgeons.[20]

The patient is positioned supine under general anesthesia. Care should be made to ensure symmetric shoulder and arm height. Arms are abducted to 90°, secured on armboards in supination to avoid ulnar nerve compression, padded, and wrapped appropriately. This allows access to the axilla for lymph node evaluation and protects the patient during the seated position of the procedure, which is performed to check symmetry and nipple height. The patient should be situated at the proper location over the break in the bed to allow the back of the bed to raise the patient to an upright position. This should be tested by sitting the patient up while asleep but before prepping and draping.

SURGICAL APPROACH

Clough and colleagues[22] described a commonly used approach for oncoplastic procedures. They classified the surgical approach into 2 levels based on the resected volume from the breast with a level I procedure requiring less the 20% volume

resection from the breast. Following skin incision, the skin and/or nipple areolar complex are undermined and the full glandular thickness is resected. After completing the resection, the glandular tissue is closed by reapproximation. This is an appropriate technique for smaller volumes of resection in which the location of the nipple and areola will remain symmetric to the contralateral breast (Figs. 2 and 3). Level II procedures are cases requiring more than 20% volume resection from the breast or patients with ptosis or glandular atrophy. Level II procedures are more complex and are described as 2 groups of procedures: volume displacement and volume replacement (Figs. 4 and 5). For volume replacement techniques, the glandular gap is filled with either autologous tissue from another site (latissimus dorsi flaps) or with a breast implant.[24–26] Volume displacement procedures use mammoplasty techniques to fill the resulting glandular defect. This is done by mobilizing the locoregional glandular and fatty tissue, which results in a redistribution of breast tissue and equal reduction of the breast volume as a whole and not just at the tumor area.

SURGICAL PROCEDURE

Level II Volume Displacement Procedures

The key to these procedures involves planning the pedicle of the NAC as a separate entity from the skin envelope and planning incisions considering the location of the tumor.[20,23] The tumor is removed using the oncoplastic incisions. Sufficient tissue

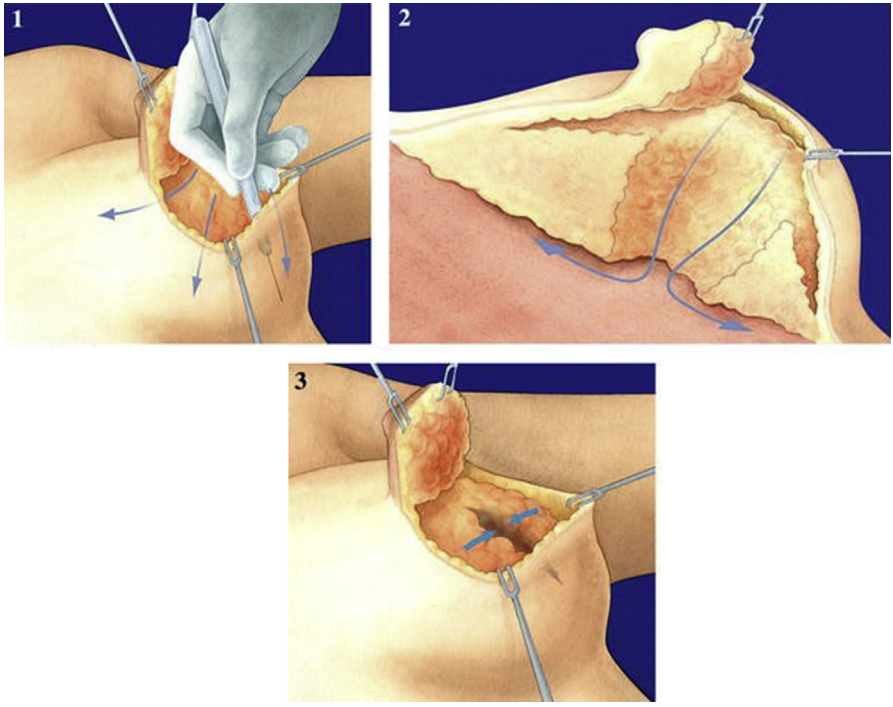


Fig. 2. Level I oncoplastic surgery: surgical concept. 1. Initial extensive skin undermining. 2. Excision of the lesion from subcutaneous tissue to pectoralis fascia. 3. Reapproximation and suturing of the gland. (*From* Clough KB, Kaufman GJ, Nos C, et al. Improving breast cancer surgery: a classification and quadrant per quadrant atlas for oncoplastic surgery. Ann Surg Oncol 2010;17(5):1378; with permission.)

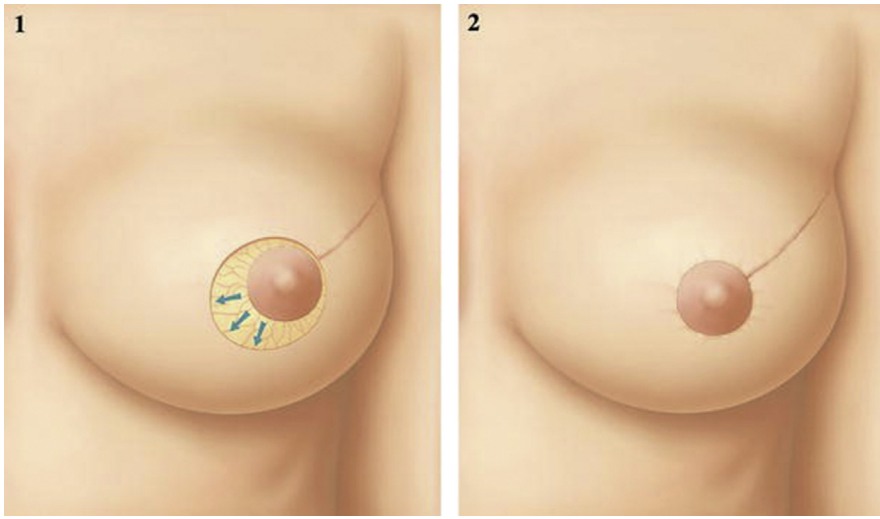


Fig. 3. Level I oncoplastic surgery: nipple recentralization. 1. A skin crescent is de-epithelialized opposite to the lumpectomy bed in the upper-outer quadrant. 2. NAC is recentralized to avoid NAC deviation postlumpectomy. (*From* Clough KB, Kaufman GJ, Nos C, et al. Improving breast cancer surgery: a classification and quadrant per quadrant atlas for oncoplastic surgery. Ann Surg Oncol 2010;17(5):1378; with permission.)

should be removed to increase the likelihood of achieving negative margins. The primary tumor is processed in the same manner as a standard partial mastectomy. After removal of the primary tumor, the skin envelope is elevated with a thick layer of subcutaneous tissue, the breast parenchyma is reapproximated to recreate the breast mound, and limited undermining is performed to maximize perfusion to the parenchyma and minimize postoperative fat necrosis.[20] The skin is then redraped over the breast mound and closed. There are several skin incision patterns that have been described to do this, depending on the amount of skin resection needed, the desired movement of the nipple areolar complex, and the location of the primary tumor. These include the Wise-pattern type for larger skin resections, and the vertical scar or Lejour type. The NAC pedicle can be from virtually any direction, based on tumor location. Other techniques described are round block or Benelli technique (for upper pole tumors) and Grisotti flaps (for central tumors).[17]

Level II Volume Displacement Techniques by Tumor Locations

Lower pole tumors

In women with grade II breast ptosis or higher, either a Wise-pattern or vertical scar should be used. The location of the tumor (medial, central, or lateral) in the lower pole will help determine the proper NAC pedicle. For central lower tumors, a superior or superomedial pedicle is used (see **Fig. 4**). The lower pole skin and some additional parenchyma may be resected and closed to fill the defect. Modifications to the inferior pedicle may be made to accommodate the desired volume of tissue resection for tumors located in the medial and lateral lower poles. This will help avoid the flattened medial cleavage that sometimes occurs with an inferior pedicle.[20]

Upper pole tumors

In cases of upper pole tumors, an inferiorly based pedicle is used (see **Fig. 5**). The Wise pattern or vertical scar is created, maintaining the dermal plexus on the inferior

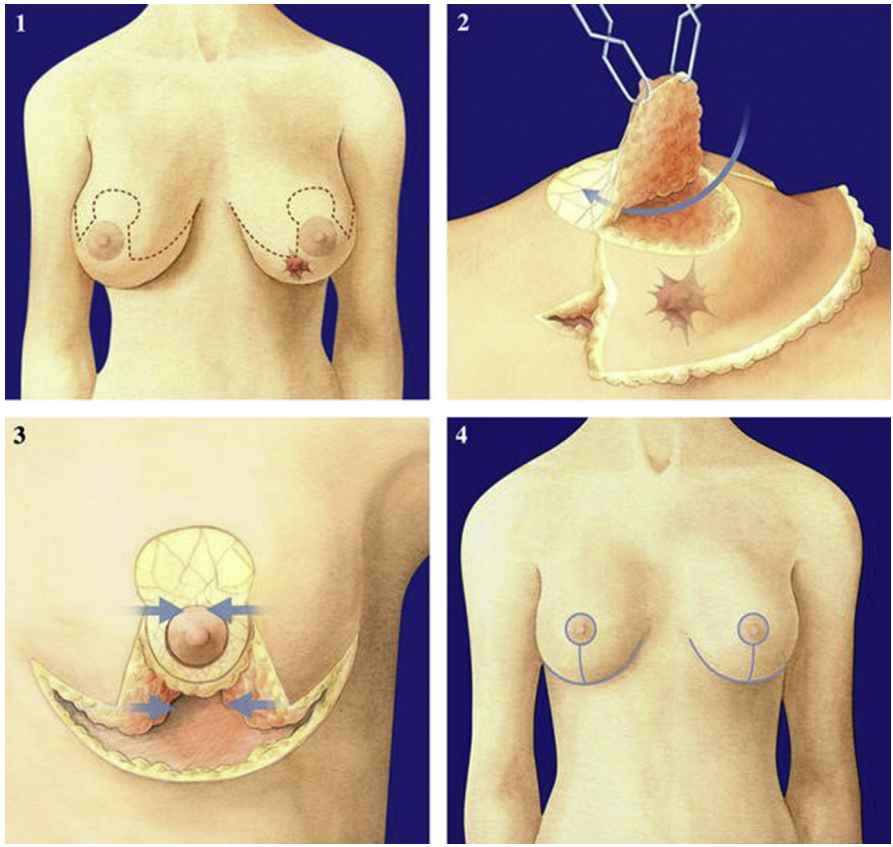


Fig. 4. Level II oncoplastic surgery: superior pedicle mammoplasty for lower pole lesion (6 o'clock). 1. Preoperative drawings. 2. Superior pedicle de-epithelialized and elevated. 3. Re-approximation of medial and lateral glandular flaps after wide excision. 4. Final result after reshaping and contralateral symmetrization. (*From* Clough KB, Kaufman GJ, Nos C, et al. Improving breast cancer surgery: a classification and quadrant per quadrant atlas for oncoplastic surgery. Ann Surg Oncol 2010;17(5):1380; with permission.)

pedicle. The upper pole tumor defect is filled with the upper aspect of the pedicle and the nipple repositioned. For minimal ptosis, a vertical skin excision can be used. Another option is a crescent mastopexy or Benelli mastopexy incision in which a wider periareolar incision is made and de-epithelialized. The skin envelope is undermined in the mastectomy plane to complete the excision of the tumor. For upper medial defects, the medial portion of the inferior breast pedicle can be extended to fill the defect or a laterally based pedicle can be used. Lateral upper quadrant tumors are in an area where breast parenchyma is usually resected during breast reductions. Often, the tissue needs only to be resected and the superomedial or inferior pedicle used to relocate the nipple areolar complex.

Central tumors

Centrally located tumors that are not amenable to NAC preservation due to oncologic factors also benefit from oncoplastic techniques.[27] Previously, these central or retroareolar tumors were not thought to be amenable to partial mastectomy; however,

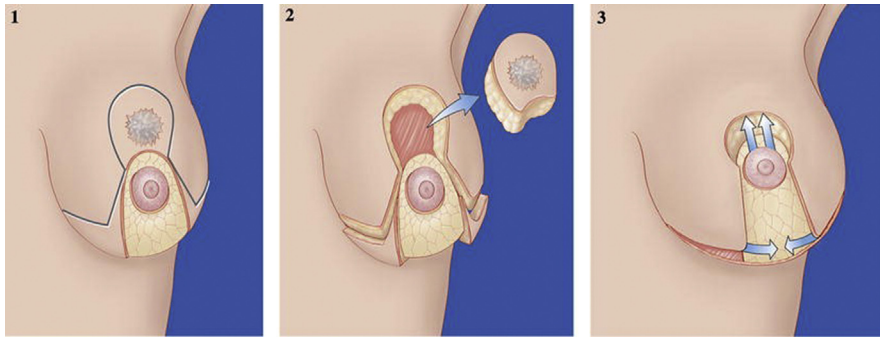


Fig. 5. Level II oncoplastic surgery: Inferior pedicle mammoplasty for 12 o'clock tumors. 1. Preoperative drawings. Inferior pedicle de-epithelialized. 2. Tumor resection. Complementary resection of medial and lateral pillars. 3. Advancement of inferior pedicle into the defect and skin closure. (*From* Clough KB, Kaufman GJ, Nos C, et al. Improving breast cancer surgery: a classification and quadrant per quadrant atlas for oncoplastic surgery. Ann Surg Oncol 2010;17(5):1384; with permission.)

oncologic safety is comparable to mastectomy.[28–30] Depending on the size of the breast and degree of ptosis, several techniques can be used. For smaller breasted women with minimal ptosis, a periareolar incision, with limited undermining of the surrounding tissue can be performed to allow closure of the defect in a straight horizontal line. Alternatively, a circular periareolar incision can be used and then closed in a pursestring.[27] For women with larger degrees of ptosis, the Wise-pattern skin excision is used, the tumor removed centrally, and the lateral wings of the upper breast parenchyma undermined along the chest wall to close the parenchyma inferiorly, resulting in an inverted-T scar.[20,27] An additional modification preserves a circular island of skin on an inferomedial pedicle to replace the skin where the nipple areolar complex was resected. The vertical or Wise-pattern skin incisions are closed around the skin. This paddle of skin placed centrally will maintain the natural pout of the breast and a nipple can be created from this skin at a later date.[27]

OBESE PATIENTS

The Wise-pattern skin excision combined with a pedicled nipple areolar complex is found to have fewer complications in obese women when compared with total breast reconstruction.[31]

Level II Volume Replacement Techniques

Volume replacement techniques fill the glandular defect with either autologous tissue from another site (latissimus dorsi flaps) or with an implant.[24–26] These are best performed at the time of initial partial mastectomy but are also used after a deformity has developed after radiation. Unfortunately, these often result in donor site scars and less than satisfactory cosmetic results when compared with immediate reconstruction because the fibrosis from radiation is often difficult to counteract.[20,26]

POSTOPERATIVE CARE

The patients with larger resections are often observed overnight due to the risk of postoperative hematoma. Smaller resections are discharged the same day. Surgical bras are used at the preference of the surgeons. Drains are not typically

required. Surgical healing time depends on the extent of the reconstruction but typically is complete by 4 to 6 weeks and does not delay postoperative radiation therapy.

RECOVERY AND REHABILITATION

Most patients do well and require minimal assistance with rehabilitation. Occupational or physical therapists familiar with postoperative breast cancer therapy can be helpful with range of motion exercises and chest wall massage. Scar tissue may contract with time and chest wall massage can minimize deformities. Massage techniques for cutaneous nerve desensitization are helpful for the hyperesthesia related to parenchymal dissections in the breast and lymph node resections. After the effects of radiation therapy mature, some patients develop tightened parenchyma and chest wall and shoulder tightness, which will improve with proper therapy.

POSTOPERATIVE SURGICAL COMPLICATIONS

Postoperative complications after oncoplastic procedures have been reported to be between 15% and 30%.[32–35] These include surgical site morbidity of skin, flap, or fat necrosis; nipple areolar complex necrosis; and infection, seroma, hematoma, and wound dehiscence, which might require interventional procedures or reoperation.[36] Necrosis is the most prominent complication with the volume displacement approach.[17,22] However, donor site morbidity is prominent when autologous tissue is used for the volume replacement approach.[17,22] Complications arising after the surgery might affect patient recovery and ultimately cause delays in receiving adjuvant therapy; however, this is unlikely. As such, it is important to screen patients based on the criteria previously discussed to insure optimal outcomes. Evaluating the glandular density and fatty composition of the breast is critical to minimize complications related to surgical manipulation of the tissue. Higher glandular density is associated with lower risk for fat necrosis and, conversely, higher fat density has a higher risk for fat necrosis after surgical reshaping.[22] Nonetheless, good outcomes have been reported using oncoplastic principles in both large tumor to breast volume ratios, obese patients, and for patient with tumors in difficult locations.[23,27,31,37]

DELAYED RECONSTRUCTION FOR PARTIAL MASTECTOMY DEFECTS

Unfortunately, acquired deformities after partial mastectomy and whole breast radiation are often difficult to correct, requiring extensive surgery[20] with high complication rates.[20] If a woman develops a delayed deformity after breast conservation therapy, the 2 main options to correct the deformity include autologous tissue flaps and completion mastectomy with total breast reconstruction. There is often a contracted partial mastectomy cavity, with focal parenchymal volume loss; tethering of the overlying skin to the cavity; and tight, contracted skin that is at very high risk for mastectomy skin necrosis after undermining. Depending on the location of the defect, the nipple areolar complex can also be malpositioned toward the defect because the tethered skin and parenchyma pulls the nipple toward the defect as it contracts. Conversely, extensive volume and skin loss also occur.[26] The irradiated tissue is not easily amenable to local tissue rearrangement, with a complication rate as high as 50%.[20] Implant placement in these defects is not usually effective unless the woman has a central partial mastectomy defect with a simple size discrepancy with the contralateral breast and no true skin, parenchyma, or nipple distortion. Lateral thoracic or abdominally based flaps bring nonirradiated tissue into the breast to

facilitate healing and fill the contracted cavities.[20,26] They also replace skin in cases in which the skin is distorted, contracted, or causing nipple areolar distortion. In some cases, the distortion is so severe that a completion mastectomy and total breast reconstruction is required.

ONCOLOGICAL OUTCOMES

Several studies have reported the oncological safety of oncoplastic breast procedures. Several randomized controlled clinical trials, prospective studies, and systematic reviews have reported high 5-year overall and disease-free survival, low recurrence rates, and that complications did not affect delivery of adjuvant therapy.[36,38–41] As such, current evidence suggests that oncoplastic procedures do provide the oncological safety that they were designed to do.

PARTIAL MASTECTOMY MARGIN STATUS

Some patients present with tumors whose margins may be involved after partial mastectomy. The risk of positive margins is increased in women with extensive ductal carcinoma in situ, large tumor to breast size ratio, and those with multifocal tumors. When volume replacement techniques are used and in type I defects closed by reapproximation of local tissue, new parenchyma is simply interposed into the defect and the margins of the cavity remain in the same location relative to the rest of the breast. For the type II defects treated with oncoplastic techniques, positive margins create a significant problem. Most reconstructive techniques involve some manipulation of the partial mastectomy cavity, making it difficult to identify by the surgeon during reexcision of the margins and by the radiation oncologist when planning a radiation therapy boost dose. However, in larger reconstructions, such as a breast reduction using a superomedial pedicle and wise pattern skin resection for a lower pole tumor, these volume replacement techniques may result in more extensive manipulation of the parenchyma and movement of the walls of the cavity. This will make re-excisions for positive margins a challenge surgically because the borders of the cavity may have been shifted. In cases in which there is a high risk for positive margins, immediate reconstruction may not be indicated but can safely be achieved once any re-excisions are performed and margin status is clear. For this reason, the authors recommend preoperative consultation with plastic surgery, preferably before partial mastectomy, in women who meet the criteria for an oncoplastic procedure and have a high risk of positive margins. In some patients, the decision to pursue an oncoplastic procedure is determined after the original partial mastectomy is done showing positive margins. If consultation was not done preoperatively, it is needed before radiation is begun.

COSMETIC AND QUALITY OF LIFE OUTCOMES

There are limited studies looking into cosmetic and quality of life outcomes after oncoplastic breast procedures. Cosmetic outcomes have been assessed subjectively without standardized validated methodology. With those limitations, several studies reported good cosmetic outcomes after oncoplastic procedures in 84% to 89% of subjects.[38,42–44] Quality of life outcomes have been studied using standardized questionnaires, such as BREAST-Q, Short Form-36, and the Rosenberg Self-Esteem Scale, and have reported that the quality of life outcomes for oncoplastic procedures are higher and superior to breast conservative surgery alone.[10,45,46]

SUMMARY

The goal of oncoplastic surgery is to improve the cosmesis for women undergoing partial mastectomy with radiation therapy. All patients treated with breast preservation should have attempts made to reduce the parenchymal defect within the breast. Scarring in the breast due to both the parenchymal defect and radiation therapy can result in volume loss, tethering of the skin, and distortion of the location of the nipple areolar complex. Reapproximating the breast tissue and reshaping the breast with awareness of the position of the nipple and areola on the breast mound results in good cosmetic outcomes and improved quality of life with equivalent survival and local control. Therefore, oncoplastic surgery should be attempted in all patients who undergo breast preservation for breast cancer.

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