



Visualized oncoplastic surgery of the breast I: inferior and medial quadrantectomy

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Abstract: Surgical treatment of breast cancer has changed during the last few decades. Long-term evaluation of several studies performed worldwide have confirmed that conservative surgery (CS) and radical mastectomy have similar survival rates. Due to CS being the gold standard for treatment for most women with breast cancer, advances in materials, mastectomy and reconstructive surgery techniques, now give us the possibility to perform on our patients a great outcome with oncological security. Both advances, in plastic and oncologic surgery, created a new discipline, called oncoplastic breast surgery, that allow surgeons to resect large breast specimens preventing subsequent deformities with the correct previous planning. This is particularly important when more than 30% of the breast volume will be resected because it allows for planning CS depending on the site of the lesion and for establishing the limits between CS and mastectomy.

Keywords: Superior pedicle; oncoplastic; quadrantectomy

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Introduction

Inverted T reductions by the superior pedicle for inferior and medial tumors

With oncoplastic reduction techniques, tumors can be easily resected with large safety margins, avoiding important cosmetic postoperative defects. Reducing breast size decreases retraction risk significantly, without affecting adjuvant therapies, clinical and radiological follow-up (1-3).

The design of these therapeutic reductions is based on a keyhole Wise pattern ("inverted T") or a "V" design. The areola can be repositioned as needed, including the lesion within the resection piece. The choice of the pedicle that will ensure nipple-areola complex (NAC) irrigation will depend on tumor location and glandular resection (3,4).

For tumors located at the inferomedial or lateral quadrants, the keyhole pattern may rotate slightly and allow better lateral or medial resections. The NAC is moved

in the opposite direction to the surgical defect after piece resection, remaining; as a result, an inverted T scar (5,6).

The resection piece should be full thickness, and the remaining breast tissue should be advanced to minimize the defect. When treating the contralateral breast simultaneously with mirror procedures, the surgeon should remove any suspicious tissue revealed by preoperative mammogram (7,8).

We aim to offer a detailed step by step technique description of this oncoplastic procedure.

Operative technique

Superior pedicle

The superior pedicle technique is especially suitable for tumors located in the junction of the lower medial & lateral quadrants, especially in large breasts with ptosis, since the

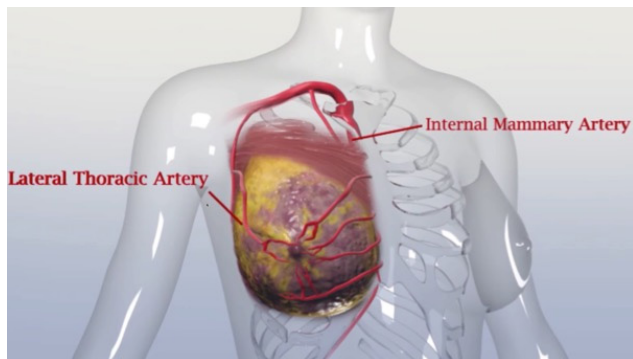


Figure 1 Breast vascularization.

areola that must be repositioned in a more cephalic position at least 10 or 11 cm below the clavicle (9,10).

These tumor locations are the most difficult to locate since the latero-areolar segment of the breast is the area where the mammary gland is poorer, especially if ptosis is important.

The pre-established drawing resumes the Wise pattern in a keyhole. This technique allows to refill the resected area due to the superior dermoglandular pedicle, the area corresponding to the resection of the tumor located at the junction of the upper quadrants above the areola. To reduce the dead space and the consequent seroma, a beveled (inverted pyramidal form) glandular resections, must be performed if possible (11,12).

The preoperative scheme and resulting scar are identical to those of the inverted T with the inferior pedicle. The quadrantectomy zone corresponds to the future implantation area of the NAC. The skin incision follows the rounded tracing and goes in monoblock up to the pectoralis major fascia plane, with the skin detached laterally along the vertical and horizontal lower incisions.

The complete piece that contains the tumor with sufficient margins resembles a horseshoe. The inferior pedicle must be no less than 8 cm wide to ensure the vascularity and vitality of the NAC (13,14); likewise, the dissection must be careful, in a pyramidal manner, so as not to release the said pedicle from its adherence to the pectoralis major and the rib cage. By raising the NAC, the reconstructed glandular tissue allows the skin to be closed above, reconstructing a smaller breast with a narrower base and the NAC relocated in a more cephalic position (15,16). This technique allows en bloc resection, reaching the chest plate, and including the tumor in the resected piece.

The opposite breast symmetrization is carried out simultaneously using a similar technique, providing the

same results in terms of volume and scars (17-19). Resection over the contralateral breast must be approximately 10% larger than the affected breast; this observation is important considering that postoperative radiotherapy will reduce the size of the treated breast (20,21).

Indications

Superior pedicle with Wise incision pattern

- ❖ Large or moderate, breast volume with lower inner and lower outer quadrant lesions;
- ❖ Indicated in the large ptotic breast, grade II or III.

Operative markings

Agreement between the surgical team, plastic, and oncologic surgeon, leads to the ideal selection of type and position of skin incision.

As an oncologic principle, large inferior quadrant lesions can be easily resected. Also, breast tissue including the pectoralis fascia can be resected to increase safety, regarding negative posterior margins.

Surgical marking is performed in a stand-up position. When the tumor is palpable, it is advisable to outline it during this marking process.

A midline, beginning at the suprasternal notch and running inferiorly to umbilicus is drawn. Two meridian lines were running from midclavicular point to the inframammary fold (IMF), is selected as the central position of the new NAC. Two cm higher from the projected point over the meridian line at the IMF will result in the higher borderline point of the new NAC. The distance between the midline and new nipple should result between 9–11 cm over the meridian line, and the distance from the suprasternal notch and the new both sides nipples usually remains between 18–22 cm. After marking the tumor location on the skin, a Wise keyhole pattern is designed including in it the lesions to be resected. The keyhole marking can be rotated laterally or enlarged to include better the tumor in the resection piece, and a superiorly based pedicle is designed (*Figures 1-3*).

Intraoperative steps

- ❖ Markings with the patient in stand-up position (*Figure 4*);
- ❖ Sentinel or complete axillary lymph node dissection can be performed through the same or by a separate axillary incision;
- ❖ NAC is placed under slight stretch. Mark with the corresponding desired size cookie cutter and drawn

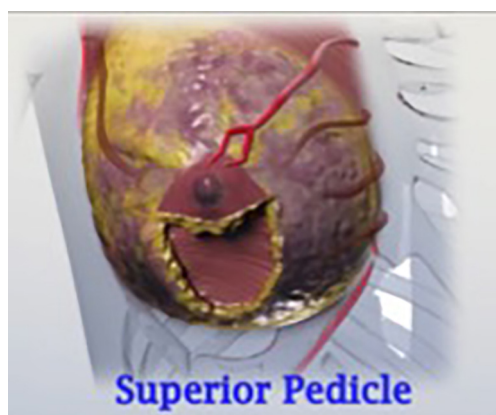


Figure 2 Superior pedicle tailored after inferior resection.



Figure 3 Surgical technique video, inferior quadrantectomy by superior pedicle (22).

Available online: <http://www.asvide.com/watch/32983>

with a pen the new NAC size and position centered over the meridian line;

- ❖ Perform the breast-conserving surgery (BCS) with full-thickness resections and including the pectoralis fascia in the corresponding region of the lesion (*Figure 5*);
- ❖ Mark the BCS resection piece to allow pathology margin assessment. Weigh the specimen that has been removed. Try to leave approximately 10% more volume on this side, as it will undergo radiation with posterior volume reduction;
- ❖ Complete closure of the lateral and medial pillars in a standard Wise pattern;
- ❖ Special care needs to be given to allow symmetrical appearance, especially to obtain a natural midpoint closure on the IMF, without lateral dog ears. That's the importance of preoperative markings;
- ❖ Finish closure (*Figure 6*).



Figure 4 Markings with the patient in stand-up position.



Figure 5 Resection with lesion included in the piece.

Comments

Various factors may influence decisions regarding breast reconstruction technique, such as smoking, obesity, diabetes, autoimmune diseases, and previous scars or radiotherapy. These previous conditions may cause an increase in the complications rates with the commonly used reconstruction techniques (23,24). Obesity can rise complication rates up to 12 times, and smoking may directly lead to vasoconstrictor in the skin and indirectly alter capillary flow, which can increase necrosis in skin flaps and NAC (18,25,26) (*Figure 7*).

In our experience superior pedicle technique to resect



Figure 6 Final skin closure with inverted T result.



Figure 7 NAC necrosis in smoker patient. NAC, nipple-areola complex.

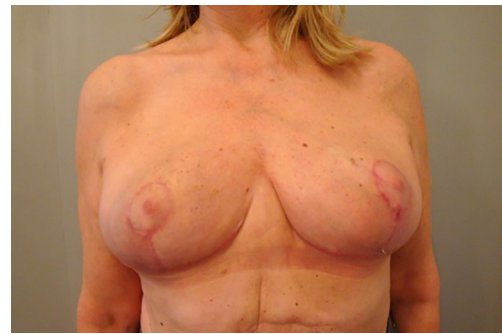


Figure 8 Asymmetry and bad scarring.

inferior or lateral lesions allows a safe oncologic treatment in large and ptotic breasts with great cosmetic outcome Denewer *et al.* (16) reported on the complications of therapeutic reductions. In 35 patients who underwent inferior pedicle reduction mastoplastic as therapy for tumors in the upper quadrants, they observed that the most common early complication (first postoperative week) was wound dehiscence (17.6%). This was mainly in the lower part of the vertical scar in its consequence with the horizontal scar in the submammary fold. However, in most cases, it resolved with conservative treatment. The authors noted that other early complications, in order of frequency, were the presence of partial skin necrosis (11%), infection, fat necrosis, hematoma, and partial areola necrosis (3%). Seroma is reported as the most frequent late complication (14.7%), but all cases resolved with aspiration puncture. Long-term bad scarring is reported as 5% (Figure 8). These data are similar to those reported by Hernanz *et al.* (27), in their study of 57 patients who underwent therapeutic reduction mammoplasty, and by Gulcelik *et al.* (28).

Aesthetic results

All the reported works agree that the cosmetic result and patients' satisfaction who underwent therapeutic reduction mastoplastic is higher than 80% when evaluated 6 months after the surgical intervention. The parameters evaluated were volume symmetry, breast shape, the symmetry of the areolar complexes, and scars (16,27,29).

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None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Informed Consent: Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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