



Level II Therapeutic Mammoplasty: Batwing (Omega), Round Block, and Racquet Techniques

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25.1 Introduction

Oncoplastic breast surgery is a term coined more than 20 years ago referring to a set of surgical procedures using a combination of various oncological and plastic surgery techniques that may allow wider resections for the removal of cancers while maintaining oncological safety and improving the cosmetic outcome of breast-conserving surgery (BCS) [1]. Since the pioneering studies reported by Veronesi and his colleagues more than 40 years ago, there is a large body of evidence that BCS, based on complete removal of the tumor with free surgical margins, provides similar survival rates to mastectomy, with improved body image and life quality [2–4]. The psychological merits of cosmetic breast conservation in comparison to poor BCS surgical techniques or mastectomy with reconstruction are well documented [5, 6]. Simple resection and closure can provide excellent results in small tumors but may result in poor cosmetic long-term outcomes when resection of larger volumes of tumor-bearing breast tissue is needed [7]. Similarly, for the same volume of breast resected, different cosmetic outcomes may result depending on the location of

the tumor and the size of the breasts. For example, poorer results may be obtained if resections of the same volume are performed in the inner lower quadrant compared to the outer upper quadrant.

Oncoplastic surgery has emerged as an innovative approach for extending the possibilities of cosmetically appealing breast-conserving surgery. It may also overcome some of the traditional indications for mastectomy especially when it is believed that classical simple resection and closure of a large volume of the breast tissue will result in a very poor aesthetic outcome. The techniques are commonly classified into two groups of operations known as volume displacement procedures and volume replacement procedures [8–10]. Volume displacement procedures combine wide resection of the tumor with immediate reconstruction of the defect. They are mainly utilized in operations that remove 20–30% of the breast volume. These include several techniques of glandular displacement using different techniques of tissue advancement, rotation, or transposition flaps. Glandular rearrangement techniques may be employed to cover up the defects when the volume resected is usually less than 10% of the breast volume for medially placed surgery and up to 20% in cases that involve the lateral part of the breast. Further classification was proposed by Clough et al. providing a practical guide for the use of oncoplastic surgery [11]. This bi-level guide proposes a selection of the most appropriate procedure plan-

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ning for a given operation. Level I includes procedures that anticipate removal of less than 20% of the breast volume, and level II is required when more than 20% of the breast volume needs to be excised. These procedures may also be classified according to the skills required to perform them successfully. One commonly used guide classifies operations depending on whether a need for a specialized plastic surgeon is justified or not [10–12]. As such, some techniques may be professionalized by all breast surgeons following appropriate training and employed liberally when needed. Here, we will describe three very common and useful level II techniques that are classified in this group of operations and can be easily mastered and carried out by breast surgeons without the need for the assistance of a plastic surgeon.

25.2 Surgical Techniques

Batwing mammoplasty, round block, and racquet mammoplasty are level II oncoplastic techniques that may be mastered by general surgeons. The decision of the appropriateness for each of the procedures is determined upon different factors, including the size of the tumor, its location in the breast, the size and shape of the breast, and the glandular density of the breast. These factors will be discussed in detail for each of these procedures.

25.2.1 Batwing Mammoplasty

Batwing mammoplasty is also termed horizontal mammoplasty or Omega mammoplasty due to the shape of the incision (Fig. 25.1a). The procedure can be applied for tumors located at the upper pole of the breast, especially those located in the inner or midline upper pole and in the vicinity of the NAC (nipple-areolar complex). This procedure described by Silverstein can eliminate the deformity which commonly occurs following simple resection and closure in the upper inner pole of the breast by distorting the visible line known as “décolleté” [12]. It may also eliminate retraction deformity and dislocation of the NAC. It is most suitable when used in medium-sized breasts with moderate ptosis, providing excellent long-term aesthetic results. Since only very little undermining may be required, this procedure can be readily used in dense breast breasts as well as in previously irradiated breasts. Reports describe very few short- and long-term complications along with very high patient satisfaction [8, 9, 12, 13]. Planning of surgery is simple, and it does not significantly prolong operation time nor the need for the hospital stay, and the recovery and complication rates are comparable to the classic BCS.

Operative technique: The planned incision is drawn on the skin according to the location of the tumor, and markings for appropriate closure alignment may be added (Fig. 25.1a). The classi-

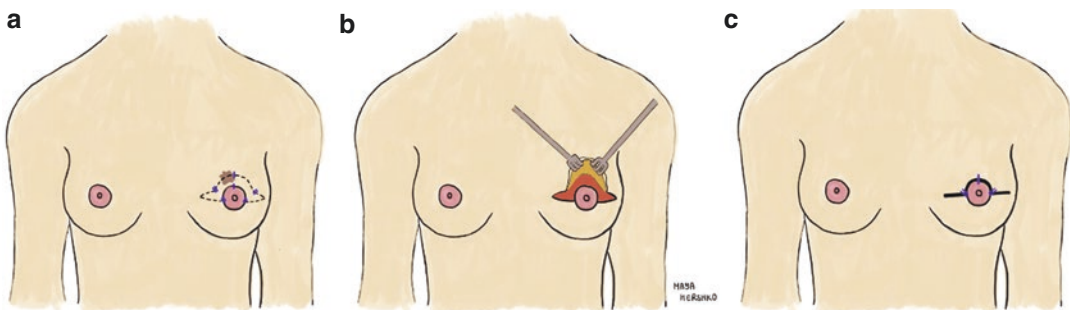


Fig. 25.1 Batwing mammoplasty. (a) Two similar semi-circle incisions are made with angled “wings” on each side of the areola with one line along the border of the areola and the other line superior and parallel to it. Markings are drawn to ensure correct closure alignment.

(b) The skin and underlining breast tissue are resected down to the pectoralis fascia. (c) Layered closure of breast tissue by interrupted sutures is followed by continuous dermal suture

cal half-circle lines include one line along the border of the areola and the other line superior and parallel to it. Two similar semicircle incisions are made with angled “wings” on each side of the areola. The two half circles are positioned in a matter that allows approximation at closure. The removal of the skin wings allows the margins of resection to be shifted together without creating redundant skin folds at closure. In some cases the incision may be also drawn vertically at the medial border of the areola for tumors located at the medial border of the areola, or it may be extended horizontally to only to one side of the breast (termed hemibatwing), depending on the location of the tumor. Incisions are made in the skin according to the lines drawn, and dissection is carried out in most cases down to the chest wall, and the breast gland with the overlying skin is lifted off the pectoralis major muscle and resected (Fig. 25.1b). This practice allows assurance of clear anterior and posterior margins. If required, mobilization of the adjacent glandular tissue is made at this plane between the breast gland and the pectoralis muscle. Care should be made to identify and secure blood perforators traversing at this plane. The fibroglandular tissue is approximated from both sides to close the defect. Leveled interrupted sutures are placed beginning at the deepest portion to eliminate seroma formation. The tissue is secured to itself but should not be anchored to the chest wall. This allows the approximated tissue flaps to find the natural posi-

tion to settle during the healing process. The superficial layer is then approximated in the same manner, and the skin is sutured with continuous intradermal absorbable suture according to the planned markings placed (Fig. 25.1c).

25.2.2 Round Block Mammoplasty

This technique may be used for tumors located in the upper pole of the breast. The procedure is based on the technique originally described by Benelli [14]. It is most suitable for small- to medium-sized breasts with minimal ptosis. This technique produces excellent cosmetic results by eliminating unwanted projection and an appealing minimally visible scar around the areola. This technique is not time-consuming and does not significantly prolong operative time nor length of hospital stay. Recovery and postoperative complications are similar to classical BCS, and reported patient satisfaction is very high.

Operative technique: Two concentric periareolar lines are drawn towards the location of the tumor (Fig. 25.2a). The two lines are incised followed by de-epithelization of the intervening skin between the lines (Fig. 25.2b). The outer edge of the de-epithelialized skin is incised, and the skin envelope is undermined in a similar fashion done to raise flaps for mastectomy (Fig. 25.2b). The NAC remains well vascularized by its posterior glandular base. The tumor-

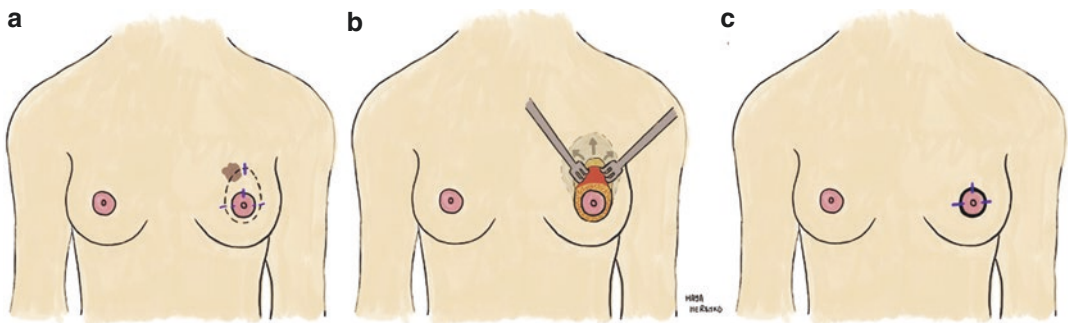


Fig. 25.2 Round block mammoplasty. (a) Two concentric periareolar lines are drawn towards the location of the tumor. (b) De-epithelization of the intervening skin between the two lines is carried out. The outer edge of the de-epithelialized skin is incised, and the skin envelope is

undermined to raise flaps. A wide resection is performed beginning at the upper edge. (c) Layered closure of breast tissue by interrupted sutures is followed by continuous dermal suture

bearing breast tissue is widely excised from the subcutaneous plane to the pectoralis fascia. The medial and lateral glandular tissues are mobilized off the pectoralis muscle, and the flaps are thereafter approximated and sutured together in a similar fashion as described above for Batwing mammoplasty. Finally, the skin incisions are approximated by an intradermal running suture (Fig. 25.2c).

25.2.3 Racquet Mammoplasty

This technique is used for lesions located in the upper outer portion of the breast. A large portion of the quadrant and skin may be resected without causing a deformity or deviation or retraction of the NAC towards the excision area. A key component of this procedure is undermining the NAC as well as its repositioning. Undermining of the NAC is carried out by transecting the retroareolar terminal ducts and separating the ducts from the underlying breast tissue. Care should be taken to maintain a rim of about 1 cm of attached glandular tissue to ensure adequate blood supply of the NAC to avoid venous congestion and necrosis. It should be noted however that the sensitivity of the nipple may be impaired after these procedures. For correct repositioning of the NAC, an area of periareolar skin opposite the resection area is de-epithelialized using sharp knife dissection (Fig. 25.3a). Although the lateral scar may be long, the cosmetic results are usually excellent.

Operative technique: Two circumferential periareolar are drawn, one around the areola and one extending opposite the radial incision line to the place where the nipple should be repositioned (Fig. 25.3a). Two radial lines are then drawn, one beginning from the superior edge of the area planned for de-epithelialization and another one from the inferior edge. The lines should include the skin above the tumor and converge at the axilla. This incision provides also excellent access to the axilla for carrying out sentinel lymph node biopsy or axillary lymph node dissection. Incisions are created at the periareolar lines, and the intervening skin is de-epithelialized (Fig. 25.3b). Incisions of the radial lines are then carried out, and skin flaps are developed to facilitate glandular mobilization. A wide resection of the tumor-bearing breast tissue is performed all the way down to the pectoralis fascia (Fig. 25.3b). The lateral and central margins are then undermined at the level above the pectoralis muscle and mobilized to the cavity of resection and sutured together in layers from deep to the superficial layer to cover up the defect. Encoring sutures between the glandular flaps and the chest wall should not be added. Medial glandular flaps may be accomplished by the detachment of the NAC from the glandular tissue as described above. This enables maximal mobility of the central gland for volume redistribution. Once the defect is eliminated, the NAC is repositioned, and the skin is closed with a running absorbable suture (Fig. 25.3c).

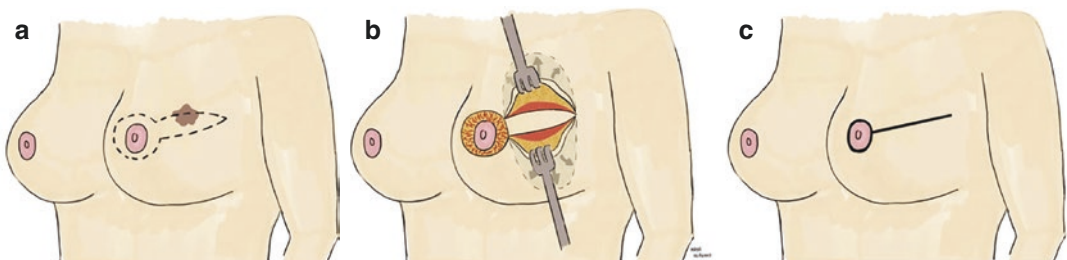


Fig. 25.3 Racquet mammoplasty. (a) Incisions are created at the periareolar lines and radial lines towards the axilla. (b) The intervening skin is de-epithelialized, and flaps are developed to facilitate glandular mobilization. A

wide resection of the tumor bearing breast tissue is carried out all the way down to the pectoralis fascia. (c) Layered closure of breast tissue by interrupted sutures followed by continuous dermal suture

25.3 Conclusions

Oncoplastic breast surgery has emerged as an advanced approach for conserving surgical treatment of the breast. Since the aim of modern surgery is to provide the minimal effective surgery needed for the cure, it is imperative that surgeons treating breast cancer will be familiar with the different oncoplastic techniques that may potentially decrease the need for mastectomies. Here we have described three techniques that can be mastered easily by breast surgeons. Common to all of these techniques is the lack of need for complex plastic techniques and hence short operative time and hospital length of stay. Postoperative recovery and short-term rate of complications is similar to classic BCS, and long-term satisfaction is very high. In some cases contralateral breast adjustments may be needed.

Tips and Tricks

These mentioned techniques can be very useful in daily practice when chosen wisely. They should not be applied routinely for small tumors that can be treated by minimal excision and thus be treated by simple lumpectomies. When needed, it is important to determine the location of the tumor, its size, the size of the breast, and the degree of ptosis. If not applicable it is wise to consult with a plastic surgeon specializing in this field about the possibility of more complex reduction/reconstruction techniques. However, should the factors be compatible with the abovementioned techniques, it is highly recommended to adhere to the steps mentioned above.

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