Vertical Reduction Mammaplasty: Preventing Skin Redundancy at the Vertical Scar in Women With Large Breasts or Poor Skin Elasticity

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The authors describe a vertical reduction mammaplasty technique for avoiding skin excess at the vertical scar. Conical projection of the breast is achieved by cranial to caudal gland-shaping sutures. Excision of redundant skin is performed in a triangular pattern, creating bilateral dog ears. Resection of these dog ears results in a short, symmetrical horizontal scar located at the new submammary line. (Aesthetic Surg J 2007;27:336–341)

The goal of breast reduction is use of a safe technique to achieve an aesthetic and long-lasting result with limited scars. Development of new breast surgery techniques, such as the gland resection pattern in vertical mammaplasty, has been motivated by the desire to reduce scars.

The hallmark of the vertical reduction mammaplasty technique, which provides distinct advantages in shaping breast tissue, is resection of the central and inferior portion of the breast tissue that shifts inferiorly because of gravity. Excision of this area and approximation of the medial and lateral pillars toward the midline with sutures narrows the base of the breast cone and increases its projection.

Vertical reduction mammaplasty can produce fine, stable results in patients who have breast skin with good elasticity and, therefore, the capacity to adapt to the reshaped breast tissue. However, when performed in patients with poor skin elasticity or heavy breasts, this technique may not sufficiently manage skin excess on the vertical scar and, instead, produce marked puckering.

In patients needing extensive reduction who also have poor skin elasticity, insistence on using a standard vertical mammaplasty technique can cause healing problems and increase revision rates. In addition, wrinkles and skin excess on the breast are often quite disturbing to patients during the healing period.

Here, we describe a technique to overcome these problems, avoiding skin redundancy at the vertical line in vertical mammaplasty of heavy breasts. Our technique has decreased revision rates and increased patient satisfaction at the early postoperative period. We are able to obtain a symmetric and short horizontal scar, even in large breast reductions. Scars do not reach the axillary or sternal areas and, being limited to the confines of the breasts, have resulted in high patient satisfaction.

Between 1993 and 2005, 250 patients underwent reduction mammaplasty and mastopexy on the basis of vertical mammaplasty principles. Patients operated on between 1993 and 1998 had a 20% revision rate to correct skin redundancy at the inferior pole. These patients, under local anesthesia, underwent a horizontal elliptical excision after the fourth postoperative month, including the inferior part of the vertical incision.

To decrease this significant revision rate, we developed a special technique targeted for patients with poor skin elasticity who would undergo significant reduction. We used this technique from 1998 through 2005 in 50 patients.

Operative Technique

After resecting a planned amount of breast tissue, suture the medial and lateral pillars to each other. Remove a triangular area of excess breast tissue at the inferior pole of the pillars to adjust the length of the inferior pole of the breast cone. Mark “A” and “B” points on the vertical skin ellipse in accordance with the glandular tissue cone and suture these points to each other (Figure 1). With this suture, you can also assess adaptation of the medial and lateral skin flaps to the inferior pole of the reshaped breast, changing the location of the
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Satisfied with their breast shape and had no complaints about the vertical and the horizontal scar (Figures 5 and 6).

Discussion

Vertical mammaplasty, a technique with superior dermoglandular pedicle and breast resection at the lower quadrants has safely achieved good longstanding results, yielding short scars.1 It was first described by Passot2 in 1931, proposed by Lassus3 in 1970, and popularized by Lejour and Abboud4 in the 1990s. It is an excellent technique, particularly appropriate for women with elastic skin and a firm gland.5 As such, many surgeons prefer it for mastopexy and small reductions6,7 and avoid it for large reductions because of the frequency of healing problems with the vertical scar.8 Technical modifications, such as decreasing skin undermining and avoiding lipoplasty have been suggested to increase safety and simplify the learning curve of vertical mammaplasty. These modifications improved wound healing along the surgical scar and reduced occurrence of hematoma and seroma.9 Similar technical modifications with the addition of a superomedial pedicle that facilitates the insertion of the areola have been described by Hall-Findlay.6,7

suture if necessary. Then, suture the inferior midpoint of the elliptic skin redundancy “C” to the “AB” point (this point is also the projection of the vertical line, which is 9 to 10 cm away from midline on the submammary sulcus). These maneuvers will create medial and lateral dog ears (Figure 2).

Next, make a horizontal incision, not to exceed the diameter and projection of the dog ears, passing through points A and B, beneath the inferior contour of the lower breast gland. Then, determine the amount of excess skin by retracting the medial and lateral skin ellipses toward the midline, and resect. Depending on the amount of skin redundancy, the inferior skin flap is always longer than the superior skin flap at point “DE” (Figure 3).

Subcutaneously suture the inferior skin flap to the superior skin flap by advancing the inferior skin flap medially. In so doing, the skin excess is buried at the central zone of the inframammary sulcus, yielding a short, symmetrical horizontal scar (Figure 4). Insert a drain and apply mild compression to help the skin adapt to the reshaped glandular tissue.

In our series of 50 patients, we did not observe any major postoperative complications. The patients were satisfied with their breast shape and had no complaints about the vertical and the horizontal scar (Figures 5 and 6).

Figure 1. A and B points are marked on the vertical skin ellipse in accordance with the glandular tissue cone and then sutured together.
Beer et al. presented several other modifications: a standardized, geometrical preoperative drawing and addition of a periareolar skin resection. Palumbo et al. described several modifications to this procedure, including the use of a template, controlled excision, and a tension-free nipple/areola complex closure.

Several authors confirmed that Lejour vertical mammoplasty provided difficulties in management of...
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Figure 4. The final view of the breast with the short symmetrical, horizontal scar located at the inframammary sulcus.

Figure 5. A, C, Preoperative views of a 40-year-old woman with bilateral ptosis. B, D, Postoperative views 1 year following vertical mammaplasty with a short horizontal scar.
skin excess on the vertical scar, consistently producing marked puckering of excess skin.\textsuperscript{10–12} Lejour\textsuperscript{13} reported that after several months 10\% of patients (mostly with very large and ptotic breasts) underwent excision of skin redundancy at the lower extremity of the scar to improve the final result. Leone et al\textsuperscript{14} reported revision surgery in 16\% of patients because of dog ear or dystrophic scar in the inferior extremity of the vertical scar. Marconi\textsuperscript{15} hypothesized the possibility of reducing the extent of the scar formed at the inframammary sulcus by burying the dog-ear of excess skin in the region of the inframammary sulcus, using a purse-string suture after first removing the epithelium. Marchac and de Olarte\textsuperscript{16} proposed an elevation of the inframammary line and additional short horizontal inframammary scar for moderate breast sizes, up to 600 g, to shorten the vertical scar. Pallua and Ermisch\textsuperscript{17} presented an L-shaped scar technique on the basis of the principle of shortening the vertical scar with a short horizontal scar as presented by Marchac. They rotated and excised the remaining skin envelope laterally (only), which resulted in an L-shaped scar, avoiding the medial limb. However, Berthe et al\textsuperscript{10} reported in their study that they could not solve the problem with the Marchac procedure\textsuperscript{16} because it was difficult to predict the extent of postoperative skin puckering and therefore the position and extension of the submammary scar. Kalenderof et al\textsuperscript{18} also described a modification of vertical scar that distributed skin tension to the areola and vertical suture line by excision of 2 skin islands at the lateral sides of the areolar area.

Our technique involves shaping the breast with conical projection by cranial to caudal gland-shaping sutures.

Figure 6. A, Preoperative view of a 46-year-old woman. B, C, Postoperative views 1 year after vertical reduction mammoplasty.
Excess breast tissue at the inferior pole of the pillars is resected to the desired length, and the pillars are pulled together with sutures to reduce the base. The skin flaps are fixed to the vertical end of the sutured pillars. The skin redundancy inferior to the intersection of this vertical line and the new submammary line is excised by use of a triangular pattern, creating bilateral dog ears. Resection of these dog ears on the basis of the principles we describe produces a short, symmetrical horizontal scar located at the new submammary line. The skin is redraped only on the reduced mammary cone and does not participate in the shaping. Therefore we have not observed any healing problems at the bottom of the vertical line (reported as one of the main problems of the inverted T techniques in the literature).

None of our patients has complained about the horizontal scar because it is short, symmetrical, and well hidden in the inframammary crease. Additionally, the absence of a wrinkled vertical scar with marked skin excess at the bottom has decreased patient anxiety.

Conclusion

Our modification has enabled us to apply a vertical mammaplasty technique for all patients undergoing breast reduction and mastopexy with significantly reduced revision rates. ■

References


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