

## Custom-made Reduction Mammoplasty

MAURO TARALLO, CRISTIANO MONARCA, MARIA IDA RIZZO, EMANUELE CIGNA and NICOLÒ SCUDERI

*Department of Plastic and Reconstructive Surgery, Sapienza University of Rome, Italy*

**Abstract.** *Background: Macromastia is a health problem that requires the coordination of surgical and medical specialists. Goals of reduction mammoplasty are to alleviate physical, emotional and psychosocial discomforts and to restore a conical-shaped breast, maintaining scars as short as possible. We report our approach for reduction mammoplasty with superior pedicle. Materials and Methods: Our method combines advantages of round block with vertical scar, using a dermal flap that is fixed to the new mammary crease. We analyzed skin and glandular resection customizing the mammoplasty. Results: The dermal flap works against the weight of residual tissue, maintaining the crease at the desired position with a natural result. Benefits are an excellent projection, short scar, suitable reshaping and patient satisfaction. Conclusion: This technique can be used for mild to severe hypertrophy with various degrees of ptosis. It results in a successful aesthetic outcome with minimal scarring, suitable breast remodeling and natural long-lasting projection.*

Macromastia is a health problem that frequently requires the coordination of surgical and medical specialists. The patients often complain of back and neck pain, shoulder groove, coracoid compression syndrome and skin problems in the submammary fold (e.g. eczema and mycosis). Its treatment is certainly surgical. Nevertheless, its optimal surgical treatment is challenging. We would like to report our clinical experience on a technique for customized reduction mammoplasty.

### Patients and Methods

For this paper, we reviewed our management of 64 patients with macromastia, median age 45 years with body mass index (BMI) 27 on average, evaluated in the last seven years (Table I). In our technique, we consider the anatomical variability of each patient preoperatively, performing not a standardized tissue removal, but custom-made for each patient, resulting in a vertical scar. Preoperative marking starts with the patient in an upright position, considering

standard marking lines from the middle-clavicular point to the nipple, with the new nipple position marked at 18-22 cm according to the patient's degree of ptosis. Therefore, with the patient lying down, we consider 10-11 cm of distance from the media-sternal to the projection of the new nipple on the mammary crease; also the new fold is considered after marking of the future vertical scar (6 cm). The excess periareolar skin is preoperatively evaluated with a pinch-test in order to allow appropriate skin resection, resulting in a rhomboidal draw. Surgery starts, as usual, with depithelization of this area. Glandular resection is performed according to the traditional inverted V shape, saving the dermal flap previously depithelized; medial and lateral edges of the inverted V are rejoined and the dermal flap is then fixed with 3 interrupted 2/0 resorbable stitches to the new mammary crease, in order to hold the inferior pole of the new breast, preventing a recurrence of ptosis such as very often happens with vertical scar techniques. A round-block is performed around the areola, followed by closure of the vertical scar (Figure 1), which can be converted to an L-shape scar when the skin excess in the lower pole is too much, so that vertical scar is never longer than 6 cm.

We analyzed skin and glandular resection, after marking of the new nipple position and the mammary crease, by pinch-test for assessment of the excess skin in order to mark the medial and lateral incision margins. Dermal incisions are made up to the pectoralis muscle fascia through glandular-adipose tissue and removing a pyramidal glandular portion inferiorly up to the mammary crease and superiorly approximately 1 cm below the dermal flap. Skin resection is made after glandular resection to minimize the tension of the sutures.

Follow-up was at 3, 6, 12, 48, 60 months. Criteria used for the assessment of physical outcome were breast reshaping, complications (infections; NAC necrosis; sutures dehiscence; poor scar; ptosis) and satisfaction rate.

### Results

This technique offers many advantages, in particular a suitable short scar (Figure 2) and very good projection (Figure 3), without flattening, a position on demand for the sub-mammary crease that allows the vertical scar to be kept short, also saving part of the skin in the lower pole resection. At 48 months' follow-up, 58 patients (90.6%) had a good reshaping of the mammary cone with ptosis resolution. Distance to new nipple-areolar-complex (NAC) was 21.5 cm on average. Six patients had recurrence of a low degree of ptosis, but no treatment was required. Three cases of dehiscence occurred, which were sutured. Satisfaction rate, evaluated by a questionnaire regarding breast shape, scar quality, sensibility and psychological benefits, was high in

*Correspondence to:* Maria Ida Rizzo, Via Fidenza 27, 00182 Rome, Italy. Tel: +39 3391593646, Fax: +39 098342250, e-mail: mariaidarizzo@libero.it

**Key Words:** Macromastia, reduction mammoplasty, dermal flap.

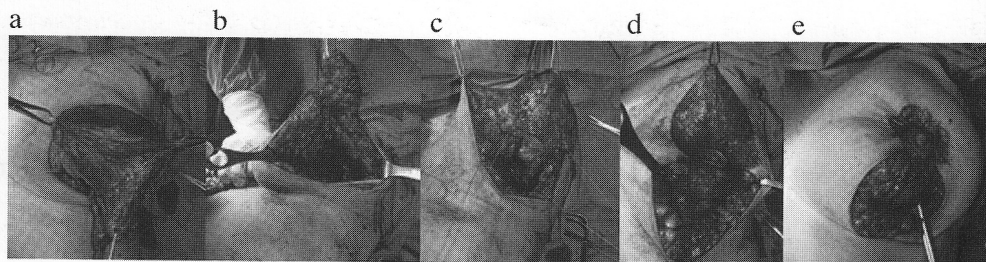


Figure 1. Intra-operative images of surgical procedure: a, deithelization of superior pedicled dermal flap; b, glandular resection; c and d, fixation of dermal flap; e, restoration of conical shape.

Table I. Preoperative evaluation of patients.

	Patient population	Hypertrophy			Ptosis degree			Type	
		Low	Medium	Large	I-II	II-III	III-IV	Cutaneous and glandular ptosis/ mainly adipose macromastia	Mainly glandular ptosis/ gestational macromastia
No. of cases	64	12	32	20	12	32	20	30	34

96.8% patients. The scar was limited to a vertical scar in 52 and was L-shaped in 12 cases.

## Discussion

Reduction mammoplasty reduces symptoms of macromastia and improves the aesthetic appearance of a large breast. This results in a significant improvement of quality of life and decrease in breast-associated symptoms (1-3). Several techniques have been introduced in the last 20 years to reduce and reshape the breast, leaving a short scar (4-6), as a vertical scar (7, 8) and round block (9) techniques. Each of these techniques has its pros and cons (10). The limitations of the round block technique consist of wide periareolar scars because of excessive tension, distorted areolar shape, areolar depression, and excessive breast flattening. Vertical scar problems consist of excessive scar length (8-9 cm) and further herniation of the lower pole with time. We describe our approach of combining the vertical scar and the periareolar round block techniques with a sustenance flap, obtaining both successful functional and aesthetic outcomes, by a surgical technique that overrides these drawbacks. Besides, both techniques combine at the same time the resection of the skin with the glandular and do not consider the skin resection to be adjusted on the glandular resection. Skin redraping after glandular resection is an important concept described by Peixoto (11) to minimize tension of the sutures. Ramirez described the 'owl' technique as an alternative to the pure vertical and periareolar incisions and suggests that inclusion of the vertical component with the periareolar technique eliminates the pleating effect of the periareolar incision and the discrepancy in the length of the scars is better distributed (10-12). Our approach combines the advantages of

round block (short scar) and vertical scar (better conical shape), using a superior dermal flap that avoids herniation and flattening. The main difference is regarding the pedicle, inferior in the Ramirez technique (Ribeiro's pedicle), while in our technique, the dermal pedicle is superior and the distal component (located below the areola) is fixed to the new mammary crease in order to prevent ptosis of the lower pole of the breast. Thus, we use a superior pedicle and a sustenance dermal flap.

The superior dermoglandular pedicle is a safe and reliable technique for reduction mammoplasty. Its versatility allows for reproducible results in a broad range of patients with various skin excision patterns (13).

We tried to remove most of the extra skin with the round block but avoiding breast flattening using the vertical scar, in order to give projection to the breast; the dermal flap was very helpful in maintaining the glandular tissue in the new position on the new mammary crease. This is also a way to avoid resecting skin from the inferior pole keeping the vertical scar not longer than 6 cm.

## Conclusion

Our technique combines advantages of the round block and vertical scar techniques, utilizing a superior dermal flap, sustaining the breast tissue and avoiding herniation and flattening. The technique can be used for breasts ranging from mild to severely hypertrophic with various degrees of ptosis, with the advantage of a short scar. Moreover the dermal flap anchored to the inframammary crease works against the weight of the residual tissue, maintaining the crease at the desired position with a natural result. We found this very useful in



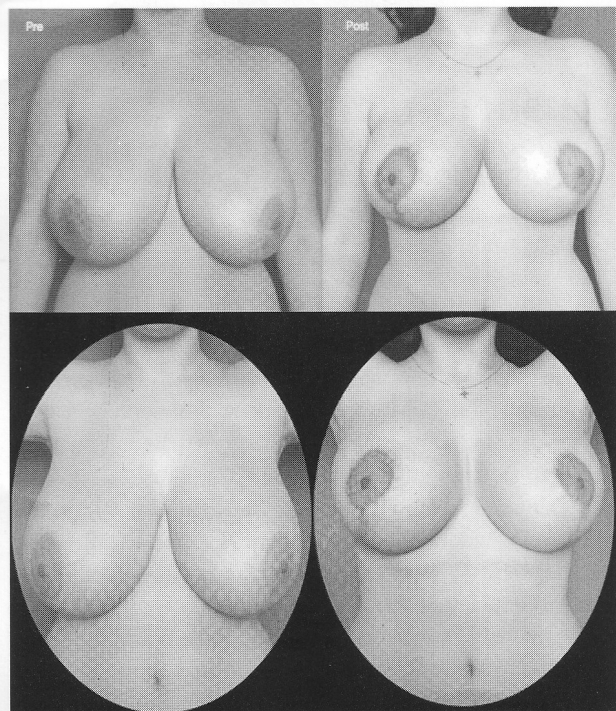


Figure 2. Pre- and postoperative photographs demonstrating good mammary reduction, remodeling with short scars, and the recovered girth.

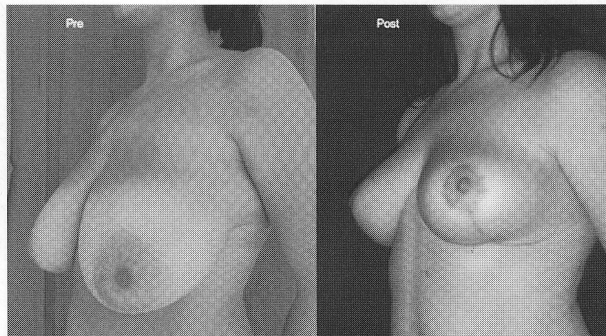


Figure 3. Pre- and postoperative photographs demonstrating the significant reduction, good profile with ptosis resolution and natural aspect of the breast.

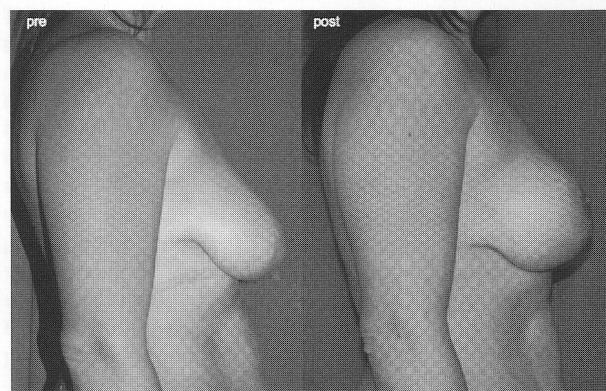


Figure 4. Pre- and postoperative lateral view demonstrating high-quality projection at long-term (5-years) follow-up.

patients that underwent a weight loss after breast reduction, usually followed by ptosis. It allows a suitable vertical scar of just 5-6 cm by the position on demand of the new sub-mammary crease, because the skin which is usually resected in the lower pole with other techniques is spared. This custom technique, which can be modulated for each patient, achieves a successful aesthetic outcome with minimal scarring, suitable breast remodelling and projection with a natural feel and appearance which are long-lasting (Figures 3 and 4).

## References

- 1 Das S: Implications of reduction mammoplasty: a debatable issue. *Aesthet Surg J* 29: 170, 2009.
- 2 Saariniemi KM, Keranen UH, Salminen-Peltola PK and Kuokkanen HO: Reduction mammoplasty is effective treatment according to two quality-of-life instruments. A prospective randomised clinical trial. *J Plast Reconstr Aesthet Surg* 61: 1472-1478, 2008.
- 3 Sabino Neto M, Demattê MF, Freire M, Garcia EB, Quaresma M and Ferreira LM: Self-esteem and functional capacity outcomes following reduction mammoplasty. *Aesthet Surg J* 28: 417-420, 2008.
- 4 Hidalgo DA, Elliot LF, Palumbo S, Casas L and Hammond D: Current trends in breast reduction. *Plast Reconstr Surg* 104: 806-815, 1999.
- 5 Corduff N and Taylor GI: Subglandular breast reduction: the evolution of a minimal scar approach to breast reduction. *Plast Reconstr Surg* 113: 175-184, 2004.
- 6 Pedron M: Minimal-scar breast reduction and mastopexy. *Aesthetic Plast Surg* 29: 261-273, 2005.
- 7 Lejour M: Vertical mammoplasty. *Plast Reconstr Surg* 92: 985-986, 1993.
- 8 Hofmann AK, Wuestner-Hofmann MC, Bassetto F, Scarpa C and Mazzoleni F: Breast reduction: modified "Lejour technique" in 500 large breasts. *Plast Reconstr Surg* 120: 1095-1107, 2007.
- 9 Benelli L: A new periareolar mammoplasty: the round block technique. *Aesth Plast Surg* 14: 93-100, 1990.
- 10 Ramirez OM: Reduction mammoplasty with the 'owl' incision and no undermining. *Plast Reconstr Surg* 109: 512-524, 2002.
- 11 Peixoto G: Reduction mammoplasty: a personal technique. *Plast Reconstr Surg* 65: 217-226, 1980.
- 12 Ramirez OM: The owl technique, combined with the inferior pedicle in mastopexy. *Aesth Plast Surg* 32: 16-17, 2008.
- 13 Davison SP, Mesbahi AN, Ducic I, Sarcia M, Dayan J and Spear SL: The versatility of the superomedial pedicle with various skin reduction patterns. *Plast Reconstr Surg* 120: 1466-1476, 2007.

Received March 21, 2009

Revised June 22, 2009

Accepted July 2, 2009