

# Breast Contouring in Postbariatric Patients: A Technique Selection Algorithm

Franco Carlo Migliori · Armando Gabrielli ·  
Roberto Rizzo · Gian Giacomo Serra Cervetti

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## Abstract

**Background** Breast deformities in postbariatric surgery (post-BS) patients are different and more challenging than those from non-BS patients. The histological alterations confer the highest clinical consequences to this area: highest degrees of true ptosis, deflated and flattened glands, and totally inelastic covering tissues. Plastic surgeons need an easy-to-use algorithm for technical choices.

**Methods** Ptosis and volume loss are the main problems to be corrected on massive-weight-loss (M.W.L.) breasts. Both problems need specific resolutions due to their specific characteristics. Depending on the degree of ptosis and the amount of volume loss, a decisional algorithm has been developed: suitable and advisable techniques are pointed out, minimizing the risk/benefit ratio. “Pros and cons” with the use of mammary implants are emphasized.

**Results** A group of 195 postbariatric surgery patients underwent breast contouring since 2001 following the herein presented decisional algorithm. Results have been tested with Body Uneasiness Test: encouraging data pushed to continue this method and to refine it.

**Conclusions** Referring to this strategy algorithm, choices 2 and 3 appear to be the more frequently applied and better fitted to cover the majority of M.W.L. breast defects. In the future, the birth and the rise of new mammary implant concepts and technologies could completely change this algorithm.

**Keywords** Breast · Ptosis · Round block ·

Vertical mastoplasty · Mastopexy · Mammary implant · Self-prosthesis · Body contouring · Breast contouring · Massive weight loss · Postbariatric plastic surgery

## Introduction

Breast deformities in postbariatric surgery (post-BS) patients are different and more challenging than those from non-BS patients. The histological alterations [1] confer the highest clinical consequences to this area: highest degrees of true ptosis [2], deflated and flattened glands, and totally inelastic covering tissues. Hypertrophic breasts, needing further reduction, are quite rare.

Therefore, the main problems to be corrected on a massive-weight-loss (M.W.L.) breast are two:

1. Ptosis
2. Volume loss

Both problems need peculiar resolutions due to peculiar characteristics.

*Ptosis* can be surgically *minor* or *severe*: We usually put a borderline around 6 cm of ptosis correction. If the difference between the preoperative nipple–areola complex (N.A.C.) position and the postoperative projected new position is less than this measure, a scar-sparing technique is suitable. Beyond this measure, more extended scars are needed.

*Volume loss* is proportional to weight loss. The amount of residual gland determines surgical choices. If the volume left is considered enough, both by patient and surgeon, a gland reshaping should be performed. Volume evaluation must be subjective, as no granted procedure or device exists up to date. If a volume increase is considered advisable, a

F. C. Migliori (✉) · A. Gabrielli · R. Rizzo · G. G. Serra Cervetti  
San Martino University Hospital,  
Genoa, Italy  
e-mail: franco.migliori@fastwebnet.it

mammary implant is necessary. No dedicated prosthesis has ever been conceived for the peculiar problems of a M.W.L. breast, and the existing implants cannot be considered adequate for these patients because of their weight (hundreds of grams) pulling down loose M.W.L. tissues for an early ptosis recurrence: An ideal implant should be developed on an ultralight technology to carry out a heavyless device (“feather” prosthesis) weighing only a few grams. For these reasons, nowadays, the final choice should be, as far as possible, reshaping without implants.

### Surgical Strategies

The choice strategy should follow this scheme (Figs. 1, 2, 3, 4, 5, 6, 7, and 8):

	Suitable Volume	Lacking Volume
Minor Ptosis (N.A.C. correction < cm. 6)	1. “Round block”	2. “Round block” + mammary implants
Severe Ptosis (N.A.C. correction > cm. 6)	3. “L technique” + self prosthesis	4. “L technique” + mammary implants

As stated above, the choices 2 and 4 are controversial. However, while choice 2 occurs in a less ptotic breast (which means less deformed, less stressed, and less loose and flabby) and can be considered suitable, choice 4 is at high risk of early aesthetical complications (i.e., deformities, ptosis recurrence). That is why, at the present time, it is advisable to stress as much as possible the indications of choice 3 and to limit choice 4.

N.A.C. right vertical position is determined at the medial point of arm length: this point is usually placed at 19–21 cm from sternal notch. The horizontal position stands at 9–11 cm from medio-sternal line.

### Surgical Techniques

#### Round Block

This technique was first described by Louis Benelli [3] in late 1980s and represents a milestone in mammary plastic surgery because of the great scar sparing. It is based on an “egg”-shaped periareolar skin excision, a wide undermining allowing a wide access to the gland, which can be easily reshaped: the final circular dermic suture (“round block”) completes the procedure. Only a periareolar scar is left.

The “round block” technique has two limits:

1. It is well suited for small breasts and minor ptosis.
2. It flattens the breast and reduces N.A.C. anterior projection.

Because of these limits, clinical experience through the years has suggested the use of this procedure for minor ptosis associated with a mammary implant. In M.W.L. breasts, the controversy is evident: the need of a scar-sparing technique on one side and the need to carefully utilize implants on the other. At the present time, there is no resolution for this compromise and a careful case-by-case evaluation is needed.

The technical changes to the original procedure applied and suggested in M.W.L. breasts are the following:

1. Complete undermining of glandular upper pole (both front and rear aspects) to let breast lifting and anchorage to fascia, muscle and/or second rib periosteum (at least three stitches of threaded non-absorbable 0 or 1 suture); lower pole is left undetached, to



**Fig. 1** Round block (choice 1) preop



**Fig. 2** Round block (choice 1) postop



**Fig. 3** Round block + implant (choice 2) preop



**Fig. 4** Round block + implant (choice 2) postop

guarantee blood perfusion (only 1–2 cm periareolar is undermined) (Scheme 1).

2. If implants are needed, upside-down retroglandular undermining, taking great care to leave inframammary fold and 1–2 cm of gland undetached. The implant is topside–bottom inserted with a “mailbox posting” action; inframammary fold should act like a barrier to prevent implant ptosis (Scheme 2). The upper one third of the prosthesis could be placed beneath the pectoralis major muscle, with “dual-plane” technique, if a round implant is utilized, or left completely retroglandular if an anatomical implant is used.
3. The type of implant needed (round vs. anatomical) basically depends on the kind of aesthetical defect: major upper pole defects need round implants, major lower pole defects need anatomical implants. Patient’s preferences are a primary factor in the decision [4].

4. Periareolar suture is always performed with “interlocking” technique smartly conceived by Hammond et al. [5].

#### L Technique

This technique was first described by De Longis [6] and represents one modern evolution of the great family of “vertical techniques,” all descending from original Arié [7] technique.

Like the majority of vertical techniques, L technique utilizes a superior pedicle to support N.A.C. and has been thought to suspend breast, both reducing or emphasizing volume. All vertical techniques have the great advantage to increase N.A.C. projection.

When N.A.C. is programmed to be lifted more than 6 cm, the L technique is suggested. In M.W.L. breasts, once more, it



**Fig. 5** L technique + self-prosthesis (choice 3) preop



**Fig. 6** L technique + self-prosthesis (choice 3) postop



**Fig. 7** L technique + implant (choice 4) preop



**Fig. 8** L technique + implant (choice 4) postop

is advisable to comply with the need of volume emphasizing, restricting as much as possible implant insertion. To do this, “autoprosthesis” appears to be a good compromise.

M.W.L. major ptotic breasts usually have three problems:

1. N.A.C. ptosis
2. Inframammary fold ptosis
3. Lack of projection (flattened shape)

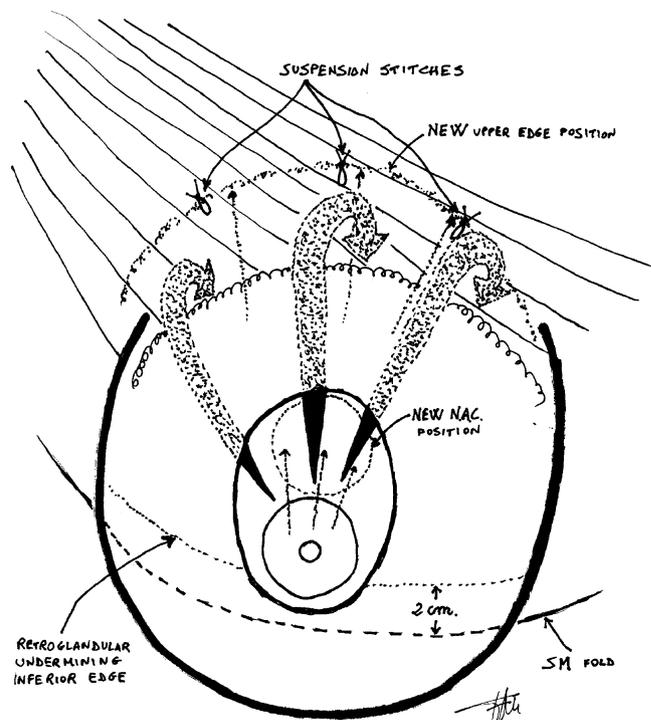
Volume is not necessarily a problem, seldom is lacking or exceeding, and often can be considered suitable. L technique with autoprosthesis corrects all three above problems and simulates a volume increase.

The technical key points are the following:

1. Autoprosthesis is a flap drawn, de-epithelialized, and sculptured on an inferior pedicle (6–8 cm base, depending on breast width); the upper edge of the flap is incised and detached from upper pedicled N.A.C. flap and undermined up to pectoralis major muscle fascia (Scheme 3).
2. Autoprosthesis is strongly anchored at third rib peristium (at least three stitches of threaded non-absorbable 0 or 1 suture); this procedure allows *real* inframammary fold lifting and fixing.
3. If an implant is unavoidable, autoprosthesis cannot be performed, and all the mammary glandular tissue must be harvested on a superior pedicle; the implant is bottomsides-top inserted and the flap closed on it. This procedure does not prevent ptosis recurrence, does not lift inframammary fold, and adds implant weight: that is why it should be restricted, as much as possible, to a small group of carefully selected patients (an experienced evaluation of the covering tissue texture is highly important).

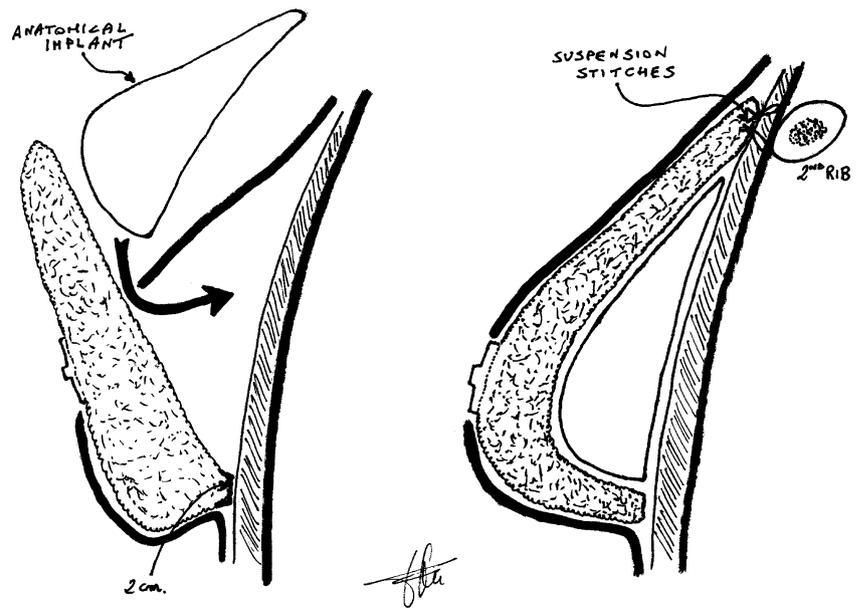
### Postoperative Care

Suction drains are maintained 1–2 days postop. Drappings are very simple and light and maintained for almost 1 week. No compression is performed. A dedicated shaping bra is worn for 1 month day and night and a further 2 weeks nighttime only.



**Scheme 1** Augmentation mastopexy (choice 2) A. After the “egg shape” incision, a subcutaneous upward undermining is performed, followed by a retrogladular downward undermining, with the mandatory respect of the caudal 2 cm. The whole gland can be lifted and fixed by the upper edge, with the nipple–areola complex (N.A.C.) as well

**Scheme 2** Augmentation mastopexy (choice 2) B. the anatomical implant is inserted with upside-down direction (“mailbox” movement), and the gland upper edge fixed at second rib periosteum through muscle and fascia



The breast reaches its final shape within 60–90 days. Scars cannot be considered stable before 6 months to 1 year.

Best shapes (patient and surgeon compliance) are obtained with techniques 2 and 3.

**Complications**

General complications are represented by scar dystrophies (13.2%), hematomas (8.7%), and wound dehiscence (3.1%).

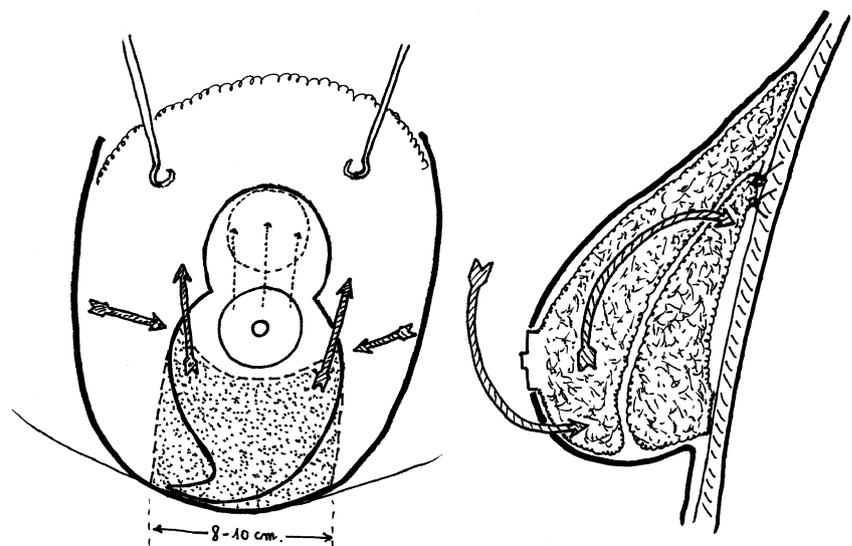
Ptosis recurrence is considered a N.A.C. sliding >2 cm 1 year after surgery, and its incidence is as follows:

1. Round block, 3.2%
2. Round block + implant, 27.6%
3. L technique + self-prosthesis, 13.3%
4. L technique + implant, 75%

**Results**

From November 2001 to August 2008, 195 patients who previously underwent bariatric surgery have been operated for breast contouring following the herein presented decisional algorithm. The patients were all Caucasians, were of average age 38 (range 31–53), and were all operated bilaterally. The mean operating time was 150 min (range 120–180). Mean hospital stay was 6 days (range 3–9) after surgery.

**Scheme 3** Autoprosthesis (choice 3). After a classical vertical incision, an inferior pedicled flap (8–10 cm wide) is undermined and incised, that is, the “autoprosthesis” (dotted area). N.A.C. is lifted on a classical superior pedicled flap. In the lateral view, the movements of both flaps are shown, rotating one over the other and enhancing the projection of the breast



Follow-up time ranged from 6 months to 3 years.

Body Uneasiness Test study [8] evidenced 100% improvement of patient discomfort.

## Discussion

No algorithm for postbariatric breast has been published yet: this one has been built up with our experience and other notable authors' experiences in the different aspects.

From Ribeiro et al. [9], we took the idea of the self-prosthesis: their flap is inferior-pedicle-based like ours but bent to enhance the lower pole and not superiorly fixed to enhance upper pole and to lift the breast: something similar has been recently also described by Hönig et al. [10] but with a T-shaped incision and not with an L one.

From the original idea of Georgiade et al. [11], we took acknowledgement about the goodness of the inferior pedicle, especially in order to manage high degrees of ptosis and to be well adapted to the widest kind of breast defects.

The augmentation mastopexy with the upside-down access ("choice 2" in the algorithm) is an original technique (which will soon be published) derived from the assorted experiences described and with our vast experience with postbariatric breast.

## Conclusions

As stated above, choices 2 and 3 appear to be the more frequently applied and better fitted to face the majority of M.W.L. breast defects.

This algorithm is not "stone printed" but is intended as an "open" one: this means that, in the future, any surgical technique evolution or any new mammary implant technology could completely change the choices.

The main concept to be underlined is that the M.W.L. breast contouring is not a breast plastic surgery like others: the strategy to be followed is different, due to different intraoperative and postoperative tissue behaviors. That is why a great specific experience is needed.

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