



Technical Systematization in Mammoplasty

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4.1 Introduction

The presence of the breasts is a strong factor in body contours and female identity. Therefore, it is normal for every woman to desire to have beautiful breasts in harmony with her body. This notion has been true in medicine since Hippocrates (460 to 370 BC), who used to perform mammary cauterization as a method of treatment. Nowadays, it is credited to Paul of Aegina (AD 625–690) (1846), who performed the first reduction mammoplasty in a woman, but this procedure was performed for the correction of gynecomastia. Four hundred years later, Paré (1510–1590) gave credit to Paul of Aegina for the first reduction mammoplasty operation, which has been recognized by other authors. Durston (1669) described the first complete mastopasty operation. There are some other historical contributions reported afterward, but during the twentieth century mastopasty underwent great developments. The contribution credited to Biesenberger (1928) is the excision of the lateral portion of the gland with rotation of the remaining glandular pedicle. Schwarzmann (1930) introduced a periareolar incision and undermining for maintenance of the blood supply to the nipple,

which is still performed in most mastopasty techniques up to the present day Biesenberger (1928, 1931). Another major contribution was introduced by Strömbeck (1960), extending the concept of a dermal bridge technique for preservation of the principal arteriovenous and cutaneous nerve system to ensure nipple survival. He also employed a pattern to predetermine the shape of the skin flaps.

However, the most remarkable technique for reduction mastopasty was presented by Pitanguy (1961), with new concepts that opened a wide field for the treatment of breast hypertrophy. Even he demonstrated that each breast must be evaluated with the patient in the semi-sitting position, for surgical marking, so that the surgeon has the freedom to imagine the surgical result without employing a prefabricated model. Therefore, reduction mastopasty became an artistic approach to achieving good results with a very low rate of complications. Pitanguy introduced several surgical principles that popularized the procedure among plastic surgeons in our country and all over the world. Because of such valuable improvements, mastopasty is one of the most frequent procedures performed by plastic surgeons.

Although the breasts are organs with well-known anatomy, histology, and physiology with updated surgical techniques, each surgeon must be aware of the possibility of unexpected situations and some complications. For these reasons, a meticulous and careful technical systematization before operation is fundamental.

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4.2 Method

Before Pitanguy's technique it was quite frequent to employ prefabricated pattern, which used to be a useful approach to simplifying marking. Since that time with the use of pattern positioning of the future nipple-areola location, it has been the key to achieving good surgical results. However, the pattern provides only the basic outline, as the drawings must be modified so as to obtain the desired result in each patient. Ever since Pitanguy (1961a, b) developed his new technique, use of a pattern became an unnecessary procedure. Therefore, owing to new concepts for surgical marking before mastoplasty, it became an important preoperative step. Consequently, surgical planning is a mandatory approach before marking, as the surgeon and the patient may achieve a good understanding.

4.2.1 Surgical Marking: Pre-marking

Following surgical principles introduced by Pitanguy surgical marking must be carried out with the patient in a semi-sitting position. However, my preference is to perform pre-marking before she goes to the operating room, while she is awake, in a standing position (Fig. 4.1). The main topic is to determine the future nipple-areola region as in most cases of hypertrophic breasts, they are in an ectopic position. The pre-marking starts by marking the medial line from the suprasternal notch to the projection of the xyphoid process. Afterward, the midclavicular point is marked laterally about 10 cm away from the suprasternal notch (Fig. 4.2). From this point, a vertical and oblique line goes downward passing by the nipple-areola region. The key to the marking is to find



Fig. 4.1 Surgical marking. Patient is awake in a sitting position. The surgeon carries out pre-marking to give adequate support during the surgery

Pitanguy's point A (Fig. 4.3). The submammary sulcus is drawn to orientate the future scar after reduction mastoplasty.

With one hand on the submammary fold under the breast the surgeon projects his finger forward onto the vertical line (Fig. 4.3), whereby it becomes possible to determine a point on the vertical line. Using a ruler or his hand, it is possible to measure the distances to determine Pitanguy's point A, which is key for mastoplasty marking (Fig. 4.3). From this important reference point, two oblique lines are marked on internal and external segments of the breast to determine points B and C (Fig. 4.4). From these points, a line is drawn on the internal and external sides of the breast until the submammary line previously marked is reached (Fig. 4.5).

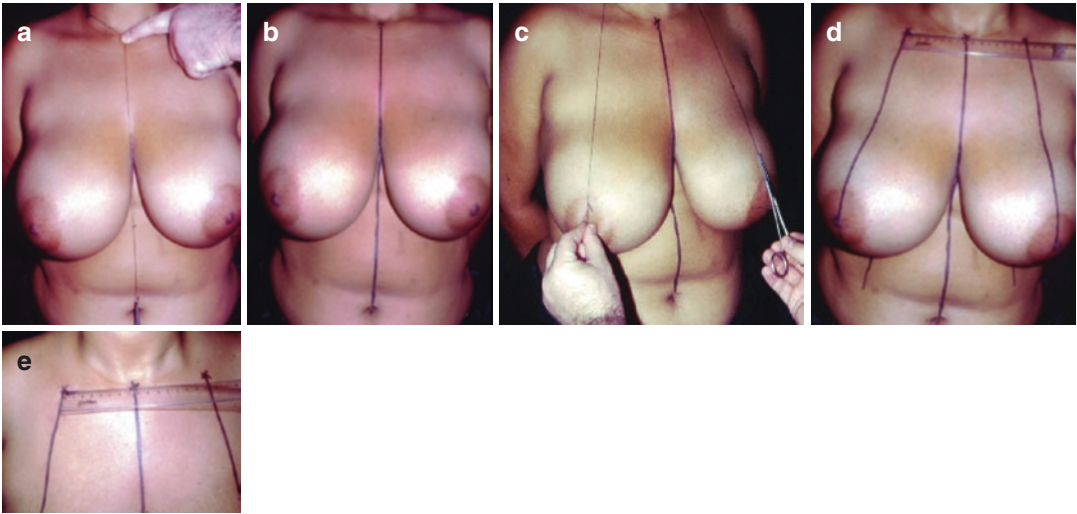


Fig. 4.2 (a, b) A midline is drawn. (c, d) A midclavicular line is drawn on each side up to the nipple. (e) The distances are adequately demarcated using a ruler

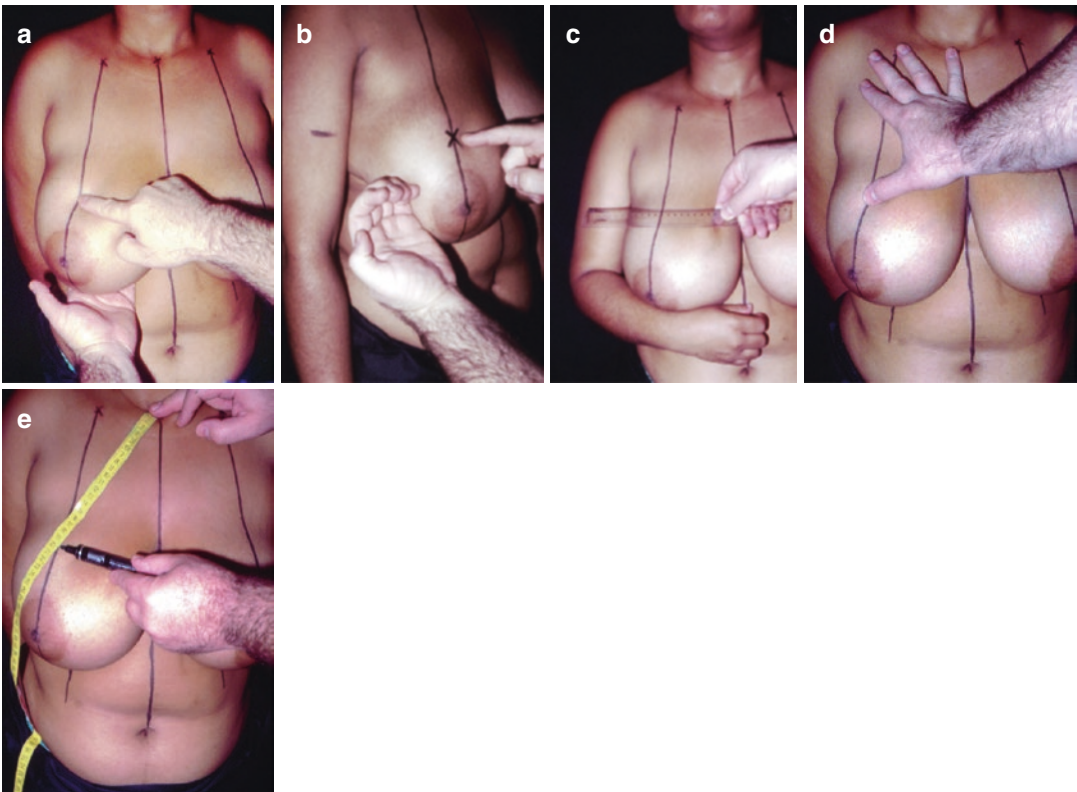


Fig. 4.3 Marking of Pitanguy's point A. (a, b) With the left hand placed under the breast, the surgeon projects the submammary sulcus on the breast and with his right index finger, point A is located. (c-e) Using a ruler and the hand to measure the medial part of the arm as a reference

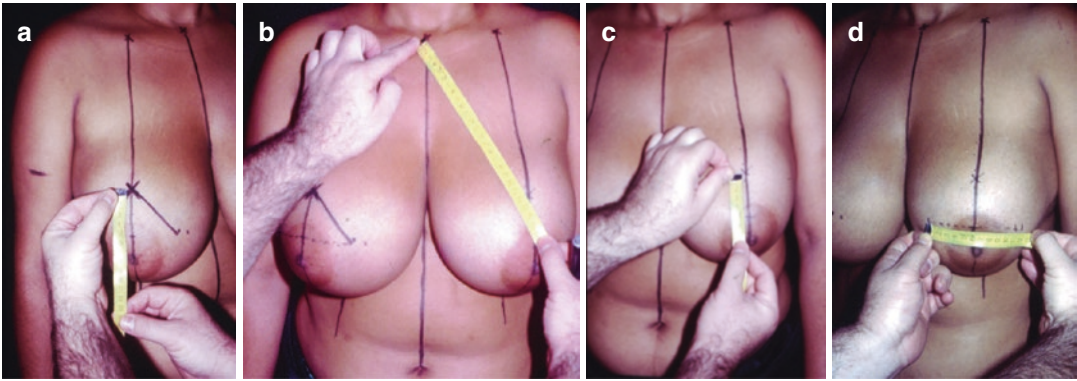


Fig. 4.4 Marking of points B and C taking point A as a reference. (a) An oblique line from point A to each side of the breast. (b–d) The measurement is made as an artistic approach with use of a ruler

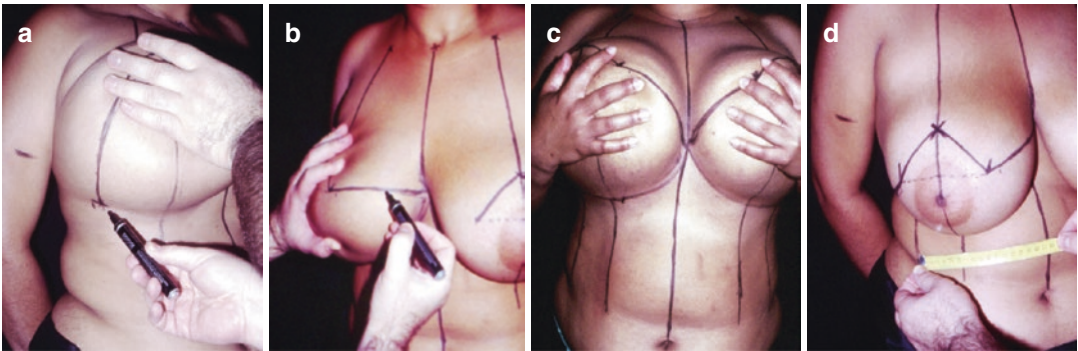


Fig. 4.5 Marking of lateral incisions of the breast. (a, b) From points B and C, two lines are demarcated laterally until they join the submammary sulcus. (c, d) The final marking can be seen

4.3 Surgical Technique

4.3.1 Anesthesia

The anesthesia for reduction mastoplasty is a matter of a good understanding among the patient, surgeon, and anesthesiologist, and should be considered according to each case and each patient. There are four options: general anesthesia, epidural anesthesia, local anesthesia combined with intravenous sedation, and local anesthesia. Local infiltration with epinephrine solution is a useful procedure for avoiding bleeding during surgery.

4.3.2 Anesthetic Infiltration

In all anesthesia options, it is useful to perform local infiltration on both breasts before operation. Usually 200 mL of a solution is enough for

infiltration of both breasts. The solution is: 500 mL of serum + 20 mL of lidocaine (2%) + Naropin® (20 mL) + 1 mL of epinephrine (1/1000).

4.3.3 Glandular Resection

Once the anesthesia is done and surgical marking is again performed, the surgeon's assistant holds the base of the breast to facilitate the start of the operation by making a circular incision around the areola. Also, it is possible to use an elastic tape to hold the base of the breast to expose the nipple–areola region (Fig. 4.6). This maneuver was introduced by Schwarzmann (1930) and is employed in most mastoplasty techniques. Because of that maneuver, it is possible to perform a superficial incision all around the areola to maintain and preserve good vascularization to the nipple–areola region, avoiding sloughing or even necrosis. It may occur, but it is rare, as enough blood supply is provided to the nipple–areola

Fig. 4.6

Schwarzmann's maneuver. (a) Peroperative photo shows periareolar incisions being made simultaneously on both breasts by two surgeons. (b) Photo shows one breast after periareolar deepithelization

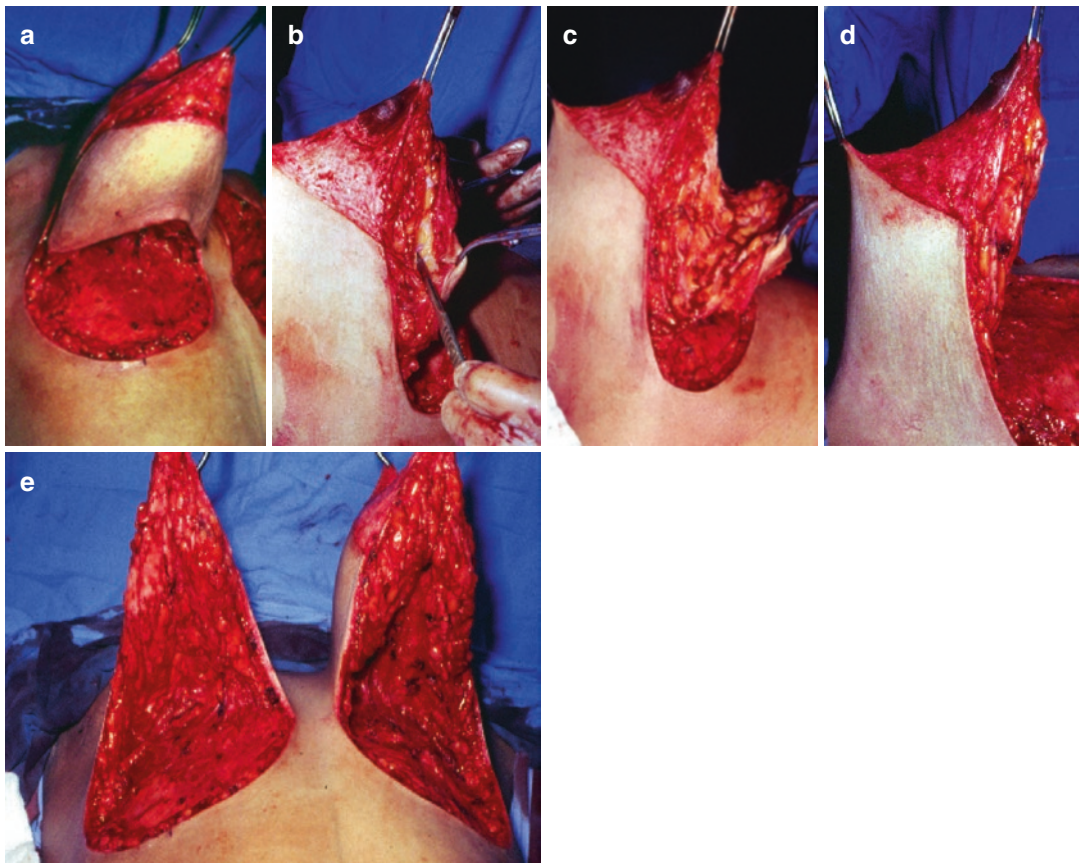
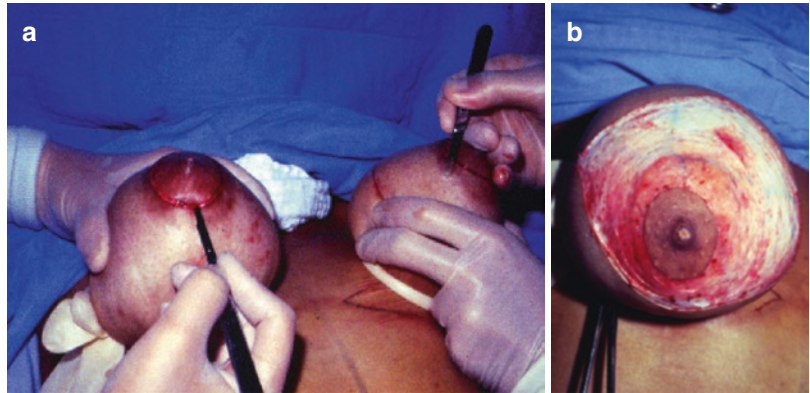


Fig. 4.7 Sequential photos to show glandular resection according to Pitanguy's "keel" resection. (a) An incision was made in the submammary sulcus. (b, c) A lateral incision is made to create Pitanguy's glandular columns and

"keel" resection. (d) Profile view after resection. (e) Frontal view after glandular resection on both sides showing that "keel" resection was done and Pitanguy's "third pedicle" was preserved in the medial part

lar region during surgery (Fig. 4.6). Afterward, the breast is pulled upward to expose the mammary tissue to be resected. At this point, Pitanguy (1961a, b) again made a valuable contribution, with the term "keel" resection during reduction mastoplasty (Fig. 4.7). In fact, "keel" resection is an important

approach to removing excess breast tissue without any cutaneous undermining. As a consequence of "keel" resection, two columns of remaining mammary tissue are created on each side of the breast (Fig. 4.7). Careful cauterization is carried out all over the raw area after glandular resection.

4.3.4 Suture of Glandular Tissue

The next step of the operation is the suturing of remaining glandular tissue. To facilitate this procedure, the surgeon's assistant maintains the remaining breast tissue using forceps to suture the two columns of mammary tissue created during resection, as described above (Fig. 4.8). It is important to emphasize that reduction mastoplasty using Pitanguy's technique does not leave any "dead" space post-surgery, after suturing of the two mammary columns (Fig. 4.8). Simultaneously, the same procedure is performed on the opposite breast. The mammary gland resected from each breast must be analyzed by the anatomopathologist, even when patient does not present any problems during clinical evaluation.

4.3.5 Repositioning the Nipple–Areola Regions

Afterward, the new nipple–areola regions are drawn on the vertices of the breasts. With the patient in a lying down position, the surgeon may project the new regions according to his or her sense of aesthetic (Fig. 4.8). When a patient presents with very fatty breasts, repositioning the nipple–areola region may be difficult so as to achieve a satisfactory position as the glandular flaps are quite thick. To solve such a situation, Silveira Neto's maneuver is employed to elevate the nipple–areola region to the correct position (Fig. 4.9).



Fig. 4.8 Suturing of Pitanguy's columns and marking of the future nipple–areola regions. (a) The nipple–areola region in the center. (b, c) Temporary stitches were

inserted laterally and medially. (d) The new nipple–areola regions are demarcated on the vertices of the breasts

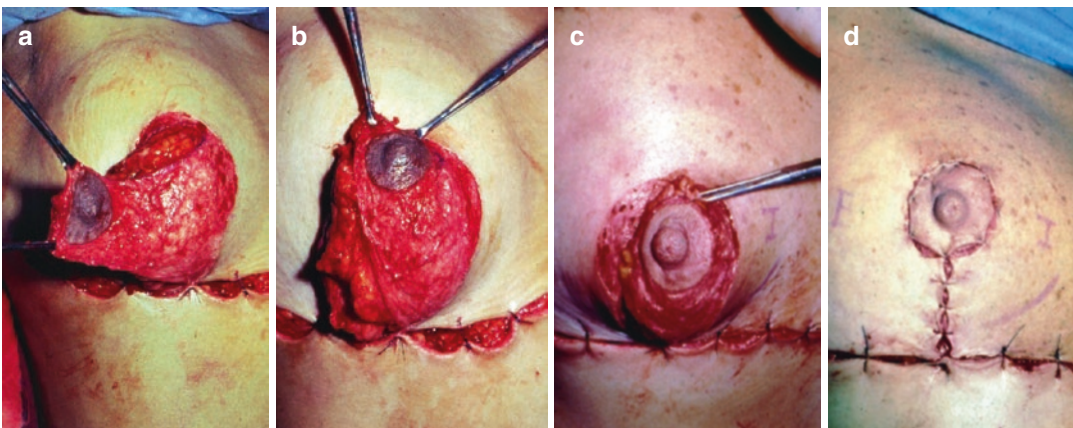


Fig. 4.9 Silveira Neto's (1990) maneuver for elevation of the nipple–areola region in very large and fatty breasts. (a) A lateral incision was made. (b) The nipple–areola

region is rotated and elevated. (c, d) The nipple–areola region is placed and sutured on natural vertices of the breast after mastoplasty

4.3.6 Suturing of the Skin

Finally, the borders of the wound are sutured using a running internal suture. Adhesive tapes are then applied to the surgical wound. At the end the new breast undergoes bandaging.

4.4 Discussion

Reduction mastoplasty is one of the most frequently performed procedures in plastic surgery in our country and around the world. When young girls present with hypertrophic breasts they may have several secondary signs and symptoms. Often, they complain of back pain, heavy breasts, alteration of the posture, pre-menstrual pain causing physical discomfort, which may all be solved by reduction mastoplasty (Fig. 4.10).

After pregnancy, the breasts may undergo severe changes, leaving unaesthetic alterations that may bother the woman. Striae and flabby skin may also cause problems, inducing severe physical and psychological disturbances that may be adequately treated by reduction mastoplasty (Figs. 4.11 and 4.12).

Reduction mastoplasty may be performed in patients of any age, if they have adequate reason to complain about their breasts. As the use of Pitanguy's technique of reduction mastoplasty preserves the function of the breast, the operation may be performed in young patients (Figs. 4.13 and 4.14). Even combined procedures with abdominoplasty or any other aesthetic approach may be carried out with gratifying results. It is important to emphasize that the systematization described above may be employed in other circumstances of mastoplasty combined with silicone prosthesis implants.

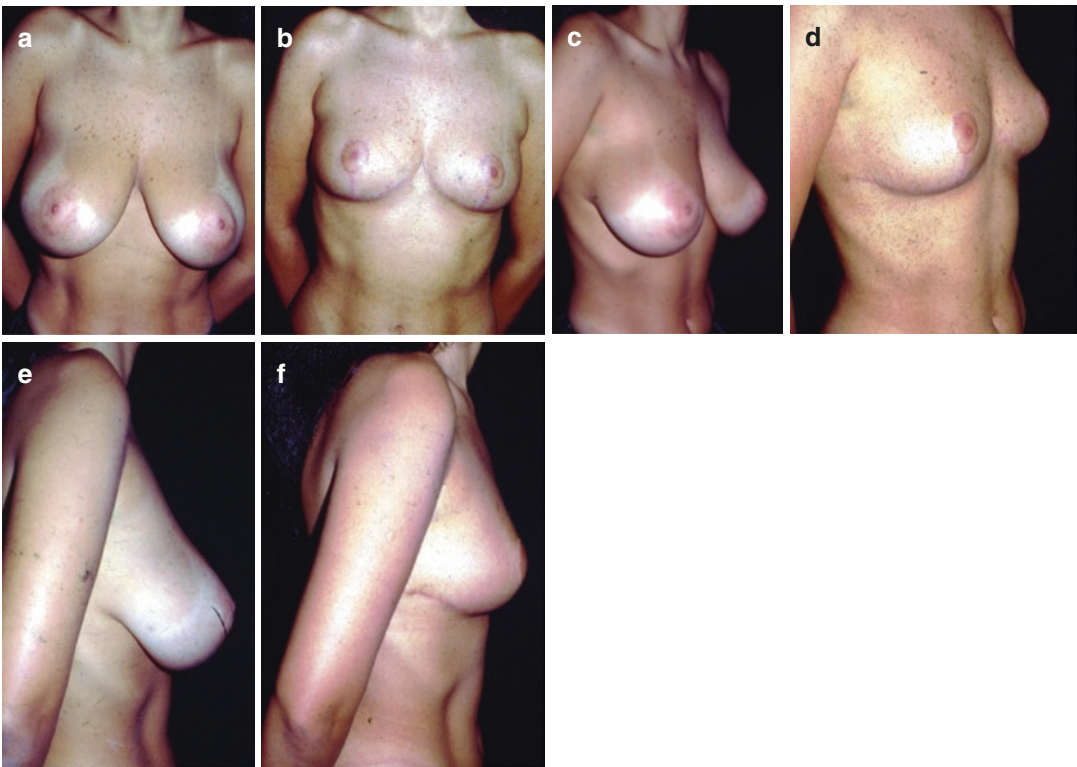


Fig. 4.10 Surgical results in hypertrophic, ptotic, and asymmetric breasts. (a, c, e) Preoperative photos. (b, d, f) Final results after reduction mastoplasty

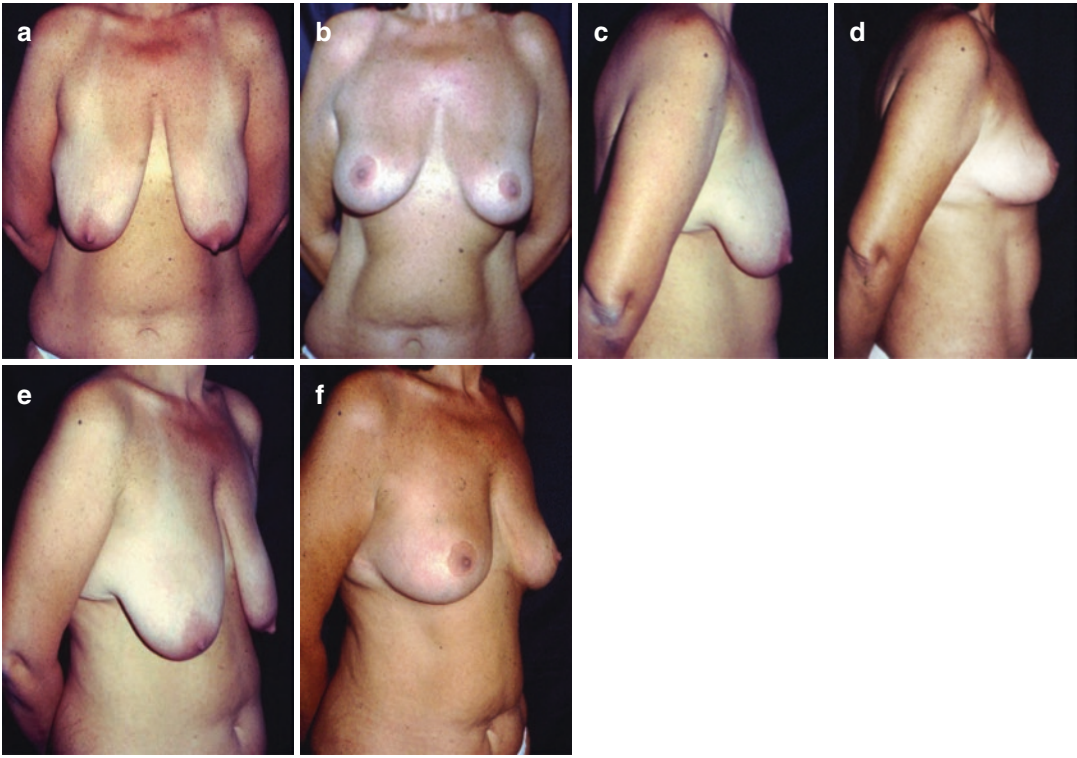


Fig. 4.11 Surgical results of severe ptotic and flabby breasts. (a, c, e) Preoperative views. (b, d, f) Final results after reduction mastopasty

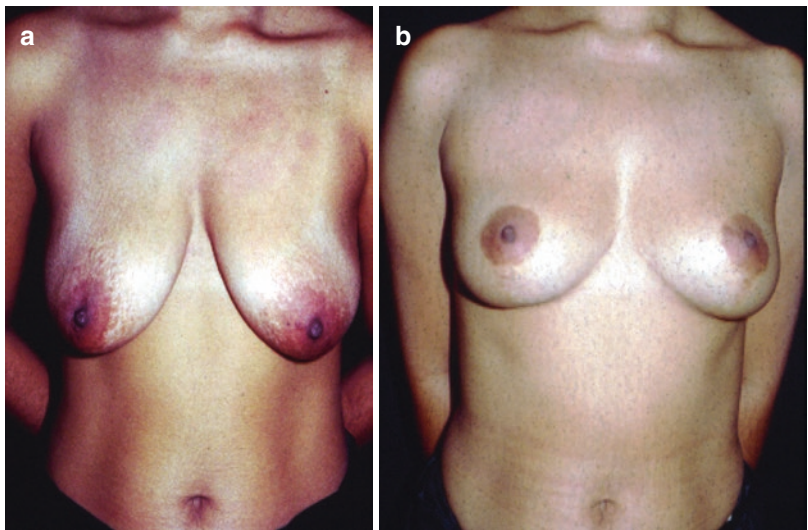


Fig. 4.12 Surgical results in hypertrophic, ptotic, flabby, and asymmetrical breasts. (a, c) Photos before surgery. (b, d) Final results after reduction mastopasty

Fig. 4.12 (continued)

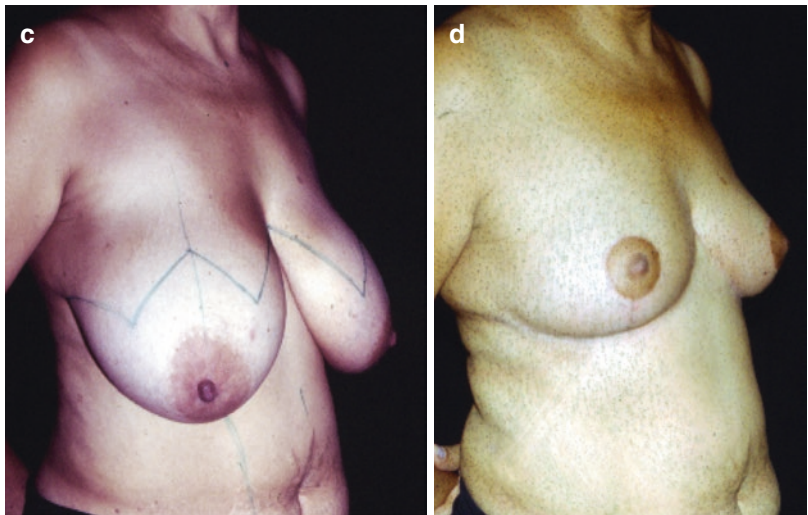
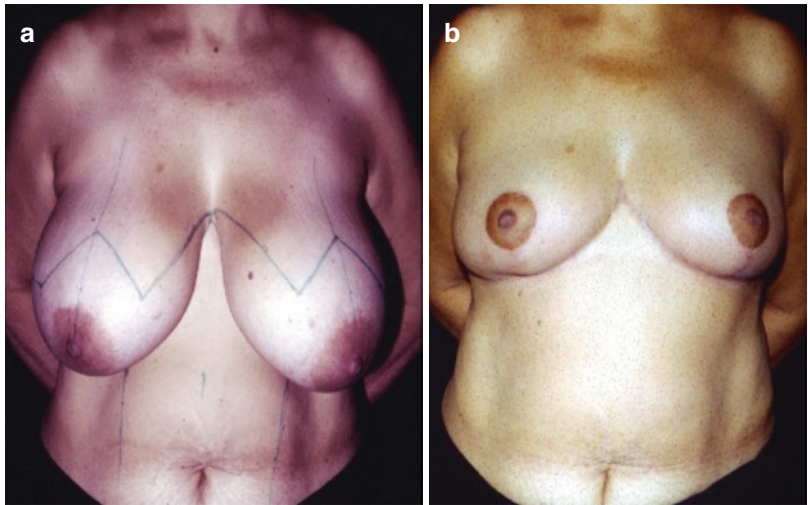
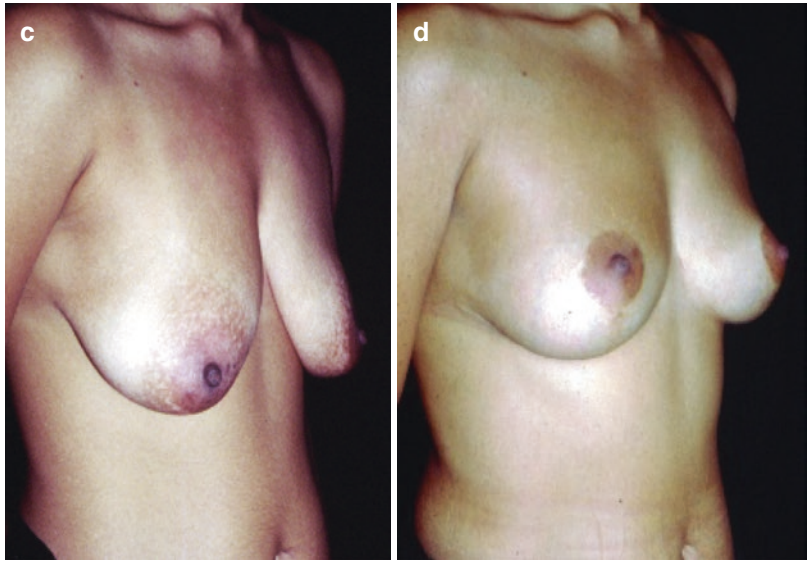
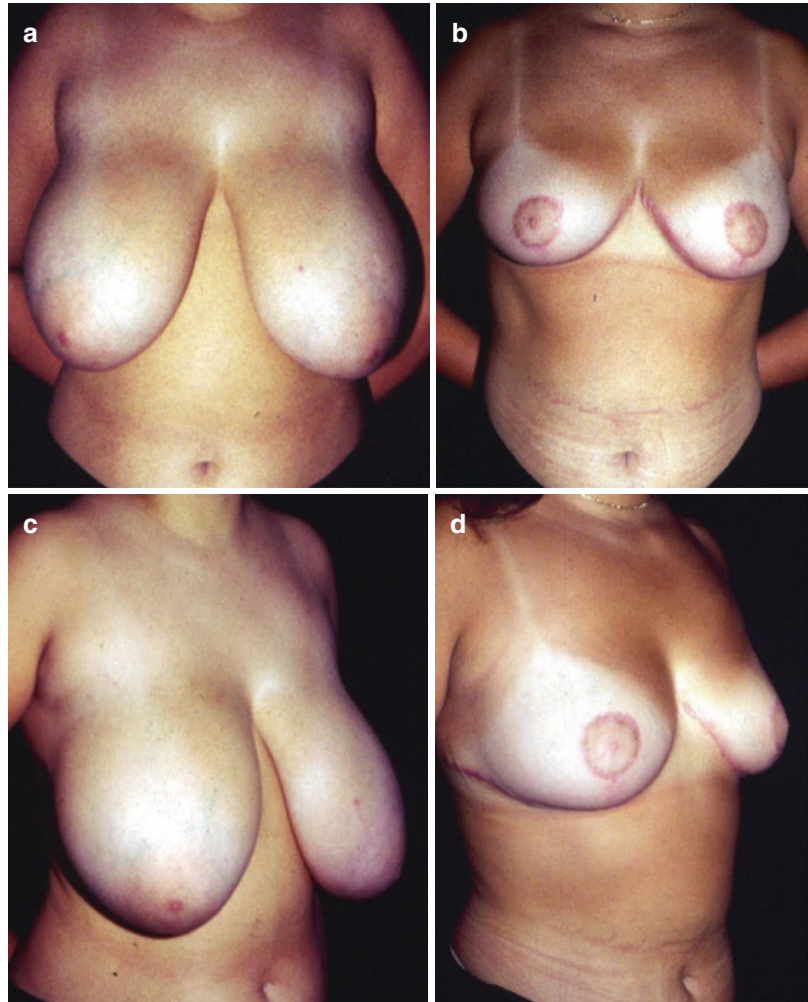


Fig. 4.13 Surgical results in large hypertrophic and ptotic breasts. (a, c) Preoperative photos showing surgical marking. (b, d) Final results after reduction mastoplastic

Fig. 4.14 Surgical results in large hypertrophic and ptotic breasts. (a, c) Preoperative photos. (b, d) Final results after reduction mastoplasty



Surgical planning is a fundamental step before surgery, as the decision regarding operation is a matter of good understanding between the patient and surgeon. Once the operation is adequately planned surgical marking is a mandatory step before the procedure. Owing to Pitanguy's technique, mastoplasty has become popular, with minimal complications and outstanding aesthetic results. Even in the treatment of asymmetry, it is possible to achieve good surgical correction. The use of a prefabricated pattern is no longer necessary, as surgical marking is a matter of artistic approach.

4.5 Complications

Nowadays, there is a minimal rate of complications in the use of Pitanguy's technique, as there is no cutaneous undermining. Hematoma formation is rare because of the absence of "dead space" after surgery. As long as the surgical marking is well done, the final scars will be well located on the submammary sulcus, which presents good anatomical and histological characteristics for healing. The vertical scar usually also has an agreeable appearance. It is rare, but some sloughing of the areolar regions may occur or even a small area of necrosis, which should heal well.

Conclusions

Because of the great developments in reduction mastoplasty techniques, patients have enough motivation to undergo the operation, as the breasts can cause physical and psychological discomfort. The decision to undergo operation must entail a good understanding between the patient and surgeon. Surgical marking is the key to the surgeon achieving adequate results, because each patient requires an individual approach, but using the same basic surgical principles. The operation may be performed under epidural anesthesia, general anesthesia or local anesthesia combined with intravenous sedation, always under the care of an anesthesiologist.

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