Endoscopic Breast Reduction and Lifting

36

Marco Aurélio Faria Correa

36.1 Introduction

New concepts regarding skin elasticity were introduced into the field of plastic surgery by way of innovative techniques of liposuction and periareolar breast reduction (Avelar and Illouz 1986; Peixoto 1980; Ribeiro 1989). These new concepts, which concern the capacity of the skin to retract, allowed the author to investigate the feasibility of applying endoscopic methods to subcutaneous tissue to avoid skin resection. The author began by modifying the mini-abdominoplasty technique and techniques for breast reduction and mastopexy—endoscopy was also used as an aid for flap harvesting and placement of tissue expanders—and to develop promising research regarding axillary inguinal lymph nodes dissections (Faria-Correa 1992).

Video endoscopic methods have been used in different surgical fields such as gynecology, orthopedics, and general surgery, where many advantages have been shown. There is less tissue trauma, lower rate of infection, and minimal scarring.

Laparoscopic procedures used pressurized CO_2 gas to create a space between the laparoscope and the tissue to allow visualization. In the subcutaneous tissue, however, pressured gas is not recommended because of the risk of embolism. To circumvent this risk, the author developed the "subcutaneous tomoscope," which is an instrument that transfers into a transparent capsule the space needed for illumination and visualization. The optical cavity functions much the same way as a scuba diving mask does while serving as a blunt dissector because of its wedge-shaped capsule (Faria-Correa 1992). Specially designed retractors were developed to increase the necessary working space in addition to instruments such as special needle holders and needles Fig. 36.1). All of these instruments were designed to work through minimal incisions.

With video endoscopy, delicate processes can be performed through minimal incisions that can be made at strategically placed and remote sites avoiding visible scars. This is an important goal in the field of aesthetic surgery where scars are undesirable and may sometimes compromise the final aesthetic result.

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Fig. 36.1 Set of instruments developed by the author from top to bottom: light source retractors; single and cross puncture elevators; transcutaneous suture set guide, a modified Reverdin needle, and a fondue fork; a modified needle holder; "screw-suture"; "subcutaneous tomoscope"

36.2 Materials and Methods

Endoscopic versions of mastopexy and breast reduction were first performed in November 1992. Since then, the endoscopic technique has been used to treat 196 patients. The patients ranged in age from 14 to 58 years. They presented with first- or second-degree ptosis with or without hypertrophy. Patients were selected on the basis of having good skin elasticity without significant excess skin. Breastfeeding and striae were not considered contraindications as long as the patient maintained good skin elasticity. Premature moderate ptosis recurrence was observed when the endoscopic technique was applied to patients presenting with skin flaccidity. An important application for this technique is in patients with a small degree of breast asymmetry, particularly in young patients. The larger breast can be reduced with no visible scar or loss of sensation to match the smaller, unoperated breast.

36.2.1 Technique

The traditional video endoscopic system and the subcutaneous tomoscope, associated with endoscopic instruments, were used to create an optical space. Thus, monitor control could be used without CO_2 distension. Some instruments were modified and new ones were developed, creating a set of instruments that facilitate this procedure. Regular laparoscopic forceps and scissors connected to electrocautery were used.

36.2.2 Positioning of the Patient and the Team

Proper positioning of both the patient and the surgical team is important for facilitating this procedure. The monitor is placed over the patient's head and the anesthesiologist stays beside the patient's head. The surgeon works beside the patient. The surgical table must be adequate to allow change in the patient's positioning from supine to sitting.

36.2.3 Planning

In planning the mammoplasty, the breast must be observed as a three-dimensional structure (Figs. 36.2, 36.3 and 36.4). Working endoscopically and considering the three-dimensional breast volume as a cone, looking upward, the bottom of the cone can be seen (Fig. 36.5). The goal is to work on the base of the glandular cone. The first step is to plan the undermining of an enlarged

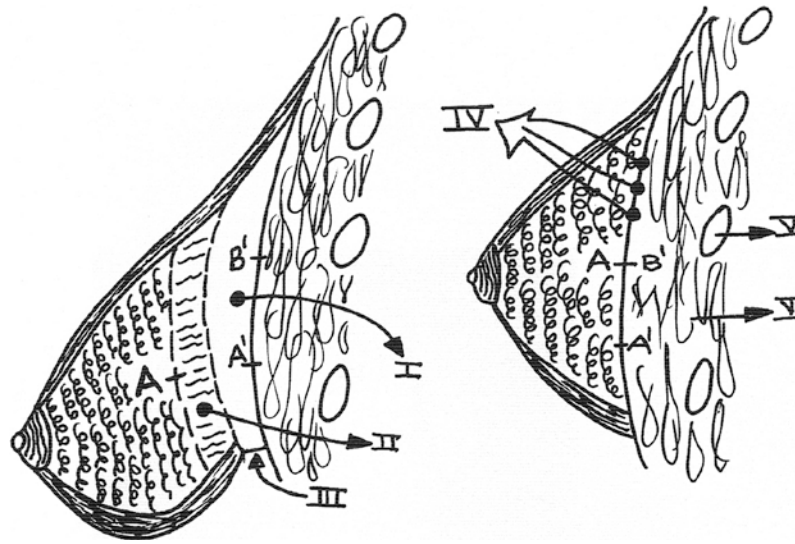

Fig. 36.2 Video-endoscopic breast reduction and mastopexy technique: A and A'—level point; B′—*upper position*; I—retromammary pocket; II—tissue resection area; III—submammary sulcus incision; IV—sutures to fix the gland in its new position at the pectoral fascia; V—ribs; VI—muscle

Fig. 36.3 Marking shows externally the breast tissue to be resected from the base of the glandular cone

Fig. 36.5 Transoperative view showing two small incisions (2 cm) at the submammary sulcus, through which the shaver and scope are introduced. Transcutaneous lifting sutures are used to maintain the optical cavity

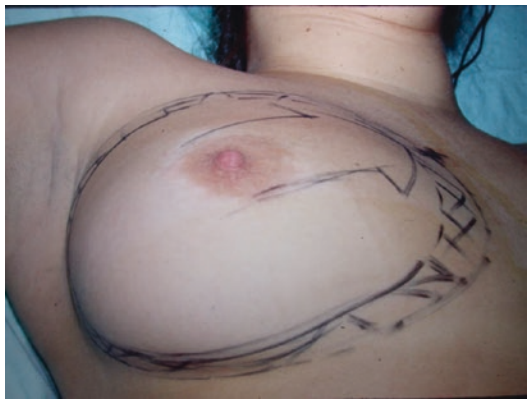

Fig. 36.4 *Arrow* shows the direction of the mastopexy toward upper-medial

area between the breast and the pectoralis fascia, thus creating a retromammary pocket. Both gland advancement (mastopexy) and breast tissue reduction are planned to proceed from the bottom of the cone. If only mastopexy is needed, the incisions are marked at the inframammary fold. If breast reduction is intended, the incisions must be placed a little above the fold.

36.2.4 Anesthesia and Infiltration

General, epidural or local anesthesia can be used. To reduce bleeding, the process is begun by infiltration of epinephrine/saline solution (1:500,000).

This is infiltrated at the base of the breast in the area to be undermined and inside the breast tissue.

36.2.5 Incisions

One or two incisions (1–2 cm) are made in the submammary sulcus. If necessary, a third incision can be made at the axilla to help tissue resection or suture placement.

Traditional open surgery is carried out in three dimensions; however, when working exclusively with a monitor view, the third dimension is lost. This can be improved by simultaneously working through two different ports, such that we "triangulate" to a focal point. This provides us with a depth-of-field feeling in the operative area. The best performance is achieved with a triangulation of approximately 30–45° (Fig. 36.5).

36.2.6 Dissection

A retromammary pocket is created between the breast and the pectoralis fascia (Fig. 36.2). This undermining must be wide enough to allow the advancement of the ptotic gland from the lower lateral to the upper medial position on the chest wall. This also provides an ample area of internal scarring between the chest wall and the deep part of the breast tissue. This ample retromammary pocket is created with the aid of the tomoscope by blunt dissection under endoscopic control. The dissection area is similar to that where breast implants are placed. The bleeding is controlled endoscopically by the use of laparoscopic forceps connected to the electrocautery maneuvering them under monitor view. The dissection of the retromammary pocket is completed by using laparoscopic scissors connected to the electrocautery. The use of pressured gases to create and maintain the work space is avoided. The optical cavity can be provided with the aid of specially designed, long and thin elevators and retractors that are introduced through the work ports. An external lift can be used by placing sutures through the anterior portion of the cone of the breast (Fig. 36.5).

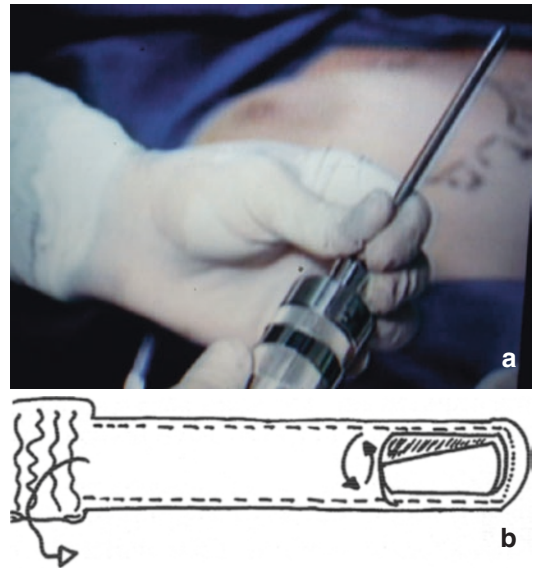

Fig. 36.6 (**a**) Shaver—a video-arthroscopic instrument, originally employed to resect the meniscus and debride the fibrotic tissue inside the knee, here used to carry out breast reduction. (**b**) Shaver instrument cannula. There are two cannulas, one rolling inside the other, a punching aspirator

36.2.7 Breast Tissue Resection

The tissue resection is performed at the base of the gland under endoscopic control, preserving the anterior cone and glandular ducts. A video arthroscopic shaver can be used to reduce the breast. The shaver works as a punching aspirator. There are two cannulas, one rolling inside the other (Fig. 36.6); both are equipped with windows through which the breast tissue is aspirated and resected. Some breast glands may be too rigid; therefore, its tissue cannot be resected by this punching aspirator. Thus, the procedure is performed by the use of a knife, scissors, electrocautery or laser. This type of breast is the one that is seen on mammography presenting with a large amount of white fibrous tissue.

By resecting only the base of the breast cone, the functions and sensation are preserved. This is a physiological mammoplasty. The axillary pole and bottom of the mammary cone are resected. There is no resection of even small amounts at the upper pole of the gland. Working endoscopically, the internal breast volume can be felt externally

by hand palpation. By properly planning the tissue resection, the breast is modeled and sculptured into its new shape.

36.2.8 Breast Lifting Fixation

After obtaining adequate hemostasis, the next step is to lift and fix the gland into its new position (Fig. 36.7). Sutures are used to position the mammary gland and fix it to the pectoralis fascia. Suturing can be performed with laparoscopic needle holders. As many sutures as needed are placed to help in positioning the breast so that it is held in place during the maturation of the internal cicatrix, which ultimately fixes the breast permanently in position. Patients with good skin quality are good candidates for this procedure and gain an aesthetic advantage with the repositioning of the gland, as this recreates an upper pole to the breast.

36.2.9 Dressings and Postoperative Care

Suction drains are used during the first 12 h and then removed. A Micropore tape dressing (Fig. 36.8) helps to reposition the gland in its new site. This dressing is maintained for 20 days for a long-term support. Continuous use of a supporting bra is recommended for at least 3 months thereafter and as long as possible throughout the patient's life.

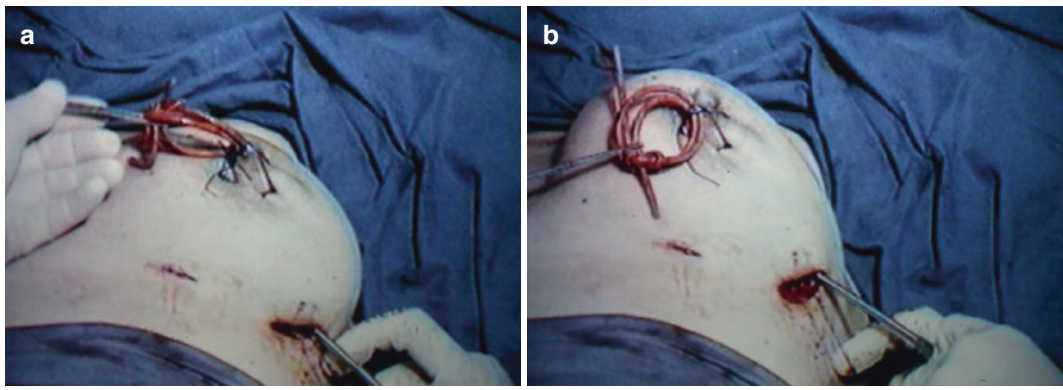

Fig. 36.7 (**a**, **b**) Grasping and testing the correct position for placing the sutures

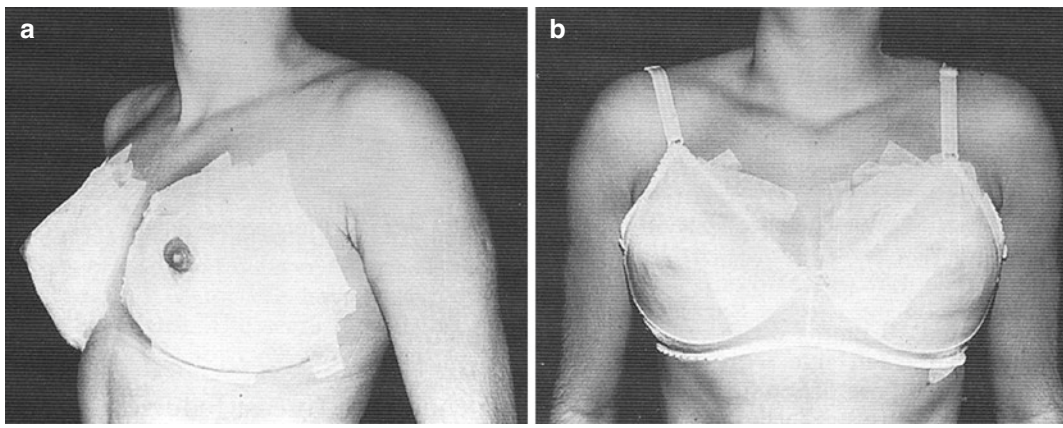

Fig. 36.8 (**a**, **b**) Micropore modulator dressing and drainage

36.2.10 Complications

Among the 196 cases, five cases of hematoma were observed in patients in whom no drains were used and 22 patients had early ptosis recurrence in 22 patients because of poor skin elasticity.

36.3 Discussion

The endoscopic breast reduction and mastopexy techniques preserve breast function and sensation with minimal scars (Figs. 36.9 and 36.10) (Faria-Correa 1993, 1994a, b, 1995a, b, c, d, 1994c, d, e; Faria-Correa 2000). An important goal is to treat

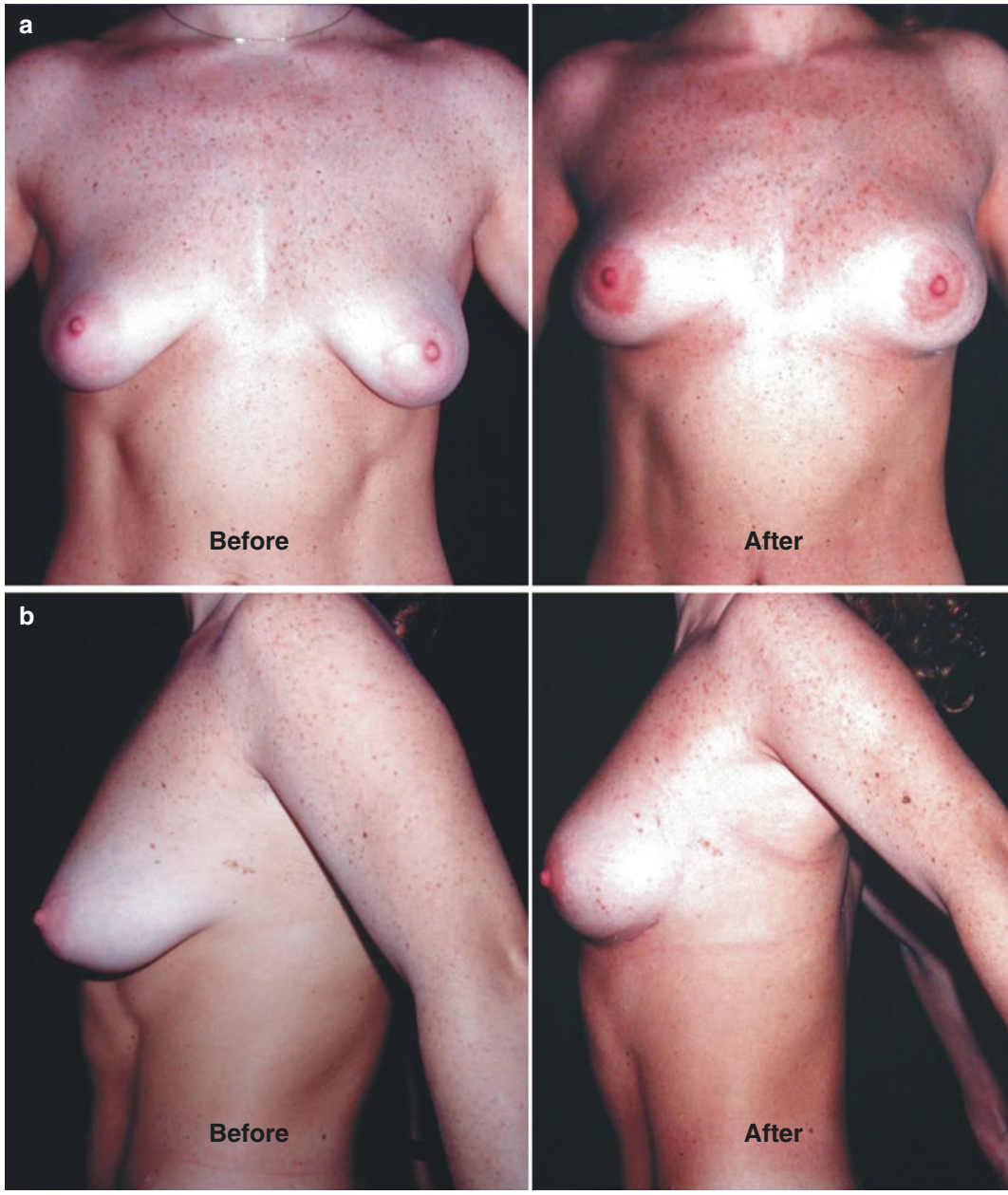

Fig. 36.9 (**a**) Preoperative view of a 32-year-old patient, who had breastfed two children, presenting with breast ptosis, a moderate amount of striae, and a moderate degree of flabbiness. (**b**) Eight months after endoscopic breast lift

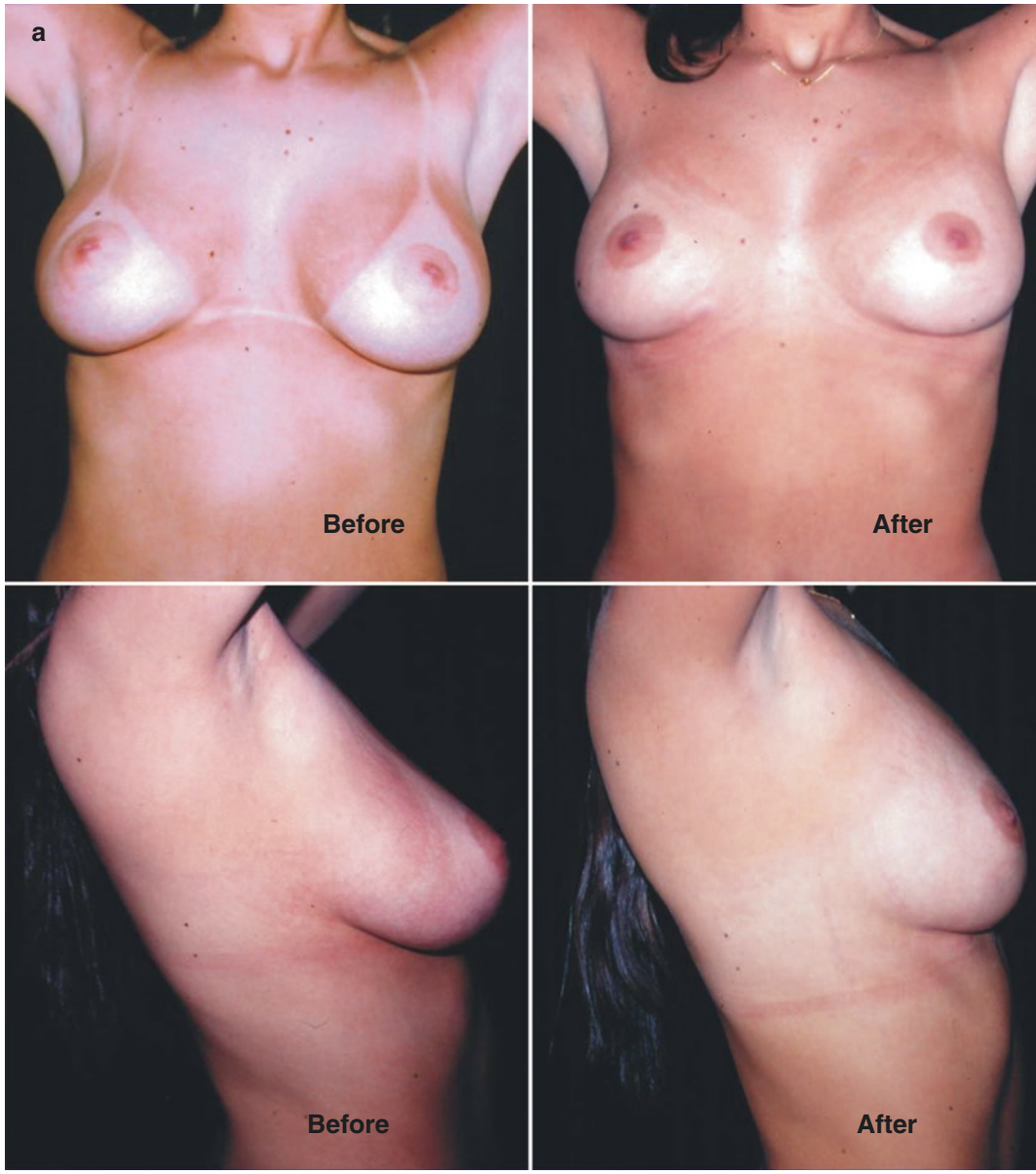

Fig. 36.10 (**a**) Preoperative view of a 20-year-old patient with good skin elasticity, breast hypertrophy, ptosis, but no striae. (**b**) Two years after video-endoscopic breast reduction and lift (120 g from each breast), showing a nice upper pole, good skin retraction, no damage to function or sensation, and no visible scars

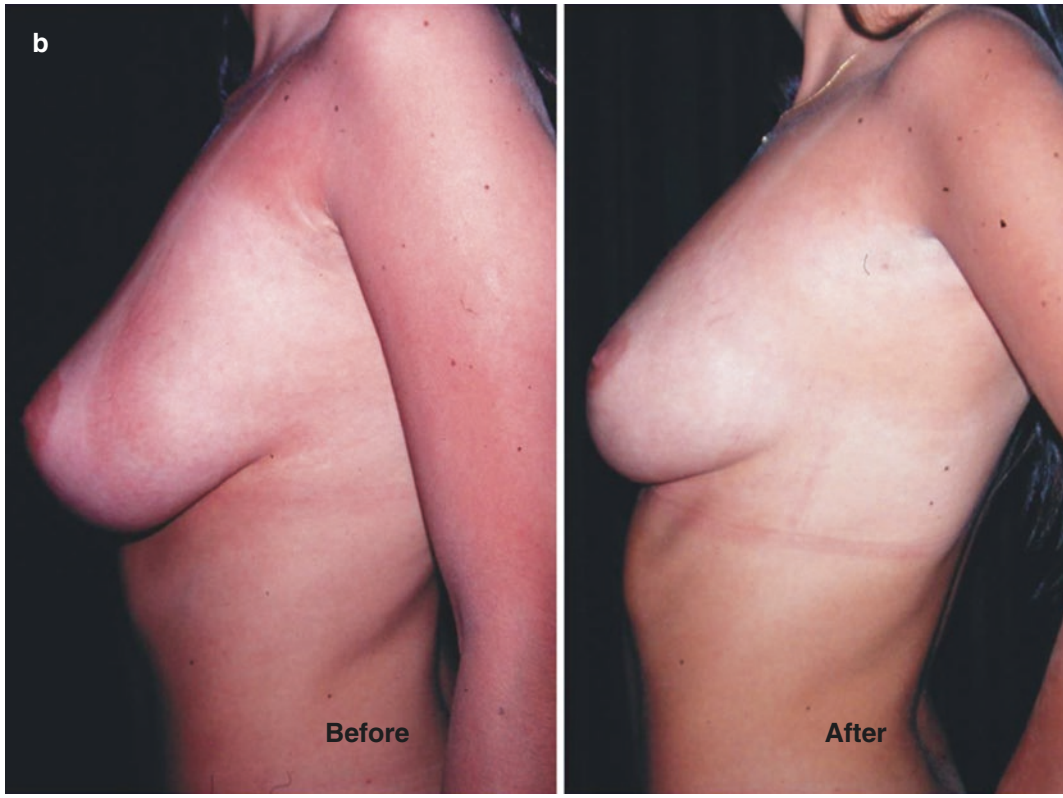

Fig. 36.10 (continued)

mammary asymmetry without using prostheses or adding long scars to the breast as opposed to the traditional procedures.

The breast is an anatomical structure that grows perpendicularly from the chest. The effects of gravity pull the breast down whether the patient is old or young, or operated on or not. The maintenance of a long-term good result depends not only on the technique used by the author, but also on the skin elasticity for retraction. Successful long-term follow-up relies on breast weight and precautions taken by the patient, such as the use of a steadfast modulator bra especially during the practice of sports.

In patients whose skin does not have the capacity to retract, the results are transitory as in usual mastopexies. Nevertheless, characteristic of this minimally invasive technique that have been attracting patients' interest is the lack of visible scars and the maintenance of sensitivity and function.

Conclusions

The results of 23 years' follow-up in 196 patients permit us to recommend its use in first-degree ptosis and breast reductions in younger patients. The technical procedure presented shows its utmost effectiveness and best aesthetic results in young patients who present with a small amount of hypertrophy or asymmetry, but with good skin elasticity and who do not have significant excess skin. The author believes that the use of these endoscopic techniques is a new trend in plastic surgery when properly applied.

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