

Modified round block mastopexy versus traditional round block mastopexy

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Abstract. – **OBJECTIVE:** Breast ptosis may be caused by several factors, including significant weight loss, pregnancy, long breastfeeding periods, and involution of the postmenopausal breast tissue. The authors performed a prospective study to evaluate patient satisfaction and the rate of complications after modified round block mastopexy versus traditional round block mastopexy.

PATIENTS AND METHODS: Forty-four patients fulfilled the inclusion criteria for undergoing round block mastopexy in a prospective randomized controlled study performed from 2007 to 2008. All the patients received polyurethane silicone implants. Group A included patients who underwent the traditional round block technique described by Benelli. Group B included patients who underwent the traditional round block and 4 cardinal glando-glandular permanent sutures. The overall satisfaction with body appearance after breast mastopexy was rated on a scale of 1 (poor), 2 (fair), 3 (good), 4 (very good), and 5 (excellent).

RESULTS: Group A patient ages ranged from 28 to 52 years and in Group B ranged from 29 to 49 years. The mean implant volume was 215 cc in both Groups. The complication and satisfaction rates for both Groups are reported.

CONCLUSIONS: The combination of the cardinal glandulo-glandular sutures along with the traditional round block appears to be key to preventing the areolar enlargement and persistent breast ptosis. The satisfaction rates in patients who underwent the modified round mastopexy appear superior when compared to the traditional round block mastopexy. Further long-term follow-up need to be performed in order to confirm the favorable results seen in this series of cases.

Key Words:

Mastopexy, Round block mastopexy, Augmentation with mastopexy.

icant weight loss, pregnancy, long breastfeeding periods, and involution of the postmenopausal breast tissue. Since the original descriptions by Gonzales-Ulloa in 1960 and Regnault in 1966, breast augmentation in combination with mastopexy has remained a difficult, and often polarizing, topic in plastic surgery, not only because of its results but also because of its litany of potential complications³. When mastopexy is indicated, several considerations have to be taken into account: the wishes of the patient, age of the patient, degree of ptosis, parenchymal volume, covering tissue, quality of the tissue, pocket implant, shape and content of the implant, and resulting scars. Circumareolar, periareolar, and donut mastopexy are different names for a common approach to patients with a ptotic breast. The technique, introduced in the mid-1970s, is based on resecting skin from the entire periphery of the areola as a way to lift the breast⁴⁻⁹. The concept of the circular excision is not new. However, it was complicated by excessive postoperative areolar stretching and scar hypertrophy⁸. It is a challenging procedure and when combined with breast augmentation, the risk of complications is greater than with either component alone¹⁰. According to recent published articles, the periareolar technique has the greatest need for revision and the lowest physician satisfaction, despite its application to a greater volume of mastopexies per year¹¹⁻¹³. The authors performed a prospective study to evaluate patient satisfaction and the rate of complications after modified round block mastopexy versus traditional round block mastopexy.

Patients and Methods

The inclusion criteria for performing the traditional and the modified round block mastopexies were breast hypoplasia and simultaneous breast skin flaccidity with ptosis. Forty-

Introduction

Breasts represent femininity and any change of shape may affect their appearance^{1,2}. Breast ptosis may be caused by several factors, including signif-

four patients fulfilled the inclusion criteria for undergoing round block mastopexy in a prospective randomized controlled study performed from 2007 to 2008. All the patients received polyurethane silicone implants. Group A included 22 patients who underwent the traditional round block technique described by Benelli⁶. Group B included 22 patients who underwent the traditional round block and 4 cardinal glando-glandular permanent sutures (modified round block mastopexy). The patient age, body mass index (BMI), smoking status, previous breast surgery, degree of preoperative ptosis, size and type of implants placed, postoperative complications, and any revision surgeries performed are analyzed. The overall satisfaction with body appearance after breast mastopexy was rated on a scale of 1 (poor), 2 (fair), 3 (good), 4 (very good), and 5 (excellent). The patient satisfaction scale has been validated and published in peer reviewed literature¹⁴⁻¹⁷.

Surgical Technique

1. Epidural anesthesia combined with sedation is chosen for all the patients. The areola is marked with a reduced size between 36 and 42 mm. Infiltrating the skin and the plane to be dissected with adrenaline (1:500,000) is then performed.
2. Incision with a #15 blade scalpel of the Webster marking (Figure 1) and dissection through the gland should be perpendicular to the thoracic plane and may be performed with a #11 blade scalpel. Care must be taken in splitting the gland in only one plane. Thorough hemostasis needs to be performed.
3. Dissection and creation of the subfascial plane for silicone implant insertion is then performed (Figure 2).
4. Silicone implant insertion is then performed (Figure 3).
5. Closure should follow three planes: glandular, subdermal, and intradermal levels. In all of them, the authors' preference is for Nylon (Ethicon, Sumerville, NJ, USA): 3-0 interrupted sutures for the glandular and subdermal planes.
6. Periareolar breast mastopexy is then performed. The periareolar skin to be excised is empirically marked based on the resulting skin excess after the implant insertion (Figure 4). In Group B the author uses a 2/0 Nylon suture (Ethicon, Sumerville, NJ, USA) on a curved needle for performing the 4 cardinal glandulo-glandular sutures (Figure 5). Next in both Groups, the



Figure 1. Schematic representation of Webster intraareolar marking.

Benelli's "round block" technique, also known as the blocking suture by performing a circular 2/0 Nylon suture (Ethicon, Sumerville, NJ, USA) around the periareolar circular dermoepithelial incision is performed (Figure 6). A 36-42 mm cookie cutter is used, depending on the premarked areola, as a guide to the shape and

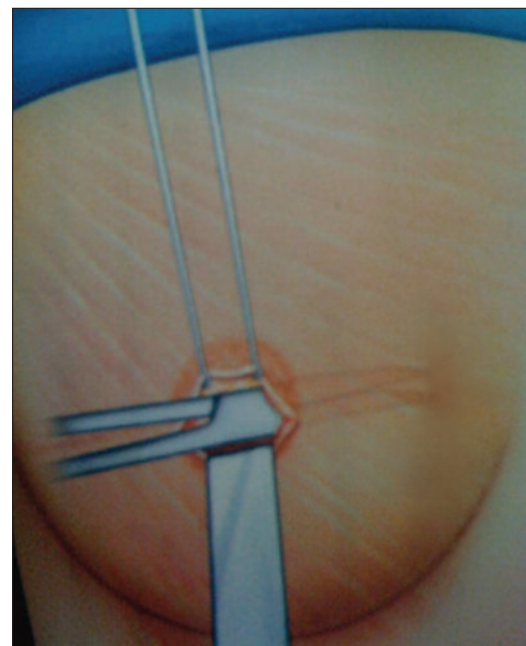


Figure 2. Schematic representation of dissection and creation of the subfascial plane for silicone implant insertion.



Figure 3. Schematic representation of polyurethane covered silicone implant insertion.

size of the areola as the suture is tied. An intradermal suture Monocryl 3/0 (Ethicon, Sumerville, NJ, USA) is then performed.

7. Steri-strips (3M's Nexcare. USA) are used in the periareolar scars. Postsurgical bra needs to be worn for 1 month after the procedure.

Statistical Analysis

Patients demographics have been reported in terms of means of age, BMI, implant volume and smokers in both groups A and B. Minimums and maximums of age and implant volume in either group are also reported. The grade of ptosis and the postoperative complicating events are mentioned. Satisfaction scores in either group are reported, with the number and percentage of patients expressing each score within either group at 12 and 24 months.

Results

All the patients underwent surgery by the same surgeon. Group A, ages ranged from 28 to 52 years, with a mean of 36.2 years. In Group B, ages ranged from 29 to 49 years, with a mean of 35.8 years. The average BMI was 23 m/kg² for Group A, and 22 m/kg² for Group B. Twelve patients smoked cigarettes in Group A and thirteen in Group B. The mean implant volume was 215 cc (range, 165-285 cc) in Group A. In Group B the mean implant volume was also 215 cc (range, 165-285 cc). In all the cases the subfascial plane was chosen. The degree of preoperative ptosis for each breast, according to the Regnault classification is reported. In Group A 10 women had grade 1 ptosis, eight had grade 2 ptosis, two had grade

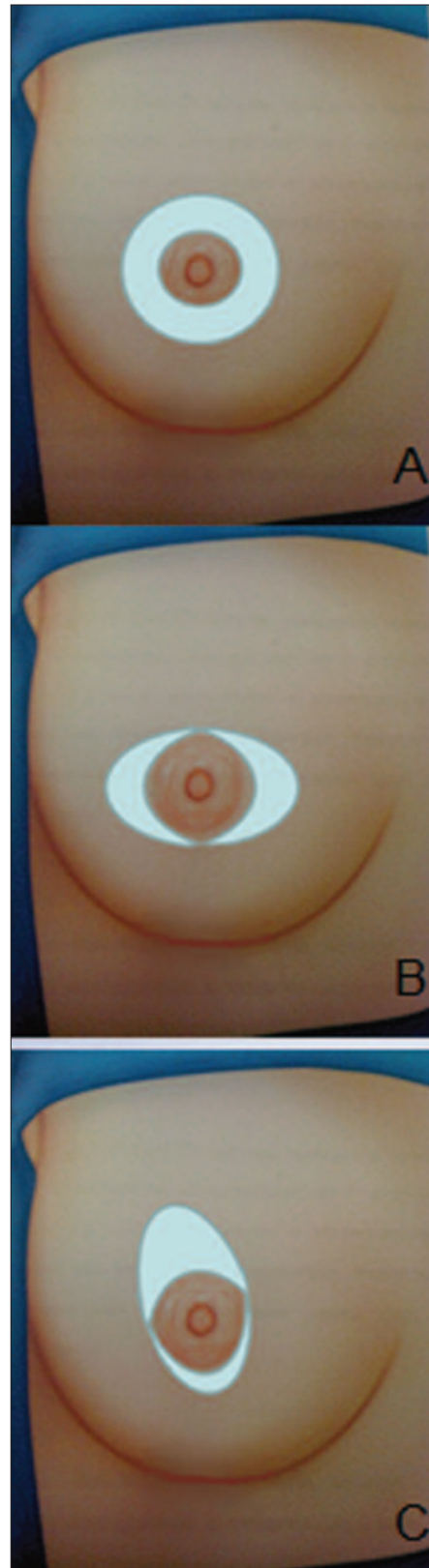


Figure 4. Schematic representation of the periareolar skin to be excised, which is empirically marked based on the resulting skin excess after the implant insertion



Figure 5. Schematic representation of the 4 cardinal glandulo-glandular sutures.

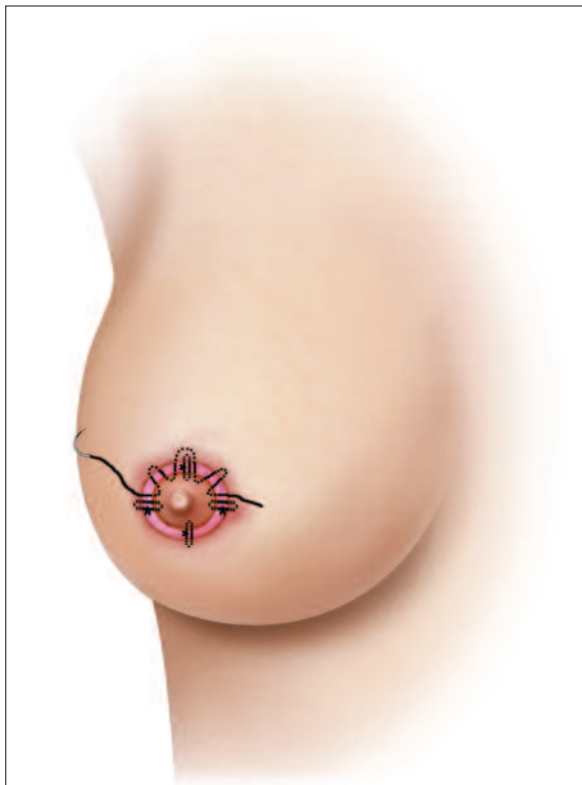


Figure 6. Schematic representation of the Benelli's "round block" technique, after the 4 cardinal glandulo-glandular sutures have been performed.

3 ptosis, two had pseudoptosis. In Group B 8 women had grade 1 ptosis, nine had grade 2 ptosis, two had grade 3 ptosis, and three had pseudoptosis. Complications were categorized as tissue related versus implant related.

In Group A complications included areolar asymmetry in 3 patients, scar widening in 2 patients, breast asymmetry in 1 patient, persistent ptosis in 2 patients. No hematoma, infection and implant related capsular contraction were reported. Revision surgeries were performed after the 12 months consultation. Correction of the areolar asymmetry in 3 patients was performed using the modified breast mastopexy technique used originally in Group B patients. In the patient with breast asymmetry and the patients with persistent ptosis, the revision surgeries were performed by using the modified breast mastopexy technique used originally in the Group B patients.

In Group B complications included scar hypertrophy in 2 patients and breast asymmetry in 1 patient. No hematoma, infection and implant related capsular contraction were reported. Revision surgeries were performed after the 12 months consultation. Correction of the breast asymmetry was performed using the same technique performed in the original operation.

In Group A, at 12 months, 10 patients reported that their appearance after breast mastopexy was "very good" (8) to "excellent" (2), 10 responded that their appearance was "good" and two fair (Figure 7 A). In Group B, at 12 months, 16 patients reported that their appearance after breast mastopexy was "very good" (10) to "excellent" (6), 5 responded that their appearance was "good" and one fair (Figure 7 B). In Group A, at 24 months, 14 patients reported that their appearance after breast mastopexy was "very good" (8) to "excellent" (6), 8 responded that their appearance was "good" (Figure 8 A). In Group B, at 24 months, 16 patients reported that their appearance after breast mastopexy was "very good" (10) to "excellent" (6), 6 responded that their appearance was "good" (Figure 8 B). All the patients that were originally included in the study completed the patient satisfaction evaluation at 12 and 24 months. At this writing, the average follow-up time for this group of patients has been 3.2 years.

Case Study

A 31-year-old woman requested correction of her breast contour (Figure 9 A, B). She was randomly assigned to Group B. She underwent bilat-

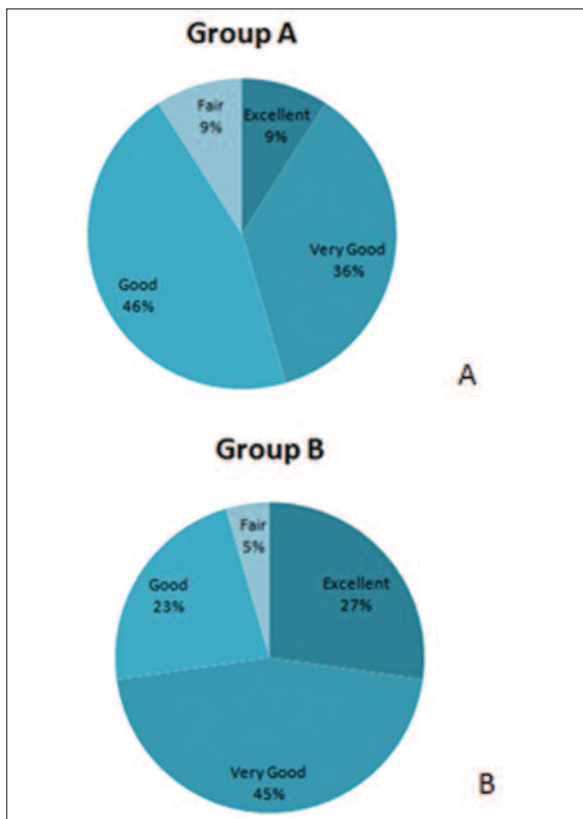


Figure 7. *A*, Patient satisfaction rate at 12 months after traditional round block mastopexy. *B*, Patient satisfaction rate at 12 months after modified round block mastopexy.

eral breast augmentation (250 ml) and modified periareolar round block. The patient is shown 14 months after the procedure (Figure 9 C, D). Her satisfaction at 12 months and 24 months was rated as excellent.

Discussion

Balancing shape, volume, and scar with a low recurrence rate is the main goal when considering lifting and augmenting the breast¹⁸. The aesthetic results for augmentation and mastopexy truly depend on a number of different factors that must work in harmony to yield an excellent result³. After the 1990s, modified techniques using the periareolar approach were described by various authors to overcome the poor results and to extend the patient selection criteria. Goes introduced the “periareolar mammoplasty: double skin technique” in 1989^{19,20} and Benelli described the “round block” technique in 1990⁷. Both authors changed the concept of the periareolar

mammoplasty from relying on the breast skin and areola to reshaping of the breast with internal rearrangements of the gland and redraping of the undermined skin over the new breast architecture. It is evident that limited scar techniques can be applied to all grades of ptosis, but there is no one technique that can satisfactorily address all degrees of ptosis. Correct preoperative assessment of the patient’s breast ptosis, as well as their desires and expectations, are important factors in deciding the technique of mastopexy to be applied. Plastic surgeons should weigh the advantages and limitations of each technique to correctly address breast ptosis²¹. When appropriately indicated, the round block mastopexy may lead to a good balance between breast shape, scar, and long-lasting results. As the goals of mastopexy and augmentation are opposing, the risks involved in reducing the soft tissue envelope while simultaneously filling the volume are

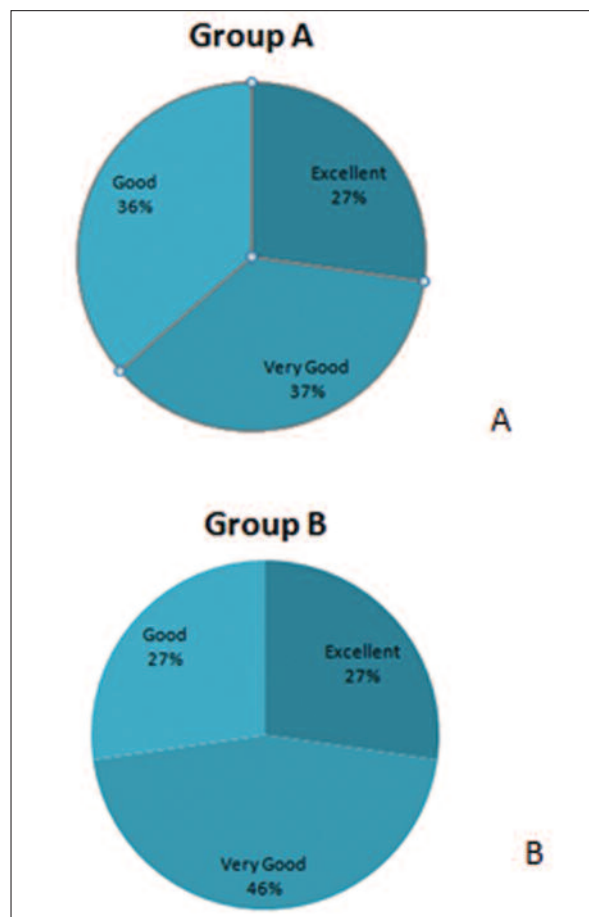


Figure 8. *A*, Patient satisfaction rate at 24 months after traditional round block mastopexy. *B*, Patient satisfaction rate at 24 months after modified round block mastopexy.

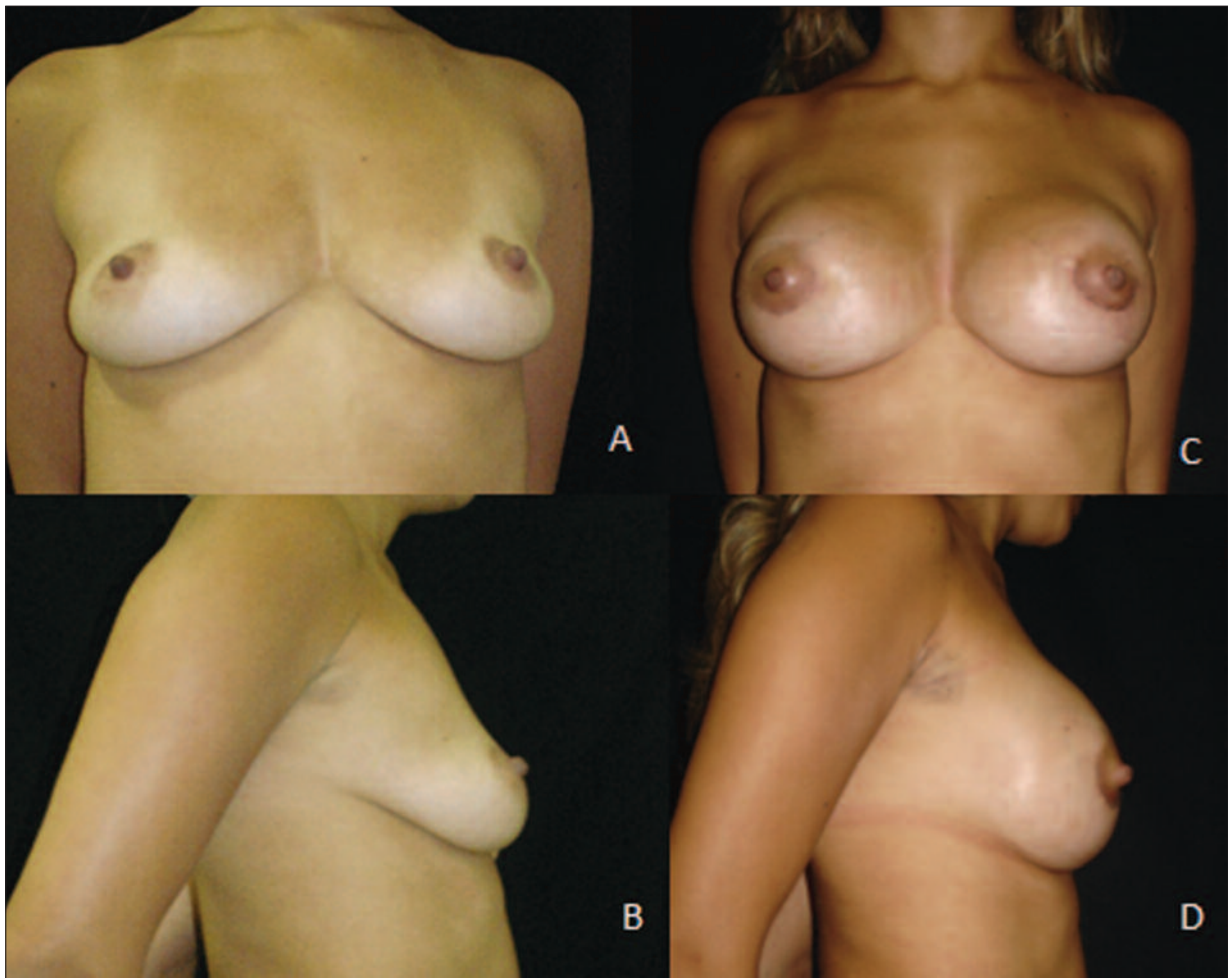


Figure 9. *A-B*, Preoperative photos of a 31 year-old woman requesting correction of breast contour. *C-D*, Postoperative photos of a 31 year-old woman shown 14 months after bilateral breast augmentation (250 ml) and modified periareolar round block.

increased. The utilization of round mastopexy for the skin excision around the areola can minimize the extent of the scar⁶. The periareolar mastopexy repositions the nipple, while the silicone implant restores the breast volume. A key challenge is to remove enough skin in order to create an appropriately tight brassiere, yet leave enough laxity within the soft tissue envelope for the increased volume from the implant. However, it is not uncommon to notice the areolar scar widening and the areolar shape change to an oval pattern²². The increased volume from the implant, combined with the decreased skin laxity after performing periareolar mastopexy, creates a high tension around the circular areolar incision²³. In other words the glandular element of the breast is telescoped outwards producing pressure and tension around the periareolar circular dermoepithelial incision. The aim for the addition of these 4 car-

dinal glandulo-glandular sutures is to take off the tension from around the areola, resulting in a fundamental improvement in the tissue mechanics and as a result decreasing the chance for areolar scar widening and areola change to an oval pattern. Unsightly scarring and areolar enlargement may also occur in a patient with a small and well-delineated nipple-areolar complex²⁴.

The rate of surgical revision in Group A was calculated to be 36.5%, compared to 4.5% in Group B. At 12 months there were 8 patients from Group A that needed to undergo revision surgery after having undergone the traditional round block mastopexy, compared to only one in Group B. At 24 months there was no need for revision surgery, which may be due to the use of the modified round mastopexy in the eight patients of Group A that underwent revision surgery. Meta-analysis of the patient satisfaction rates in Group A and B at 12

months shows that the satisfaction in Group B is superior when compared to Group A. At 24 months the patient satisfaction is similar for both Groups and this could be explained by the surgeons' choice to perform the surgical revisions using the modified round block mastopexy instead of the traditional round block in all the 8 patients in Group A. Although no similar study has been performed comparing the traditional round block mastopexy and a modified one, these results provide additional information on patient satisfaction and improvement in body image that typically occur after these procedures.

Conclusions

The combination of the cardinal glandulo-glandular sutures along with the traditional round block appears to be key to preventing the areolar enlargement and persistent breast ptosis. The satisfaction rates in patients who underwent the modified round mastopexy appears to be superior when compared to the traditional round block mastopexy. Further long-term follow-up needs to be performed in order to confirm the favorable results seen in this series of cases.

Conflict of Interest

The Authors declare that there are no conflicts of interest.

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