



Patient Satisfaction Following Inverted-T and Short-Scar Mammoplasty as Measured by the Breast Evaluation Questionnaire 55

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Abstract

Background: Mastopexy combined with silicone implant placement is one of the most frequently performed plastic surgeries. Various techniques have been developed to increase the degree of patient satisfaction after surgery. The goal is to give the breasts a harmonious shape, generating the smallest scars possible. The Breast Evaluation Questionnaire 55 (BEQ 55) was developed in 2006 as a tool for assessing the satisfaction and comfort of patients with the general appearance of their breasts.

Objectives: The objective of this study was to compare the degree of satisfaction of patients undergoing mastopexy by the inverted-T technique vs the short-scar technique by the BEQ 55.

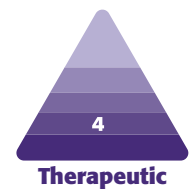
Methods: The BEQ 55 was administered pre- and postoperatively to 200 patients who underwent mastopexy performed by the first author between October 2013 and September 2017. One hundred patients underwent the short-scar technique, and 100 patients underwent the inverted-T technique.

Results: The first analysis used descriptive statistics. Relative frequencies were used to track the responses corresponding to each technique. There was an increase in the level of patient comfort and satisfaction with breast appearance after surgery in both groups. The short-scar technique was shown to be superior, with statistical significance ($P < 0.05$) found for the questions evaluating comfort with overall appearance naked, comfort with breast appearance naked, and satisfaction with breast appearance.

Conclusions: Both techniques improved the patients' satisfaction and comfort with their breasts. When the short-scar technique was used, patients were more comfortable with their breast appearance and with their overall appearance naked.

Level of Evidence: 4

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Breasts play an important role in female sexuality. Starting at the thelarche, they are the adnexa that undergo the most changes during female development. These changes occur during childhood, adolescence, reproductive age, pregnancy, lactation, and menopause.¹ Factors such as weight variation, skin quality, and hormonal influence due to estrogen sensitivity and genetics may result in changes in breast shape, volume, flaccidity, and ptosis.² The degree of satisfaction with her breasts varies according to the phase of a woman's life, and her quality of life might be greatly compromised in the case of physical or psychological discomfort related to this organ. Discomfort with physical appearance and body image leads to the search for surgical correction in our offices.³

What can be offered to these patients are surgeries that result in periareolar and vertical scars and, depending on skin flaccidity, in a larger or smaller horizontal scar. In many cases, such changes result in impaired breast function.⁴ Currently, an informed consent form, which warns of possible breast implant-related risks, is mandatory before surgery. Despite this new requirement, the number of breast implant surgeries performed remains practically unchanged.⁵

Patients with fat-replaced breasts tend not to be satisfied with the results obtained with flaps of their own tissue and request the use of implants because they desire the more rigid consistency and relative upper-pole stability that silicone provides.⁶

In Brazil, the most frequently asked questions come from the Short Form Health Survey 36 questionnaire. The BREAST-Q is another satisfaction questionnaire frequently used after mastopexy, and although it has been translated to Brazilian Portuguese, it has not been validated for Brazilian studies. In the present study, we chose the Breast Evaluation Questionnaire 55 (BEQ 55), published in 2006 and validated in Brazil in 2013, because we considered it to be more comprehensive than the others. This questionnaire has 55 questions related to the shape, comfort, and size of the breasts, and has the advantage of being self-administerable.⁷⁻¹⁰

METHODS

We performed a retrospective study from October 1, 2013 to September 30, 2017 in which 440 medical records were reviewed. The study was approved by the Research Ethics Committee of Rio de Janeiro State University (Universidade do Estado do Rio de Janeiro) under protocol no. 18254119.9.0000.5259. Of the 440 records analyzed, 200 met the inclusion and exclusion criteria. The patients were then divided into 2 groups of 100 patients each: group I, patients undergoing implant mammoplasty with a technique resulting in an inverted-T scar; and group II, patients

undergoing implant mastopexy by a short-scar technique. In both groups, polyurethane-coated implants (Polytech Health & Aesthetics, Dieburg, Germany and Silimed, Rio de Janeiro, Brazil) were used and placed in the retroglandular plane. The BEQ 55 was used to evaluate patient satisfaction with the breast in the preoperative period and 2 years after the procedure (Appendix).

The inclusion criteria were women 30 to 60 years old with a body mass index (BMI) of 19 to 30 kg/m² who underwent mastopexy with the placement of polyurethane-coated implants of 135 to 380 cc between October 1, 2013 and September 30, 2017 and who filled out the whole BEQ 55. All patients were operated on for aesthetic, psychological, or self-esteem reasons.

The exclusion criteria were incomplete medical records or questionnaires, age under 30 or over 60 years, gigantomastia, BMI below 19 kg/m² or above 30 kg/m², and postoperative loss to follow-up in the proposed period.

Surgical Technique

Short-Scar

Marking was performed as shown in Figure 1A. With the patient standing, the breast axis was traced to the areola, dividing the breast in half. Next, point A was established near the upper margin of the areola, and the mammary fold was traced. Point 1 was then established 2 cm medially to the breast axis, and point 2 at 2 cm laterally to the breast axis. We then traced 2 curved lines, the first from point A to point 1 and the second from point A to point 2. This mark had the advantage of giving us the freedom to determine the size of the slope that was convenient for each case. Because of the adherence of the polyurethane-coated implant to the underlying tissues, there was less breast pocket movement, allowing the slope to measure up to 7 cm, with the most commonly used measurement being between 6 and 6.5 cm. Consequently, a considerable reduction of the horizontal scar was achieved. The areolas were marked with a 4-cm areola marker positioned at the apex of the breast cone. Anterior wedge resection of the breast parenchyma was performed when necessary, including the base of the breast tissue, and the implants were placed in the retroglandular space (Figure 2 and Video).

Inverted-T

The breast axis was traced to the areola and mammary fold, dividing the breast into 2 segments. The mammary fold and point A, which corresponded to the projection of the mammary fold in the breast upper pole, were marked. The excess skin was delimited by a 2-digit maneuver, where the lateral C point and the medial point B were marked. Then, curved lines were traced from point A to point B, approximately 6 cm apart (ranging from 5 to 7 cm),

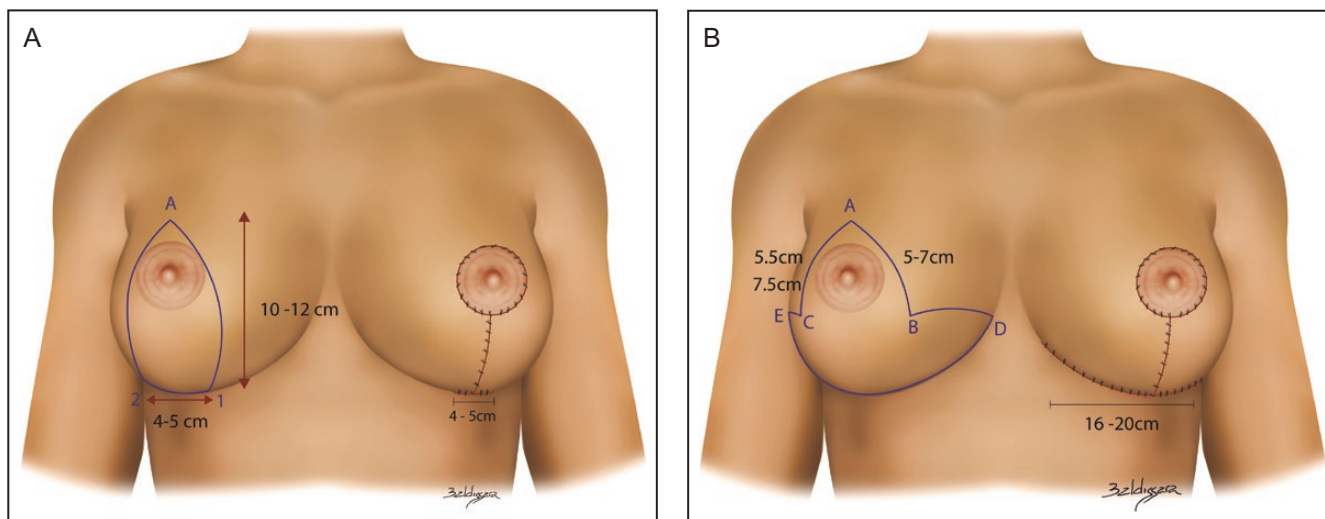


Figure 1. (A) Illustration of the marking and result of the short-scar technique. (B) Illustration of the marking and result of the inverted-T technique.

and from point A to point C, approximately 6.5 cm apart (ranging from 5.5 to 7.5 cm). Points B and C were also connected by curved lines to points D and E (positioned in the mammary fold)—D medially and E laterally—and delimited by pulling points B and C medially. Anterior wedge resection of the breast parenchyma was done, as was posterior resection of the base breast tissue, according to Figure 1B. The new positioning of the areola was marked at the apex of the breast cone, with a 4-cm areola marker, with a slope of approximately 6 cm to the mammary fold. The implants were placed in the retroglandular plane (Figure 3).

All patients were operated on by the first author (G.H.P.) in a private clinic, and the satisfaction questionnaires were completed by the patients before and 2 years after surgery. The criteria for selecting the technique were the level of ptosis and the skin quality of the patients. Patients with thin skin, with stretch marks, and with grade II and III ptosis are indicated for the inverted-T technique, and patients with elastic skin and grade I and II ptosis are indicated for the short-scar technique.

The satisfaction questionnaires were answered on a Likert scale, ranging from 1 (very unsatisfied) to 5 (very satisfied) with regard to size, shape, firmness, and appearance. R version 3.5.1 was used for data organization, statistical analysis, and creation of tables and figures.

The first analysis used descriptive statistics. Relative frequencies were used to describe the answers regarding each surgical technique. The results are presented in descriptive tables to see whether there was a change in the degree of satisfaction over time within each group.

The Shapiro-Wilk test was first used to determine whether the groups originated from a population with a normal distribution. Nonparametric paired tests were applied to identify, within each group, whether there was a

significant change in satisfaction from the pre- to the post-operative period. If the normality hypothesis was validated, we used the paired *t* test; otherwise, the Wilcoxon signed-rank test was used. A significance level of 0.05 (5%) was adopted in all statistical tests (Supplemental Figures 1-3).

Descriptive Analysis

To determine whether the chosen technique affected patient satisfaction, instead of comparing the pre- and post-operative satisfaction separately between 2 two groups, the difference in score for each question over time was calculated. That is:

Let Y_{ijt} be the score of individual i on question j , in period t , $i = 1, \dots, 100$, $j = 1, \dots, 55$ and $t = 0, 1$ (0 indicates before surgery and 1 after surgery). Therefore, for each individual, consider the following operation in both techniques:

$$Y_{ij} = Y_{ijt} - Y_{ij0}$$

Note that Y_{ijt} assumes values from 1 to 5, and, as seen in the descriptive analysis, the postoperative value was at least equal to the preoperative value. Thus, Y_{ij} assumed values from 0 to 4. The value was 0 (minimum difference) if the individual did not change her opinion after surgery for a given question, and 4 (maximum difference) when she went from very unsatisfied to very satisfied.

RESULTS

Group Characteristics

The mean age of the groups undergoing the inverted-T and short-scar procedures was 46 years (range, 30-60 years) and 41 years (range, 30-60 years) (Figure 4), and the

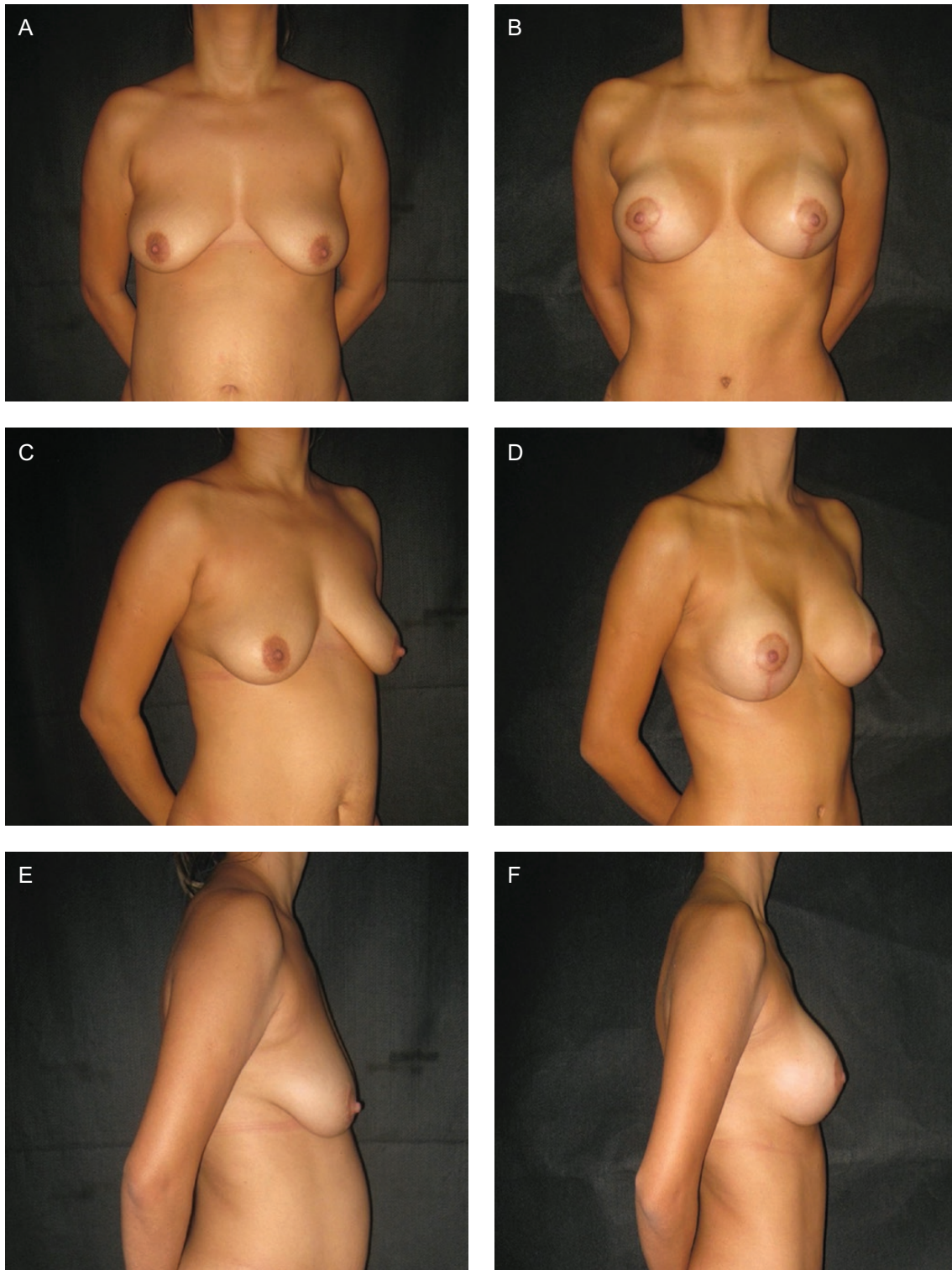
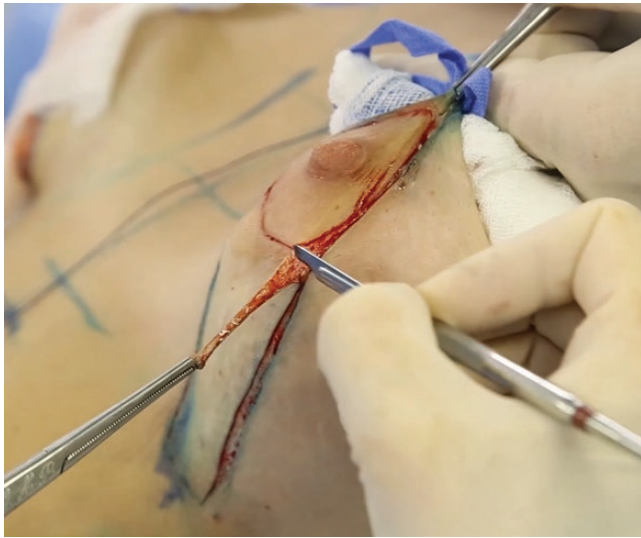


Figure 2. (A, C, E) Preoperative views of a 30-year-old female patient with grade I ptosis. (B, D, F) Two-year postoperative views of the patient after mastopexy with silicone implants by the short-scar technique.



Video. Watch now at <http://academic.oup.com/asj/article-lookup/doi/10.1093/asj/sjaa236>

mean BMI was 26.09 kg/m² (range, 20.24-29.94 kg/cm²) and 24.02 kg/m² (range, 19.15-29.76 kg/cm²), respectively (Figure 5).

The resected breast weight range was 0 to 1113 g for the inverted-T technique and 0 to 285.5 g for the short-scar technique. The resected weight was significantly lower ($P < 0.01$) for the short-scar technique (Supplemental Figure 4). Regarding the degree of ptosis, grades I and II were most frequent in each group. In contrast, the majority of patients with grade III ptosis underwent the inverted-T technique (Supplemental Figure 5).

Of the 200 patients evaluated, 11 patients experienced complications (5.5%): 7 (3.5%) from the inverted-T group and 4 (2%) from the short-scar group (Table 1).

Regarding the implant size used in patients in the inverted-T group, the median volume was 215 cc, ranging from 155 to 380 cc. In the short-scar group, the median volume was 215 cc, ranging from 135 to 380 cc (Figure 6). Patients were followed up for a minimum of 2 years and a maximum of 5 years with a mean of 30 months.

Group Analysis

Analysis of Groups Separately

Patients were divided into 2 groups of 100 individuals each according to the surgical technique used (inverted-T or short-scar). The BEQ 55 was applied in the pre- and postoperative periods. It is answered on a Likert scale in which 1 means very unsatisfied, very uncomfortable, or totally unimportant and 5 means very satisfied, very comfortable, or very important depending of the questionnaire part.

The questions are related to patients' and relatives' comfort and satisfaction with breast size, shape, firmness,

and appearance. Supplemental Figures 6-16 show the answers of the patients to each question, and Tables 2 and 3 illustrate the most common answer (mode) in each domain.

When assessing the degree of satisfaction with breast size, both the short-scar and inverted-T groups in the preoperative assessment had a predominance of "very unsatisfied" and "a little unsatisfied" responses; however, in the postoperative period, approximately 80% answered "very satisfied" in both groups (Supplemental Figure 6).

In the block of BEQ 55 assessing the degree of satisfaction with breast shape before surgery, there was a predominance of "very unsatisfied" responses in both groups. Postoperatively, 80% to 83% answered, "very satisfied" in the short-scar and inverted-T groups (Supplemental Figure 7).

In the block that assessed the degree of satisfaction with breast firmness, the short-scar group showed a high degree of dissatisfaction in the preoperative period, and the inverted-T group was evenly split between the "very unsatisfied" and "a little unsatisfied" responses. Postoperatively, "very satisfied" responses ranged from 79% to 81% in both groups (Supplemental Figure 8).

Regarding overall appearance when fully dressed, preoperatively a predominance of the "neither comfortable nor uncomfortable" response was seen in both groups. Postoperatively, there was a predominance of "very comfortable" in both groups (Supplemental Figure 9).

With a bathing suit or bikini in the preoperative period, a predominance of the "neither comfortable nor uncomfortable" response was found in both groups. In the postoperative period, the "very comfortable" response dominated in the short-scar (70%-71%) and inverted-T groups (57%-62%) (Supplemental Figure 10).

Regarding the patient's naked appearance, in the preoperative assessment, a slight predominance of the "a little uncomfortable" response was observed in both groups. In the postoperative period, the predominance of the "very comfortable" response was noted in the short-scar (60%-63%) and inverted-T groups (46%-50%) (Supplemental Figure 11).

Concerning the appearance of the breasts when dressed, in the preoperative period a predominance of the "very uncomfortable" response was noted in the short-scar group (34%-38%) and of the "a little uncomfortable" response in the inverted-T group (35%-39%). In the postoperative period, a predominance of the "very comfortable" response was observed in both groups (Supplemental Figure 12).

In regard to the appearance of the breasts in a swimsuit or bikini, in the preoperative period, a predominance of the "a little uncomfortable" response was noted in both groups. In the postoperative period, the "very comfortable" response had a clear predominance in both groups (Supplemental Figure 13).

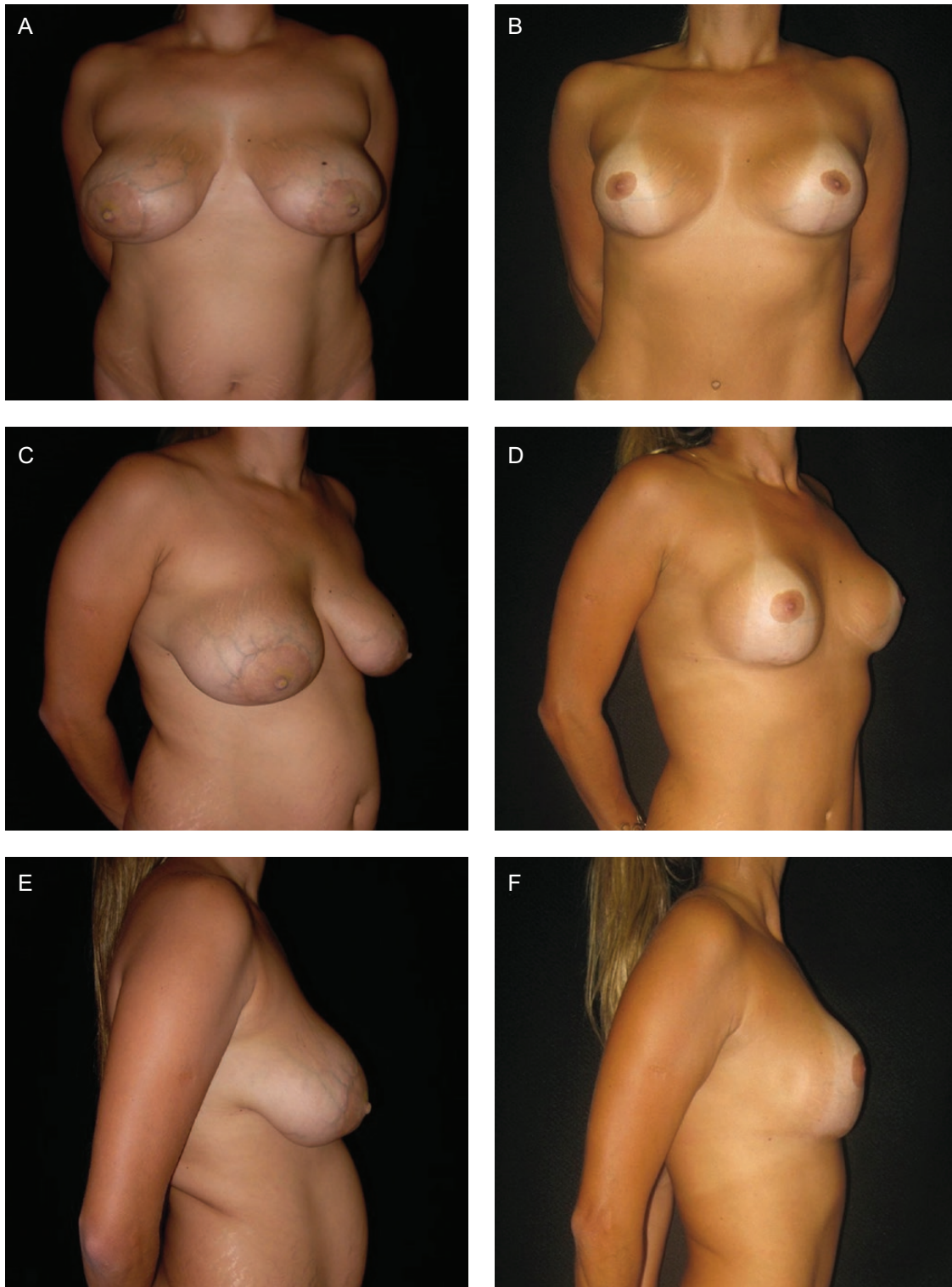


Figure 3. (A, C, E) Preoperative views of a 31-year-old female patient with grade I ptosis. (B, D, F) Three-year postoperative views of the patient after mastopexy with silicone implants by the inverted-T technique.

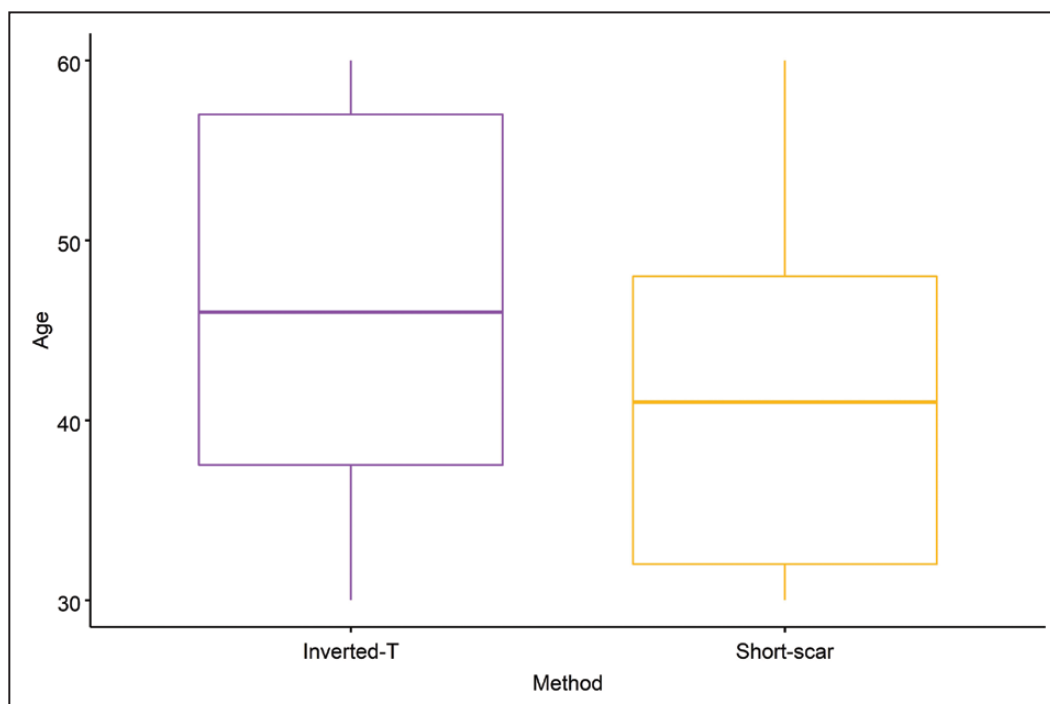


Figure 4. Box plot showing the mean, median, and standard deviation of patient age for each group.

In the questions about the appearance of the breasts when naked, in the preoperative period, a predominance of “very uncomfortable” responses was noted in the short-scar group (47%-52%), whereas in the inverted-T group, there was a predominance of the “a little uncomfortable” response (37%-42%). In the postoperative period, the “very comfortable” response had explicit superiority in both the short-scar (78%-81%) and the inverted-T groups (71%-78%) (Supplemental Figure 14).

When assessing the patients’ opinion about the appearance of their breasts, in the preoperative period the patients were unsatisfied, but their relatives and spouses did not feel strongly one way or the other. In the postoperative period, there was a strong improvement in satisfaction with the appearance of the breasts, both for the patient herself and for people close to her (Supplemental Figure 15).

When asked about the importance of breast size, the patients placed much importance on it at both time points evaluated. For close relatives, there was no significant change in their opinion of the importance of breast size. The spouses of the patients initially did not care much about the size of the breasts, but in the postoperative period, a large percentage of the husbands answered that breast size is very important, demonstrating great satisfaction with the result of the surgery (Supplemental Figure 16).

In all the questions, there was an increase in the patients’ choice of scores 4 and 5 after the surgical procedure compared with before.

The Shapiro-Wilk test was initially used to identify whether the groups originated from a normal distribution. Then, non-parametric paired tests were applied to identify whether there was a significant change in satisfaction from the pre- to the postoperative period within each group. If the normality hypothesis was validated, we used the paired *t* test; otherwise, the Wilcoxon signed-rank test was used. There was a significant ($P < 0.05$) increase in the degree of satisfaction of patients from before to after surgery in both groups.

Comparative Analysis of Surgical Techniques

To determine whether the surgical technique affected the degree of patient comfort and satisfaction, instead of comparing the preoperative and postoperative periods within each group, the improvement in the score for each question over time was calculated as detailed in the Methods section.

Comparing the difference in the degree of comfort and satisfaction between the 2 groups, there was no significant difference in most of the evaluated items. The variables that showed differences were as follows:

- Comfort with overall appearance naked: all categories except less familiar women.
- Comfort with breast appearance naked: all categories.
- Satisfaction with the appearance of the breasts: for the patient and sexual partner.
- Importance of breast size: for sexual partner, parents, siblings, and friends.

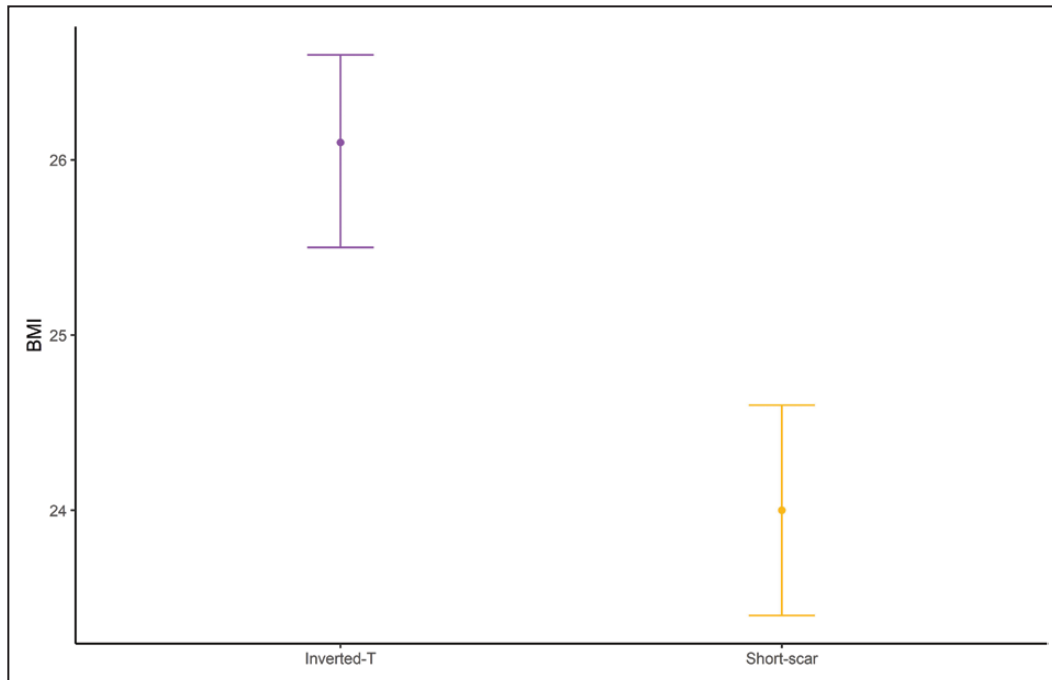


Figure 5. Box plot showing the mean, median, and standard deviation of patient body mass index for each group.

Table 1. Absolute Frequency and Percentage of Complications for Each Technique

| Complication | Inverted-T | Short-scar |
|-------------------------|------------|------------|
| Dehiscence | 3 (3%) | 2 (2%) |
| Seroma | 2 (2%) | 2 (2%) |
| Partial areola necrosis | 2 (2%) | 0 (0%) |

DISCUSSION

Multiple techniques have been developed in recent years to treat breast deformities, including different degrees of breast hypertrophy and ptosis, increasingly popularizing mastopexy.⁴

In 1923, Lotsch described the inverted-T-shaped periareolar skin incision with the horizontal branch slightly above the submammary fold as an alternative approach to breast reduction with resection of the adipose-glandular breast tissue in the central and lower part of the breast.^{11,12} This became one of the most commonly used surgical techniques, as described by Pitanguy in 1961. As a result, an inverted-T-shaped scar is obtained. These techniques, frequently used worldwide, cause extensive scarring of the mammary fold.¹³ Patients often ask about the extent of the horizontal scar during office consultation.¹⁴⁻¹⁶

In the short-scar technique used in this study, the marking ended at the mammary fold, and we could thus

define the dimension of the slope at the end of surgery, positioning the horizontal branch of the scar exactly at the mammary fold. Points B and C were defined at the end of surgery after initial breast assembly—hence, this is not a vertical technique but rather a short-scar inverted-T technique.¹⁷

Short-scar techniques without the horizontal component have been described in the literature by Gaston Maillard, Daniel Marchac, and others. Claude Lassus's vertical technique was published in 2011. In this technique, after marking a vertical ellipse, in some cases a horizontal flap 2 cm above the mammary fold is removed.¹⁸⁻²⁰

Madeleine Lejour's technique, published in 1993, uses a vertical marking, resulting in a vertical scar, and no horizontal scar in the mammary fold; this method is associated with liposuction in the breasts and has the potential for skin retraction at the base of the breast.^{21,22} The described vertical techniques occasionally exceed the mammary fold or, as a result of poor skin retraction associated with poor skin quality, may require subsequent surgical revisions to correct occasional excess skin in the mammary fold.²³

In the 1960s, placement of breast implants was combined with mastopexy to improve the upper pole of the breasts, giving them a better shape and consistency. It is increasingly common for patients to request placement of silicone implants combined with mastopexy during the plastic surgery consultation. The apparent contradiction of placing a silicone implant during a reduction mammoplasty may be better understood if we consider the advantages of combining the 2 procedures.^{24,25} The choice to place a

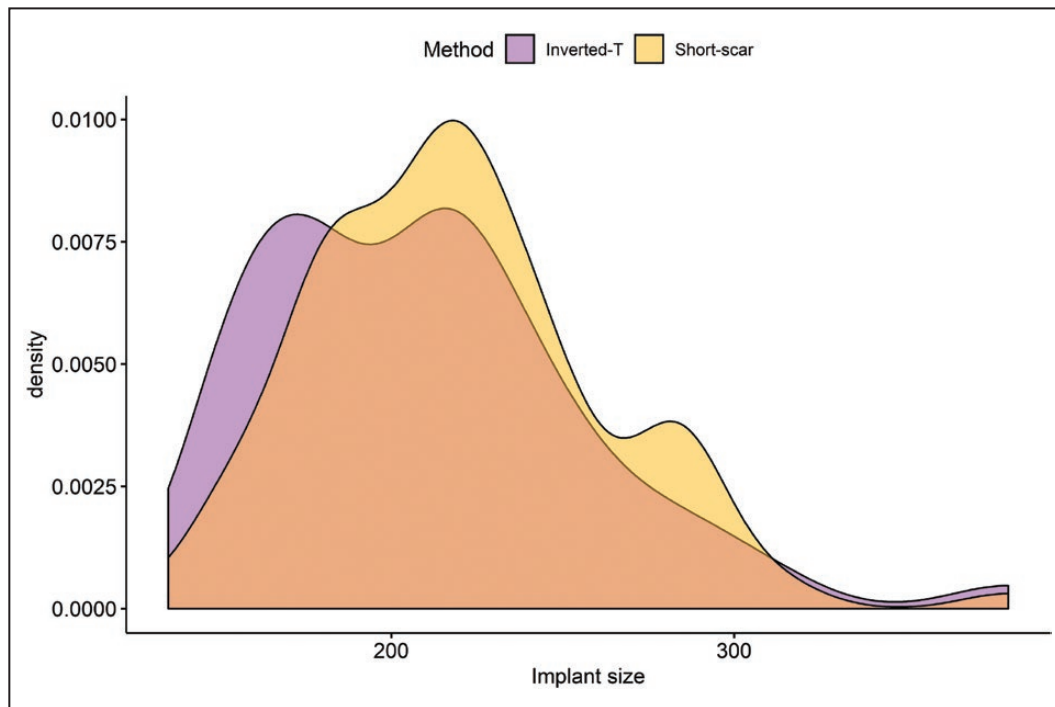


Figure 6. Density graph showing the distribution of the implant size for each surgical technique.

silicone implant during a mastopexy is reached jointly by the surgeon and the patient, taking into account the expectations and desires of the latter. Several studies have shown postoperative benefits in patients undergoing mastopexy with silicone implants by the inverted-T technique in regard to quality of life and self-esteem, despite the size of the scar.³⁻⁶ Patients with a predominance of adipose tissue in the breasts, sagging skin with decreased breast consistency, and loss of the upper pole are the ideal candidates for the use of silicone implants.²⁶

Currently, technological advances have allowed the development of implants with less tissue reaction and with a proven benefit in reducing capsular contracture rates.²⁷ Breast implants were developed by Cronin and Gerow in 1963. In 1970, Franklin Ashley created polyurethane implants, resulting in lower rates of capsular contracture.^{28,29}

In 1980, following an *in vitro* experiment conducted with rats in the United States, the carcinogenic substance 2,4-diaminotoluene was found in the rats' urine. Following human studies, at the request of the Food and Drug Administration, it was found that no harmful polyurethane residues were found in the urine or blood of women with polyurethane-coated silicone implants. The Food and Drug Administration advised against the removal of implants because it did not consider these patients' health to be at risk, but companies voluntarily stopped selling them in the United States. In Brazil, these implants are sold and widely accepted by the market.^{30,31} Vazquez and Pellon³² found a 1% capsular contracture rate over a follow-up period of

18 years and Miró³³ over a 10-year period.³²⁻³⁴ Polyurethane has great power for tissue fixation.^{33,35} Although some of the characteristics of the polyurethane-coated implant have been noted, any type of texture can be used with both techniques, regardless of the surface of the implant. We have used polyurethane-coated implants since 1991 because of the lower capsular contracture rate.³⁰⁻³³

Nowadays, with the new ISO 14607:2018 classification, polyurethane-coated implants are considered macrotextured implants, and along with other types of textured implants have been linked to anaplastic large cell lymphoma. Nevertheless, we discuss with the patients the risk of anaplastic large cell lymphoma when considering the use of any type of silicone implant.³⁶

The BEQ 55 was chosen because it was validated in Brazil and is self-administered. According to participatory anthropology theory and based on our experience as health professionals, the presence of the researcher or a member of their team while the patient fills out the questionnaire can cause them embarrassment, which prevents them from sharing their lack of satisfaction with the results of the procedure. Therefore, we instructed them on how to correctly answer the questionnaire, and we modified it to make it multiple choice so that it could be self-administered.⁸

The BEQ 55 consists of 55 questions divided into 4 blocks. The first block assesses the degree of satisfaction regarding the size, shape, and firmness of the breasts during social, professional, and intimate activities. The

Table 2. Relative Frequency of the Mode for Each Question of the BEQ 55 Preoperatively

| Preoperative | Short-scar | Inverted-T |
|--|-------------------------------|-------------------------------|
| Satisfaction with breast size | Sexual activities: 51% (1) | Sexual activities: 40% (2) |
| | Social activities: 48% (1) | Social activities: 42% (2) |
| | Work 48% (1) | Work: 40% (2) |
| Satisfaction with breast shape | Sexual activities: 52% (1) | Sexual activities: 39% (2) |
| | Social activities: 51% (1) | Social activities: 38% (2) |
| | Work 48% (1) | Work: 37% (2) |
| Satisfaction with breast firmness | Sexual activities: 54% (1) | Sexual activities: 41% (1) |
| | Social activities: 52% (1) | Social activities: 41% (1) |
| | Work 49% (1) | Work: 38% (1) |
| Comfort with your appearance fully dressed (entire body) | Alone: 34% (2) | Alone: 36% (2) |
| | Husband: 31% (3) | Husband: 39% (2) |
| | Men in general: 33% (3) | Men in general: 37% (2) |
| | Women you know: 34% (3) | Women you know: 39% (2) |
| | Less familiar women: 37% (3) | Less familiar women: 37% (2) |
| | Health professionals: 37% (3) | Health professionals: 38% (2) |
| Comfort with your appearance in swimsuit (entire body) | Alone: 39% (2) | Alone: 38% (2) |
| | Husband: 33% (2) | Husband: 42% (2) |
| | Men in general: 34% (3) | Men in general: 42% (2) |
| | Women you know: 38% (3) | Women you know: 38% (2) |
| | Less familiar women: 38% (3) | Less familiar women: 42% (2) |
| | Health professionals: 36% (3) | Health professionals: 36% (2) |
| Comfort with your appearance naked (entire body) | Alone: 36% (2) | Alone: 38% (2) |
| | Husband: 38% (1) | Husband: 38% (2) |
| | Men in general: 36% (1) | Men in general: 36% (2) |
| | Women you know: 36% (2) | Women you know: 35% (2) |
| | Less familiar women: 37% (2) | Less familiar women: 39% (2) |
| | Health professionals: 34% (1) | Health professionals: 38% (2) |
| Comfort with your breasts' appearance fully dressed | Alone: 41% (2) | Alone: 44% (2) |
| | Husband: 38% (2) | Husband: 43% (2) |
| | Men in general: 40% (2) | Men in general: 39% (2) |
| | Women you know: 39% (2) | Women you know: 41% (2) |
| | Less familiar women: 41% (2) | Less familiar women: 41% (2) |
| | Health professionals: 37% (2) | Health professionals: 41% (2) |

Table 2. Continued

| Preoperative | Short-scar | Inverted-T |
|--|-------------------------------|-------------------------------|
| Comfort with your breasts' appearance in a swimsuit | Alone: 42% (2) | Alone: 34% (2) |
| | Husband: 38% (2) | Husband: 33% (2) |
| | Men in general: 42% (2) | Men in general: 33% (2) |
| | Women you know: 41% (2) | Women you know: 34% (2) |
| | Less familiar women: 41% (2) | Less familiar women: 36% (2) |
| | Health professionals: 38% (2) | Health professionals: 36% (2) |
| Comfort with your breasts' appearance fully naked | Alone: 52% (1) | Alone: 41% (2) |
| | Husband: 52% (1) | Husband: 42% (2) |
| | Men in general: 48% (1) | Men in general: 37% (2) |
| | Women you know: 48% (1) | Women you know: 40% (2) |
| | Less familiar women: 48% (1) | Less familiar women: 41% (2) |
| | Health professionals: 47% (1) | Health professionals: 42% (2) |
| Satisfaction with the visual appearance of the breasts | Yourself: 59% (1) | Yourself: 39% (1) |
| | Husband: 59% (3) | Husband: 45% (3) |
| | Parents 63% (3) | Parents 53% (3) |
| | Siblings: 61% (3) | Siblings: 51% (3) |
| | Friends: 65% (3) | Friends: 53% (3) |
| Importance of breast size | Yourself: 75% (5) | Yourself: 63% (5) |
| | Husband: 61% (3) | Husband: 48% (3) |
| | Parents 68% (3) | Parents 51% (3) |
| | Siblings: 62% (3) | Siblings: 52% (3) |
| | Friends: 63% (3) | Friends: 52% (3) |

second block refers to comfort and discomfort in relation to the breasts when alone, with intimate individuals, and with health professionals. The third evaluates satisfaction with the visual appearance of the breasts when alone or in the presence of others. The fourth block measures how much importance the patient and those close to her attach to the size of the breasts.⁸⁻³⁷

As for other existing questionnaires, the Short Form 36, when used to evaluate satisfaction, was too nonspecific for our study and depends on the presence of a researcher or team member. The BREAST-Q is an excellent way to evaluate satisfaction, but it has only been translated and is not validated for use in Brazil.⁷⁻⁹ These questionnaires have been used to compare patient satisfaction after different breast reconstruction techniques. Menéndez-Cardo et al⁹ used the BREAST-Q to compare patient satisfaction after 2 different reduction mastopexy techniques, and concluded

that there were no significant differences between the groups when the surgical technique was chosen adequately. No studies assessing patient satisfaction by the BEQ 55 after performing different surgical techniques have been found in the literature. This questionnaire is an ideal tool to assess quality of life and self-image, and therefore we considered it appropriate to evaluate patients undergoing mammoplasty.

Another important finding is that, when asked about their satisfaction with their entire body overall appearance, patients undergoing the inverted-T technique were less satisfied than patients in the short-scar group. The slightly higher mean age and BMI in the inverted-T group that could be the reason for this lack of satisfaction (Figures 5 and 6).

Both techniques improved the level of satisfaction of the patients. In a comparative analysis of the characteristics of

Table 3. Relative Frequency of the Mode for Each Question of the BEQ55 Postoperatively

| Postoperative | Short-scar | Inverted-T |
|--|-------------------------------|-------------------------------|
| Satisfaction with breast size | Sexual activities: 82% (5) | Sexual activities: 83% (5) |
| | Social activities: 81% (5) | Social activities: 80% (5) |
| | Work 81% (5) | Work: 82% (5) |
| Satisfaction with breast shape | Sexual activities: 80% (5) | Sexual activities: 83% (5) |
| | Social activities: 80% (5) | Social activities: 81% (5) |
| | Work 81% (5) | Work: 80% (5) |
| Satisfaction with breast firmness | Sexual activities: 79% (5) | Sexual activities: 81% (5) |
| | Social activities: 80% (5) | Social activities: 81% (5) |
| | Work 80% (5) | Work: 80% (5) |
| Comfort with your appearance fully dressed (entire body) | Alone: 74% (5) | Alone: 66% (5) |
| | Husband: 73% (5) | Husband: 64% (5) |
| | Men in general: 72% (5) | Men in general: 62% (5) |
| | Women you know: 72% (5) | Women you know: 64% (5) |
| | Less familiar women: 72% (5) | Less familiar women: 62% (5) |
| | Health professionals: 72% (5) | Health professionals: 64% (5) |
| Comfort with your appearance in swimsuit (entire body) | Alone: 71% (5) | Alone: 62% (5) |
| | Husband: 71% (5) | Husband: 62% (5) |
| | Men in general: 70% (5) | Men in general: 57% (5) |
| | Women you know: 71% (5) | Women you know: 58% (5) |
| | Less familiar women: 71% (5) | Less familiar women: 58% (5) |
| | Health professionals: 71% (5) | Health professionals: 60% (5) |
| Comfort with your appearance naked (entire body) | Alone: 82% (5) | Alone: 86% (5) |
| | Husband: 82% (5) | Husband: 87% (5) |
| | Men in general: 81% (5) | Men in general: 83% (5) |
| | Women you know: 81% (5) | Women you know: 82% (5) |
| | Less familiar women: 81% (5) | Less familiar women: 83% (5) |
| | Health professionals: 81% (5) | Health professionals: 81% (5) |
| Comfort with your breasts' appearance fully dressed | Alone: 63% (5) | Alone: 50% (5) |
| | Husband: 61% (5) | Husband: 50% (5) |
| | Men in general: 60% (5) | Men in general: 46% (5) |
| | Women you know: 60% (5) | Women you know: 48% (5) |
| | Less familiar women: 60% (5) | Less familiar women: 50% (5) |
| | Health professionals: 61% (5) | Health professionals: 50% (5) |

Table 3. Continued

| Postoperative | Short-scar | Inverted-T |
|--|-------------------------------|-------------------------------|
| Comfort with your breasts' appearance in a swimsuit | Alone: 81% (5) | Alone: 80% (5) |
| | Husband: 82% (5) | Husband: 79% (5) |
| | Men in general: 82% (5) | Men in general: 81% (5) |
| | Women you know: 82% (5) | Women you know: 81% (5) |
| | Less familiar women: 82% (5) | Less familiar women: 81% (5) |
| | Health professionals: 82% (5) | Health professionals: 79% (5) |
| Comfort with your breasts' appearance fully naked | Alone: 81% (5) | Alone: 77% (5) |
| | Husband: 81% (5) | Husband: 78% (5) |
| | Men in general: 79% (5) | Men in general: 71% (5) |
| | Women you know: 79% (5) | Women you know: 75% (5) |
| | Less familiar women: 78% (5) | Less familiar women: 74% (5) |
| | Health professionals: 81% (5) | Health professionals: 72% (5) |
| Satisfaction with the visual appearance of the breasts | Yourself: 86% (5) | Yourself: 79% (5) |
| | Husband: 82% (5) | Husband: 67% (5) |
| | Parents 78% (5) | Parents 60% (5) |
| | Siblings: 77% (5) | Siblings: 63% (5) |
| | Friends: 78% (5) | Friends: 65% (5) |
| Importance of breast size | Yourself: 94% (5) | Yourself: 90% (5) |
| | Husband: 84% (5) | Husband: 52% (5) |
| | Parents 70% (5) | Parents 38% (5) |
| | Siblings: 71% (5) | Siblings: 38% (5) |
| | Friends: 69% (5) | Friends: 38% (5) |

each group regarding age, breast implant size, and ptosis degree, statistical similarities were found between both techniques. The median implant size was the same for both groups, 215 cc. The average age was similar, 42.23 years in the short-scar group and 46.06 years in the inverted-T group. The degree of ptosis of the operated patients was mainly I and II in both groups; there were slightly more patients with grade III ptosis in the inverted-T group than in the short-scar group (Supplemental Figure 12).

Regarding BMI and the weight removed from the breasts, slightly higher values are evident in the patients who underwent the inverted-T technique, as expected.

When comparing patient comfort with their breast appearance after undergoing surgery, it is evident that the short-scar technique offers more comfort; however, the only item within this group with statistical significance ($P < 0.05$) is the setting where the patient is undressed.

This factor can be related to the smaller scar achieved with this technique. The smaller scar is also likely to be the reason for the statistically significant difference between the groups in terms of the patients' views of their general appearance when naked.

The importance given by their partners and family members regarding breast size postoperatively was statistically significantly higher among patients who underwent the short-scar technique.

In terms of the satisfaction with the visual appearance of their breasts, both patients and their partners showed a high degree of satisfaction in the postoperative period; however, the level of satisfaction was statistically significantly higher with the short-scar technique. This result may also be related to the less extensive scarring caused by this technique because a good breast shape can be achieved with both techniques.

The present study had some limitations because the BEQ 55 does not take into account the quality of the scar and the extension of the scar, which are both outcomes that relate to the level of satisfaction of the patients. Maintaining the same inclusion criteria for both groups and evaluating both groups with the BEQ 55 questionnaire was also a limiting factor. Another limitation is that the presence of the physician during the questionnaire may influence the answers that patients give. It is important to develop and validate a questionnaire in Brazil to evaluate the level of satisfaction related to the quality and extension of the scar.

Future research should consider assessing the quality of the scars according to the Patient and Observer Assessment Scale because scar quality is an aspect closely related to postoperative patient satisfaction.^{38,39}

CONCLUSIONS

The BEQ 55 has been shown to be an excellent tool for evaluating patient comfort and satisfaction during the postoperative period for both the inverted-T and short-scar techniques, although not evaluating the extent and quality of the scar remains a limitation.

Although both techniques were able to achieve a good breast shape it was possible to demonstrate a higher level of satisfaction and comfort when the short-scar technique was performed, especially in terms of items evaluated in the undressed patient setting.

Supplementary Material

This article contains supplementary material located online at www.aestheticsurgeryjournal.com.

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