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Augmentation/Mastopexy: How to Select and Perform the Proper Technique

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Abstract. During a period of 8 years, 384 female patients underwent simultaneous surgery for placement of implants and mastopexy. The surgical techniques used were selected according to the characteristics of each particular case. The determining variables in the selection were ptosis of the nipple–areola complex (NAC) and distance from the NAC to the inframammary fold. Only three surgical techniques were used: NAC lifting (n = 30), periareolar pexy (n = 196), and inverted T pexy (n = 158). The degree of general satisfaction with each of the techniques was 89%, 82%, and 92%, respectively. Round and anatomic implants were used, respectively, for 258 (67%) and 126 (33%) of the patients, with their use depending on the medical indications and each patient's choice. All complications were minor, and their overall incidence was 18%. Factors such as proper choice of the surgical technique, type of implant, approach to placement of the implant, type of suture, and removal of tissue for the pexy are fundamental to obtaining a good result. With these factors kept in mind, it is possible to perform the combined procedure of mastopexy and implantation, to minimize the complications, and to obtain satisfactory results over the mid and long terms.

Key words: Breast Augmentation—Inverted T pexy—Mastopexy —Nipple–areola complex lifting—Periareolar pexy—Mammary implants

From an aesthetic point of view, the mammary gland forms one of the most attractive areas of the female anatomy. A beautiful, harmonious gland is synonymous with sensuality. For that reason, surgical procedures for improving it are multiple and varied [2,8,10,11,13,15]. Primarily because of its physiologic function in lactation, the mammary gland can undergo important changes, especially if there have been multiple pregnancies and modifications in the gland's size have been significant [6]. This means that after pregnancy and lactation, the gland may exhibit two principal alterations: hypoplasia and ptosis [6]. The presence of both pathologies in a single patient is a common situation. When a patient is faced with this situation, it is necessary to correct both problems simultaneously. Despite its frequency, few studies have investigated how to correct this problem, the selection of a surgical technique, or the precautions for avoiding complications [16]. Furthermore, there is controversy about combining augmentation and mastopexy in the same surgical procedure [1,9,14,18]. The use of a proper surgical technique, besides providing aesthetic improvement, greatly minimizes complications.

For these reasons, we present our 8 years of experience combining breast augmentation and mastopexy, with details of each surgical technique that can be used to resolve this problem. We recommend a methodology for selecting the best option from among the different surgical techniques to obtain the best results and to experience maximum avoidance of complications.

Materials and Methods

Between January 1996 and December 2004, surgery was performed on women who needed mastopexy and augmentation at the same surgical time because they presented hypoplasia and mammary ptosis. The principal author performed the surgery for all the

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patients using textured silicon gel implants. In each particular case, different surgical variables were considered, such as size and shape of the implant and the surgical technique to be used. The surgical technique was chosen from among three techniques, depending on each patient's characteristics: lifting of the nipple–areola complex (NAC), periareolar pexy, or inverted T pexy. Excess supra- and infraareolar tissue determined the technique selected. For ptosis of the NAC less than 3 cm, a distance less than 5 cm from the NAC to the inframammary fold, and no excess in the inferior pole of the breast, elevation of the NAC is indicated. For ptosis of the NAC less than 3 cm, with a distance exceeding 5 cm from the NAC to the inframammary fold, periareolar pexy is indicated. In these cases, there is a moderate excess both above and below the NAC. On the other hand, for more severe cases, in which there is considerable excess tissue above and below the NAC, inverted T pexy is indicated. In these cases, the ptosis of the NAC is greater than 3 cm, and the distance from the NAC to the inframammary fold is greater than 5 cm.

Surgical Techniques

All patients are marked preoperatively in a sitting position. When the use of any surgical technique is delimited, four points or basic areas are required: the inframammary fold, the midclavicular line, the suprasternal notch, and the base of the mammary gland in its normal position. With these four points indicated, it is possible to take four measurements necessary for performing the surgical technique, and to decide which technique to use: the distance from the suprasternal notch to the nipple, the distance from the nipple to the inframammary fold, the width of the breast base, and the height of the breast base (Fig. 1). Characteristics of the mammary glands such as shape, asymmetry in the fold's location, and asymmetry in the size and degree of the ptosis all are evaluated and recorded. All these measurements, points, and characteristics of the breast are shown in Table 1. The new location of the NAC is indicated over the midclavicular line, with the average normal distance from the suprasternal notch and the forward projection of the mammary fold, as described by Pitanguy [10,11], taken into account.

With these points and areas marked and the measurements taken, the surgical procedure is selected, depending basically on the distance from the NAC to the inframammary fold (the amount of excess tissue in the inferior pole) and the distance that the NAC needs to be lifted. These two variables are the determining points for selecting the surgical procedure, as shown in Table 2.

Surgery is performed with sedation and local anesthesia. The anesthetic solution to be infiltrated is prepared with 250 ml of 0.9% saline solution, 100 ml of 1% lidocaine, and 1 ml of adrenaline 1:1,000.

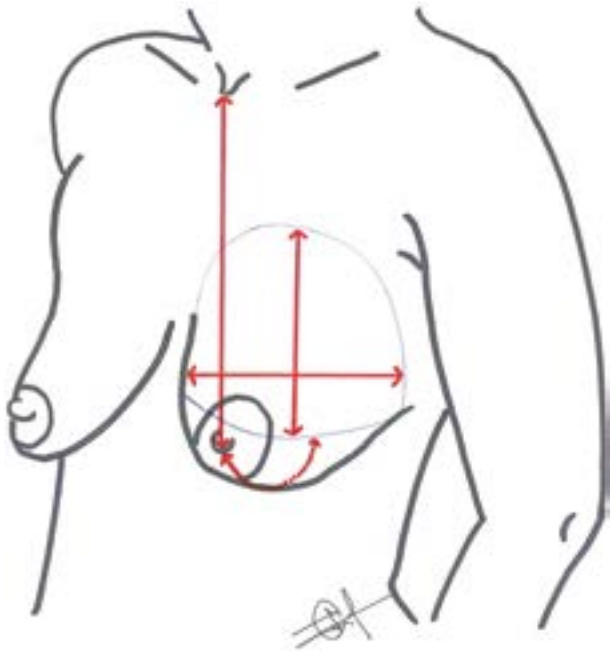

Fig. 1. Measurements necessary for deciding which technique to use and for performing it: distance from the suprasternal notch to the nipple, distance from the nipple to the inframammary fold, width of the breast base, and height of the breast base.

Depending on the breast size, 125 to 150 ml of the prepared solution is infiltrated into each breast. The intercostal nerves are blocked with the same solution. Two reference sutures are placed, which are used to confirm the location of the NAC and its symmetry. These sutures are placed in the suprasternal notch and the xiphoid appendix of the sternum.

Most patients are ambulatory, leaving the hospital within 12 h after surgery. For cases in which the NAC is only going to migrate upward or a periareolar technique is going to be used, implant placement is through the areola. On the other hand, if an inverted T technique is going to be used, the implant is placed through the inframammary fold. This is done to leave the implant with the greatest possible covering. Marking the width and height of the breast base is of primary importance for placement of the implant in the proper position. The implant should be placed in that location except in cases wherein the mammary fold has had to be displaced downward, as happens in patients for whom the distance from the NAC to the original inframammary fold is very short. For all patients, the placement plane is dual, as described by Tebbetts [19], except in the case of tuberous breasts, in which placement is subglandular.

Lifting the Nipple–Areola Complex

If there is little ptosis of the NAC (< 3 cm) and the distance from the NAC to the inframammary fold is

Table 1. Measurements, analyses, and characteristics of the mammary gland

Marking areas	Gland measurements	Variables or asymmetries
Inframammary fold	Distance from the suprasternal notch to the nipple	Shape
Midclavicular line	Distance from the nipple to the inframammary fold	Size
Suprasternal notch	Height of the mammary gland	Position of the inframammary fold
Mammary gland base	Width of the mammary gland	Degree of ptosis

Table 2. Determination of the surgical technique to be used

Distance from the NAC to the inframammary fold	NAC ptosis	General mammary gland characteristics	Surgical technique to be used
< 5 cm	< 2–3 cm	Low position of the NAC but with no excess skin at the inferior pole of the breast	Upward displacement of the NAC
> 5 cm	< 3 cm	Little excess skin above and below the NAC	Periareolar pexy
> 5 cm	> 3 cm	Much excess skin both above and below the NAC	Inverted T pexy

NAC, nipple–areola complex.

short (< 5 cm), the surgical procedure to be performed is only an upward migration of the NAC. Although only an upward migration of the NAC may be required, the areola cut is around the complete circumference, and closure is periareolar to allow closure without tension and to avoid CAP distortion. In most of these cases, downward displacement of the inframammary fold is necessary so as to leave it in the position that corresponds to the NAC's new location. This is achieved by moving the inframammary fold the necessary distance and placing the implant starting from that position.

All the surgical techniques begin with the circumferential cut around the NAC of the desired size. The usual measurement in our cases is 4 cm. The implant is placed through a supra-areolar incision, with transglandular dissection extending to the pectoral fascia. The supra-areolar approach is preferred because the NAC is going to be moved upward, and there often is no need to make an infra-areolar cut. Another reason for preferring this approach is that it provides greater covering of the implant, because in most of these cases, the inferior pole of the breast is hypotrophic, with minimal glandular tissue.

When the pectoral fascia is reached, dissection continues toward the inframammary fold on a subglandular plane. This dissection should reach the edge of the inframammary fold that has been marked preoperatively. A large majority of patients who require minimal upward displacement of the NAC need a relocation of the inframammary fold because the original distance is very short, exhibiting a high fold. In these cases, there is a deficit of mammary tissue in the inferior pole of the breast, which must be compensated by the implant. When this deficit exists, the ideal implant is anatomic (McGhan model 410), with characteristics that compensate for this problem very satisfactorily. Subglandular dissection ends at the inframammary fold.

All our cases, except special cases mentioned later, involve dual-plane implant placement, as described by Tebbetts [19]. Therefore, at the inframammary fold level, the major pectoral muscle is incised and separated from its costal insertion. This disinsertion also takes place in its inferomedial portion at the sternum level. The disinsertion should not go beyond the inferior portion of the major pectoral muscle. Otherwise, there is the risk of a significant upward displacement of the muscle, with consequent deterioration of the aesthetic result. This is because the disinserted pectoral muscle, being very high, produces a constrictive band that squeezes the implant in half, creating the unaesthetic appearance of a gland cut in half. The submuscular dissection will include sufficient space for the size of the implant to be placed. The only instance in which we prefer placing the implant in a totally subglandular plane instead of a dual plane, as described by Tebbetts [19], is when it is necessary to cut the mammary gland at its base to permit amplification, as in the case of tuberous breasts. In all other patients, we use dual-plane placement, in which approximately 30% of the implant (the inferior part) remains subglandular, and the remainder is in a submuscular plane.

We always place a counteropening drain laterally, which is removed within 24 to 48 h postoperatively, depending on bleeding. The supra-areolar approach for implant placement is closed by planes using Monocryl 2-0 without suturing of the muscular plane. Closure of the planes should reach the dermis to allow correct design of the pexy.

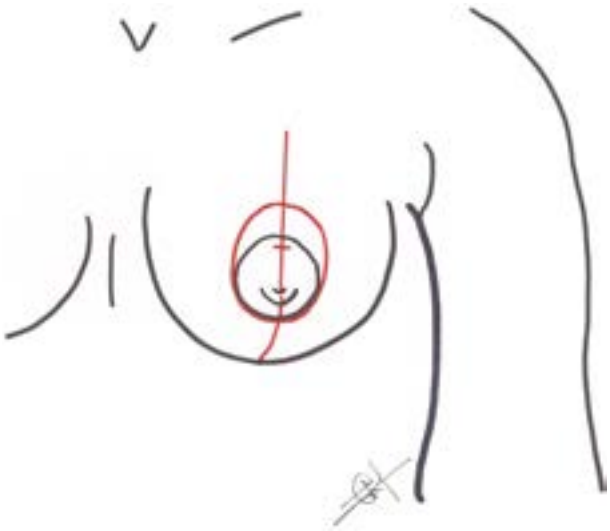

Fig. 2. Design and position of the half-moon on the breast that has to be deepithelialized. For cases in which the nipple–areola complex is not going to be reduced, the half-moon's inferior edge will include the inferior edge of the areola.

After the implant has been placed, the cutaneous resection is designed. It is of primary importance to rely on the preoperative markings, principally for the new location of the center of the NAC. This new NAC location is confirmed, if there is doubt, by placing the patient in a semiseated position. To achieve symmetry in the location of both NACs, the two sutures placed in the supraclavicular notch and the xiphoid appendix at the start of surgery are used. These two sutures form a medially based triangle that extends from one breast to the other, verifying the position of the new NAC design.

Once the central position of the new NAC is confirmed, a half-moon is delimited, which includes the highest part of the new NAC as an upper limit and the previously delimited areola as a lower limit, and all excess skin is removed from the areola. For special cases in which the NAC is not going to be reduced in size to the 4 cm indicated previously, the half-moon's inferior edge will include the inferior edge of the areola (Fig. 2). The design and position of the half-moons designed on the breast are again verified by the sutures. The area within the half-moon is deepithelialized. If the larger portion of the half-moon, which corresponds to the superior portion, does not exceed 1.5 cm, and if skin was not removed from the inferior portion, closure will be performed directly with interrupted subdermal Monocryl 3-0 sutures, and the skin will be closed with continuous intradermal Monocryl 3-0 sutures.

On the other hand, if the amount of skin in the half-moon exceeds 1.5 cm, or if skin from the inferior portion was resected to reduce the size of the areola, closure should be performed using a round block Prolene 3-0 suture, as described by Benelli [3]. This closing prevents the scar of the new NAC from widening with the passage of time, which happened with the first patients on whom we used this procedure. Closure limits in round block are realized by using the 3.8 cm areola marker to place the previously cut 4 cm NAC. This is another action that helps to avoid tension and to prevent the NAC from increasing in diameter over the long term.

After placement of the round block periareolar suture, the NAC is distributed with interrupted Monocryl 3-0 sutures, and closure is performed with continuous intradermal Monocryl 3-0 sutures. In every case when the implant is placed in a dual plane, a supramammary compress dressing is applied to avoid implant displacement during the immediate postoperative period because of muscular contracture produced by surgical manipulation. We recommend postoperative therapeutic ultrasound every third day after the fourth day for approximately 3 weeks to improve postoperative evolution [12].

Periareolar Pexy

If the existing problem consists of moderate ptosis with little excess skin above and below the NAC, the surgical technique to be used is periareolar pexy, without repositioning of the inframammary fold. In these cases, the distance for the NAC to migrate should be less than 3 cm, and the distance from the NAC to the current inframammary fold should be 5 to 7 cm. The beginning of the technique is similar to that explained for lifting of the NAC, except that in this case, we prefer using the infra-areolar approach. This approach enables us to maintain superior vascularity of the NAC and sufficient mammary tissue in the inferior pole to cover the implant. The design of the areola, the dissection, the placement plane of the implant, and the closure by planes are those described in the technique for lifting of the NAC.

Once the implant is placed, the cutaneous resection for the periareolar pexy is designed. The superior and inferior edges must be marked. These will form the resection of the skin, and the design of the periareolar circumference is made over these marks. These two points are placed over the midclavicular line indicated preoperatively. To mark the superior edge of the circumference, the center of the new NAC location indicated preoperatively is used. The superior edge is marked 3 cm above this point. These 3 cm correspond to the 2 cm that form the radius of the new areola, plus an additional 1 cm to compensate for forward skin displacement when the periareolar design is closed. In marking the inferior edge of the circumference, the location of the inframammary fold is taken as a reference.

In these cases, the inframammary fold does not need to be displaced because the indication for using this surgical technique is precisely a distance greater than 5 cm. Depending on the implant size, the dis-

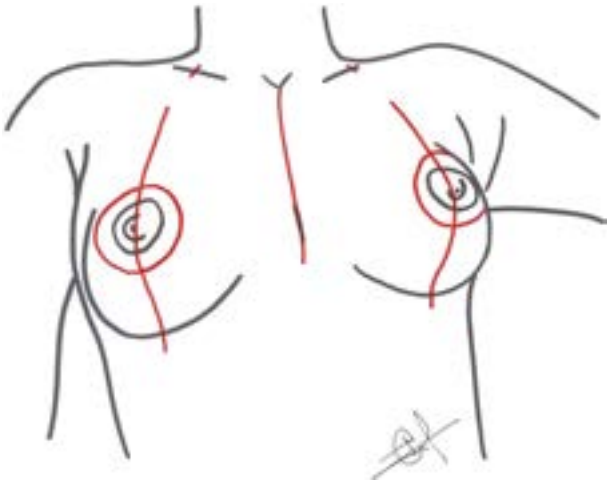

Fig. 3. With the superior and inferior points delimited, the periareolar circle is drawn. The skin between the areola mark and the circumference is deepithelialized.

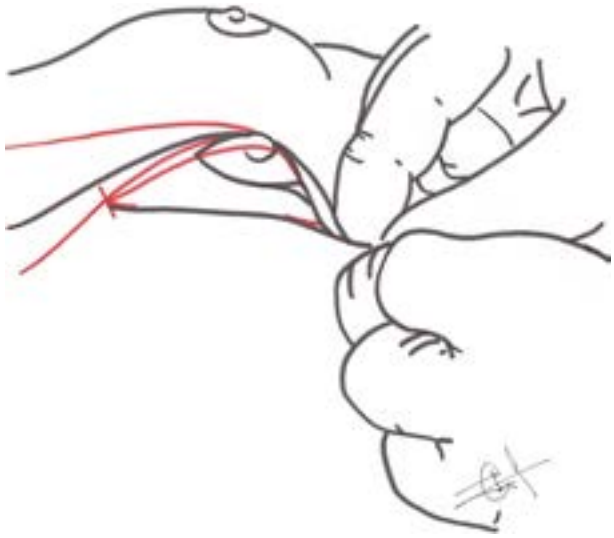

Fig. 4. Pinching test to determine how much skin needs to be resected.

tance from the inframammary fold to the inferior edge of the circumference will be 5 to 7 cm. The larger the breast size, the greater the distance will be. In most cases, the distance is 6 cm.

Once the superior and inferior points are delimited, the periareolar circle is drawn, made as symmetric as possible (Fig. 3). The skin between the areola mark and the circumference then is deepithelialized. Although when we began, we performed dermal detachment completely around the circumference, we no longer do this. It decreases the devascularization of the NAC, and at the same time prevents the cutaneous defect from worsening. Periareolar closing is performed using Benelli's round block technique [3], similar to the technique for lifting the NAC.

Inverted T Pexy

When ptosis is more severe, with significant excess skin above and below the NAC, the technique should be the inverted T mastopexy. In such cases, the distance from the NAC to migrate is greater than 3 cm, and the distance from the NAC to the inframammary fold is greater than 5 cm. When the surgical indication is for an inverted T technique, the procedural manipulations are substantially modified. In these cases, implant placement is through the inframammary fold. Using this approach, the retropectoral space is reached, and dissection of the major pectoral muscle is similar to that used in lifting the NAC. With the implant and drain placed, closure follows using Monocryl 2-0 and 3-0 without closure of the skin.

Pexy design entails specific steps for achieving the desired surgical result. These steps are similar to those described by Pitanguy [11] in his surgical technique for mastopexy. The first step consists of choosing a point on the midclavicular line 8 cm below the center of the new NAC marked preoperatively.

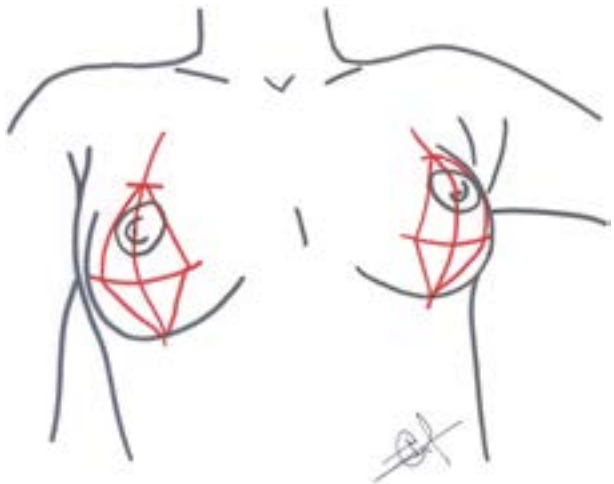

Fig. 5. The pinching test constitutes the bases of two triangles that form a rhomboid in the design for skin resection, in which the vertex of the upper triangle corresponds to the new nipple–areola complex and the vertex of the lower is on the inframammary fold.

These 8 cm correspond to the 2 cm of the new areola's radius plus 6 cm from the edge of the new NAC to the inframammary fold. Pinching is done at this level to determine precisely how much skin is to be resected. The pinched amount can vary from 4 to 12 cm, depending on the excess skin in the inferior pole of the breast and the amount of tissue to be resected (Fig. 4). This amount will constitute the bases of two triangles forming a rhomboid in the design of the skin resection, with the vertex of each triangle corresponding to the new NAC and the inframammary fold (Fig. 5).

After this area is delimited and the diameter of the new areola is indicated, tissue within the rhomboid is

resected. Half of the upper triangle is exclusively deepithelialized, whereas in the remainder of the triangle, subcutaneous cellular tissue is removed as far as the preglandular fascia. This tissue is removed to permit closing with less tension. This removal eliminates tissue from the inferior pole of the breast, thus decreasing the risk of short-term pseudoptosis and forming two pillars that permit mastopexy and closure to be performed.

With the tissue removed, the pillars of the inferior portion of the areola are closed using Monocryl 2-0 and 3-0. This closure extends only to the 8 cm that correspond to the upper triangle because the lower triangle corresponds to tissue that will be resected when the pexy is completed. The upper portion of the areola then is overlapped, with temporary cutaneous external stitches following the lines of the upper triangle. The inferior closing stitch that corresponds to the 8 cm from the center of the new NAC is carried to the inframammary fold, thereby producing two excess amounts of tissue toward either side, which will be resected horizontally along the line of the inframammary fold. Removal of this tissue will give form to the new breast. With the new breast formed, the same procedures are performed on the contralateral breast so that the two will be in harmony.

The next step consists of using the areola marker to draw the new location of the NAC. This is done on the point marked preoperatively, and symmetry is confirmed with the reference sutures placed at the beginning of surgery. If necessary to confirm the position and symmetry, the patient is placed in a semiseated position. The cutaneous resection is marked with a 3.8 cm diameter, and the skin is deepithelialized. The overlap stitches are removed from the areola to free it for movement it upward. This usually is not a major problem if the dermis is cut in the lateral portions to the midpoint of the new NAC circumference and the inferior portion of the areola is somewhat freed.

Once it is moved upward, the areola together with the horizontal and vertical incisions are closed by planes. The areola is distributed with interrupted Monocryl 3-0 stitches and closed with continuous intradermal suturing using Monocryl 3-0. In these cases, in addition to a drain left in the subpectoral plane at the implant level, another drain is left in the subcutaneous plane at the level of the inframammary fold.

Results

Between January 1996 and December 2004, 384 women ages 27 to 63 years (mean, 37 years) underwent surgery. All the patients presented with ptosis and mammary hypoplasia in varying degrees. Their surgery was primary because none had undergone breast surgery before. Of these patients, 30 (8%) presented with ptosis less than 3 cm and a distance to the inframammary fold less than 5 cm. These patients had upward migration of the NAC with downward displacement of the fold.

Anatomic implants were placed in 20 patients (67%) and round implants in 10 patients (33%). Anatomic implants were indicated for all these patients. The use of round implants was according to the patients' preference for reasons of taste or finances. In 196 patients (51%), the ptosis was less than 3 cm, but with a distance to the inframammary fold greater than 5 cm. Periareolar pexy was performed for these patients, with placement of round implants in 120 patients (61%) and anatomic implants in 76 patients (39%). Of these, 182 patients (93%) chose the implant on the basis of their preference with recommendations from the surgeon, whereas the remaining 14 patients (7%) chose round implants for financial reasons despite of the fact that anatomic implants had been indicated for them.

Of the 384 patients, 158 (41%) had a ptosis greater than 3 cm, with a distance to the inframammary fold greater than 5 cm. For these patients, it was necessary to use the inverted T pexy. Round implants were placed in 128 of these patients (81%), and 30 of them (19%) received anatomic implants. Implants were placed in 144 patients (91%) according to their preference and the physician's recommendation, whereas the remaining 14 patients (9%) chose round implants although anatomic implants were indicated. Round implants were used in a total of 258 patients (67%), and anatomic implants were used in 126 patients (33%).

The degree of satisfaction with the aesthetic result was 89% among the patients who underwent lifting of the NAC, 82% among those who had periareolar pexy, and 92% among those who had inverted T pexy. Only minor complications occurred, with an overall incidence of 18%.

The most frequent complication in lifting of the NAC was a double contour in the inferior pole of the breast. This aspect was observed more often in patients who received round implants ($n = 8$) than in those who received anatomic implants ($n = 2$). Scar widening in the upper portion was observed in eight patients, all of whom required a 2 to 3 cm shift of the NAC. The migration was effected with only half-moon displacement. When round block suturing was used to reinforce the half-moon displacement, basically for migrations greater than 1.5 cm, no such eventuality occurred, although hypertrophic scarring did develop. In six of the eight patients with scar widening, residual ptosis appeared before 6 months had elapsed. With this technique, despite the use of round block suturing, flattening of the breast did not occur.

For the patients treated with the periareolar technique, the most frequent complication was scar widening and secondary ptosis. This problem appeared in 24 of the 196 patients for whom this technique was used. For all these patients, a primary characteristic

Table 3. Results of surgical procedures

Type of pexy	Patients n (%)	Patients satisfied with the result (%)	Principal complication	Patients with the principal complication
Elevation of the NAC	30 (8)	89	Double contour	10
Periareolar	196 (51)	82	Secondary ptosis/wide scar	24
Inverted T	158 (41)	92	Unaesthetic scar	32

was the lack of permanent suturing with the round block technique. Two patients had hypertrophic scarring, and 14 had flattening of the breast, although they did not report dissatisfaction with the result. One complication not described in the literature, which occurred in six of the patients treated with this technique, was the appearance of periareolar erythema 1 month after surgery, which evolved to form cysts at multiple points in the sutured area. In two of these patients, the cysts united, forming a subdermal canal, with the constant formation of sebaceous matter.

The principal complications with the inverted T pexy were scar related. In 20 of these patients, hypertrophic scarring developed, principally in the vertical scar, whereas 12 showed scar widening. Six patients experienced dehiscence of the inferior union of the flaps greater than 3 cm^2, which closed by second intention. Four patients experienced ptosis relapse within less than 6 months. All these data are summarized in Table 3. The results with the different techniques are shown in Figs. 6 to 29.

Discussion

The presence of ptosis and mammary hypoplasia in a single patient is a common condition. The concomitance of these two pathologies has increased lately because of changes in the aesthetic canons of the female figure, with thinner figures more and more sought after. Weight loss can lead to a loss in breast volume, with subsequent ptosis. The condition is even more marked if the patient has had multiple pregnancies, or if the breasts have increased significantly in size during lactation. Despite the increase in this pathology, reports of dual treatment at the same surgical time are limited [14]. More important is the fact that there is no general agreement on how it should be treated, or whether simultaneous surgical treatment is recommended. Our results concerning the number and types of complications have demonstrated that the combination of procedures is possible and recommendable, and that it produces good surgical results. The important thing in these cases, besides the choice of a proper surgical technique [4,5,7,14], is the proper performance of the procedure chosen.

We recommend three different surgical techniques on the basis of each patient's anatomic characteristics. In the performance of mastopexia and breast implants on the same surgical procedure, care and precautions to avoid complications should be taken, one of which is the choice of the proper surgical technique. The authors who report good results with augmentation and mastopexy state that one of the most important points is proper selection of the surgical technique. Attempts to lift an NAC in a periareolar fashion with ptosis greater than 3 cm generally produces a long-term, inadequate aesthetic result and a greater incidence of short-term complications because of tension on the closure [4,5,7,14]. For that reason, we believe that selection of the surgical technique for mastopexy with augmentation is the single most important factor in obtaining good mid- and long-term aesthetic results and in minimizing short-term complications.

In the selection of the surgical procedure to be used, it is of vital importance to perform an examination and to take detailed measurements of the breast to be treated. In this examination, the excess tissue both above and below the NAC must be determined. The amount of NAC ptosis indicates how far it must migrate, and the distance from the NAC to the inframammary fold indicates how much tissue should be managed in the inferior portion. These determinations dictate the technique to be used and provide an orienting factor when the technique is used. Significant tissue excess in the inferior portion of the breast (more than 5 cm from the NAC to the inframammary fold) indicates that the excess produced by the ptosis must be managed. Therefore, the isolated upward displacement of the NAC is totally inadequate. In these cases, a choice must be made between a periareolar technique or an inverted T technique. The choice between these two techniques will depend on the distance between the NAC and the inframammary fold, and on the existing ptosis. If there is significant ptosis (more than 3 to 4 cm), the excess from the inferior portion of the NAC to the inframammary fold also will be large (more than 7 cm), and the proper technique will therefore be the one that significantly corrects the mammary tissue in both the superior and inferior mammary poles. The choice in these cases will indisputably be an inverted T technique.

We prefer to use the inverted T technique instead of the vertical technique for two reasons. First, we obtain a better aesthetic result compensating for the excess skin laterally in the inframammary fold. Sec-

Patient 1. Figures 6, 8, and 10 show a 19-year-old with severe breast asymmetry. She needed an upward displacement of the nipple–areola complex with a superior closure. Anatomic shape implants of different sizes were used. The right shows a full projection of 290 ml, and the left shows a medium projection of 220 ml. The inframammary fold was changed to a lower position. Figures 7, 9, and 11 show the results 1 month after surgery.

ond, if the necessary compensation were only vertical, correction of that breast would be achieved with a periareolar technique instead of a vertical one. Therefore, the periareolar technique is the proper one for small ptosis (<3 cm) that entails little excess submammary tissue (the distance from the NAC to the inframammary fold being 5 to 7 cm), leaving upper migration of the NAC only for cases in which the migration distance is minimal (<3 cm). At the same time, a small ptosis involves a very short distance to the inframammary fold, which will have to be increased with the corresponding inferior dissec-

Patient 2. A 28-year-old who underwent upward displacement of the nipple–areola complex (NAC) with a periareolar closure. Anatomic shape implants of 390 ml were used. This is a typical indication for anatomic implants, in which the lower pole of the breast is hypoplastic and the inframammary fold needs changing to a lower position. Preoperative images are shown in Figs. 12, 14, and 16. Figures 13, 15, and 17 show the results 1 year after surgery.

tion so that the implant will remain in a lower position.

It is important to note that it is not advisable to attempt correction of an evident ptosis by placing a very large implant. This behavior often results in an undesirable breast size, and the problem is seldom corrected. Likewise, one should not fall into the trap of planning a breast pexy based on the examination and preoperative measurements and then deciding not to do it after placing the implant. Frequently, after the implant has been placed and the patient is observed in a supine position, there is a false impression that the problem has been corrected. This happens because the volume of the implant projects

Patient 3. A 32-year-old who underwent periareolar pexy. Round implants of 290 ml were used, with very little displacement of the inframammary fold. Figures 18, 20, and 22 show the preoperative state. Figures 19, 21, and 23 show the results 3 months after surgery.

the breast out at its inferior pole and at the same time lifts the gland, causing the NAC to appear more elevated. However, by placing the patient in a sitting position, the mammary tissue in front of the implant shows the ptosis just as it had been observed preoperatively. Not taking the aforementioned details into account will cause a very unaesthetic postoperative deformity of the mammary gland known as "Snoopy deformity."

The most important thing to note is that proper performance of the technique is one of the most significant factors in avoiding early complications or undesirable results over the long term. Selection of the type of implant to be used is of primary impor-

Patient 4. A 42-year-old who underwent an inverted T pexy with 350-ml anatomic implants. It was necessary to use this type of implant to fill the inferior medial pole of the breast. The patient also had an abdominoplasty at the same time. The preoperative state is shown in Figs. 24, 26, and 28. Figures 25, 27, and 29 show the results 6 months after surgery.

tance to the technique. It is obvious that financial considerations oblige many of our patients to choose round implants over anatomic ones, even when the latter are ideal in certain cases.

Anatomic implants have two primary characteristics that should be considered for this type of patient. First, they offer greater volume in the inferior portion, which addresses one of the basic deficiencies in many of these patients. Such is the case of patients who have a very high inframammary fold, or in other words, a very short distance between the NAC and the fold. These patients will undoubtedly require a downward migration of the fold, and therefore a greater compensatory filling in that area. This compensation is achieved precisely by using anatomic implants. The principal patients who require this type

of implant are those who require only that the NAC be moved upward, that is, those who need a minimal periareolar pexy and have the aforementioned deficiency.

A second advantage of anatomic implants is the possibility of combining the three necessary dimensions that exist in any volumetric body such as the breast to achieve a harmonious result. The use of anatomic implants in the indicated cases produced more satisfactory results than round implants would have given.

Round implants doubtless have their advantages and indications also for mastopexy with implant placement. Patients with a significant deficit in the superior pole of the breast, which is very common in this type of patient, will have a more pleasing result with round implants than with anatomic implants because such patients are looking for increased volume where they have had a deficit for years. Therefore, the type of implant will depend on each patient's characteristics and the surgeon's indications, although in many cases, the patient's personal preferences are a primary factor in the decision.

It is important to note the necessary changes we have implemented in the evolution of the different surgical techniques over time. These changes are attributable to modifications made necessary by inadequate results or a desire to improve results. Initially, with upward migration of the NAC, only the half-moon portion drawn over the NAC was deepithelialized. With time, however, it was found that cutaneous support alone was inadequate, causing scar widening, CAP distortion, and ptosis relapse. Therefore, we have used this technique only for minimal migrations of less than 1.5 cm. When the migration is 1.5 to 3 cm, we do the same half-moon resection, but the cut is complete on the areola, and round block periareolar closure is used. With this modification, the eventuality diminishes, and long-term results have improved.

Initially, because of reports in the literature [4], we made a complete cut of the dermis after deepithelializing the area to be resected. We made this cut to detach the periareolar skin and facilitate closure. We discovered, however, that this cut enlarged the area more, and at the same time reduced the vascularity of the NAC. For that reason, we do not currently cut the dermis, and we have had no serious complications except in those early cases.

Another modification we should emphasize has been not to use absorbable material in round block suturing with the periareolar pexy technique. Although it might be a basic premise of that technique, it would seem that after 3 or 4 months of support with absorbable sutures in various planes, the problem of tension over the areola would disappear, but it is not so. We were obliged on several occasions to remove the nonabsorbable Prolene stitching because the patients could feel it, or because it produced a very disagreeable effect of NAC congestion. This also led us to attempt round block suturing with Monocryl and PDS to allow absorption to eliminate this effect. Tension will always exist, however, and using absorbable material or removing the non-absorbable stitching will invariably result in areola widening and residual ptosis over the mid and long term.

Another important factor in the surgical technique is the proper approach to placement of the implant. The best possible coverage should be sought, avoiding incisions where implant extrusion is more probable. Thus, placement of an implant via the transareolar route when periareolar pexy is to be performed is as important as placing it via the inframammary route in the case of the inverted T pexy. It is very risky to approach the breast by the midline to place an implant in the inverted T pexy because it is the area of greatest postoperative tension. Likewise, the implant should always be placed before any tissue is removed for the pexy. To do otherwise is to face more possibilities for failure than for success. Simple details such as these are of vital importance for ensuring the success of the surgery and for maximum avoidance of complications.

We believe it is possible to perform mastopexy and to place implants at the same surgical time with good results. By following the parameters for correctly selecting a surgical technique, and by taking into consideration the details of a proper surgical technique, good results are maximized. It is true, as Spear [14,16] mentions, that mastopexy plus implantation is not as simple as each of these surgeries performed individually, but we do not consider the combination so complicated as to dictate doing them separately or not at all.

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