# Simultaneous Breast Augmentation and Mastopexy

"Operative Strategies" is a fully illustrated guide to the favorite techniques of aesthetic surgeons based on their significant clinical experience. Authors are Aesthetic Society members or other recognized experts.

Simultaneous breast augmentation and mastopexy can pose a real challenge to any plastic surgeon. Neither mastopexy nor breast augmentation is particularly difficult by itself, but combining these 2 operations presents special problems.

Breast augmentation and mastopexy have conflicting goals. The purpose of a breast augmentation is to enlarge the breast, which involves stretching the skin of the breast and the areola. A mastopexy, on the other hand, is designed to reduce the skin envelope. Ultimately, a mastopexy combined with an augmentation works best when the implant fills out most of the available skin envelope but leaves enough excess skin to reshape the breast and reposition the nipple.

There are sometimes unpredictable late changes associated with each of these procedures. After a mastopexy, there is a tendency in some patients for the nipple to migrate superiorly while the gland migrates inferiorly or bottoms out. In other patients, ptosis recurs, with the nipple migrating inferiorly over time. The implant can also migrate superiorly as a result of capsular contracture or inferiorly if bottoming out occurs.

The conflicting goals of these 2 procedures and the potential for late changes from each may cause intraoperative difficulty and postoperative disappointment. Because of the multiple variables associated with combining augmentation and mastopexy, both the surgeon and the patient should be aware of the increased risk of poor scarring, nipple malposition, implant-nipple misalignment, and even implant extrusion.

Although most surgeons and patients prefer a single, combined procedure, a patient is sometimes better served with 2 separate staged procedures, depending on the complexity of the problem and the experience of the surgeon.

## Patient Selection

For optimum selection of patients for combined breast augmentation and mastopexy, the degree of ptosis needs to be measured and described. Regnault's[1] classification of ptosis is useful for this purpose:

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- Minor or first-degree ptosis: the nipple is at the level of the inframammary fold.
- Moderate or second-degree ptosis: the nipple is below the inframammary fold but above the lower-breast contour.
- Severe or third-degree ptosis: the nipple is at the lower-breast contour and below the inframammary fold.
- Glandular ptosis: the nipple is above the fold but the breast hangs below the fold.
- Pseudoptosis: the nipple is above the fold but the breast is hypoplastic and hangs below the fold.

In addition to the determination of ptosis, it is also important to measure the extent to which the breast overhangs the inframammary fold. Thus, a patient who has first-degree ptosis with the nipple at the fold but who also has 5 cm of breast overhanging the fold presents a ptosis different from the patient who has the nipple at the fold and only 1 or 2 cm of breast gland overhanging the fold. The more gland overhanging the fold, the more difficult it is for the implant to fill out the breast adequately without adjusting the skin envelope at the same time. The lower the nipple sits on the breast, the less likely it is that the placement of the implant will shift the nipple superiorly enough on the breast to achieve an acceptable aesthetic result. Therefore, nipple position on the breast gland and the relationship of the breast to the fold are both critical factors in considering a mastopexy.

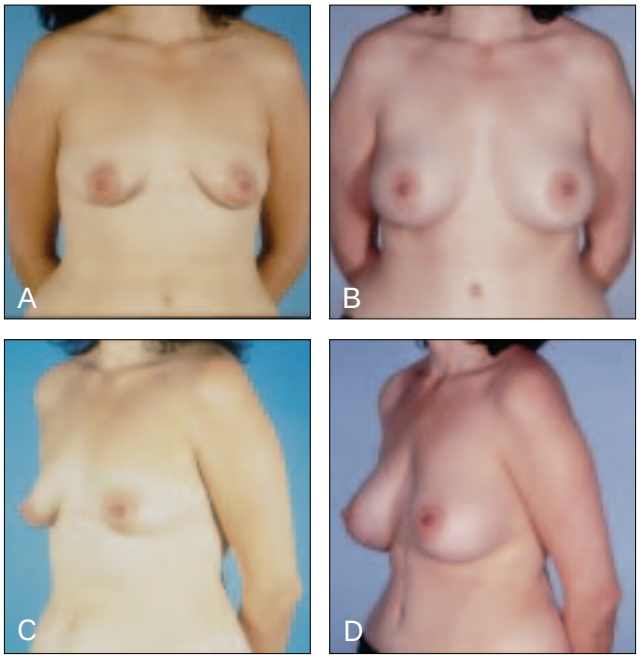



Figure 1. A and C, Preoperative views of a 40-year-old woman with glandular ptosis and the nipple above the inframammary crease. B and D, Postoperative views several years after subpectoral augmentation with silicone gel implants without mastopexy. The added volume from the implant has reduced the apparent ptosis.

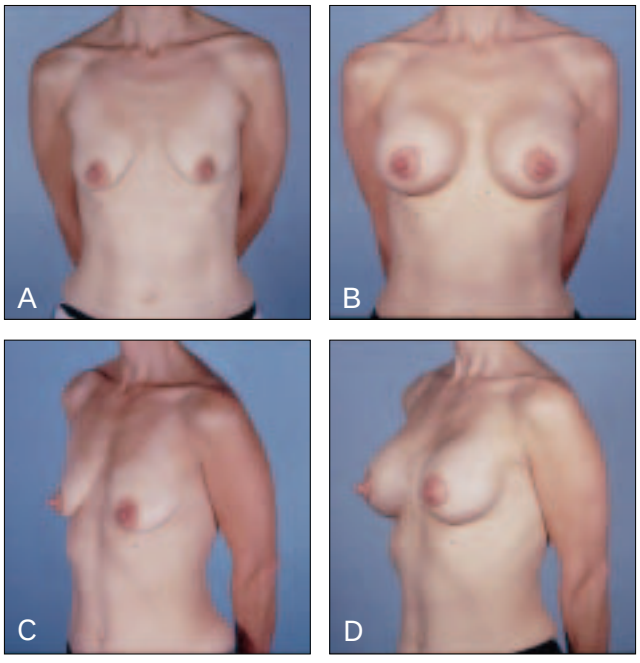



Figure 2. A and C, Preoperative views of a 35-year-old woman with moderate ptosis and the nipple below the inframammary fold. B and D, Postoperative views 6 months after periareolar mastopexy and subpectoral augmentation with saline-filled implants.

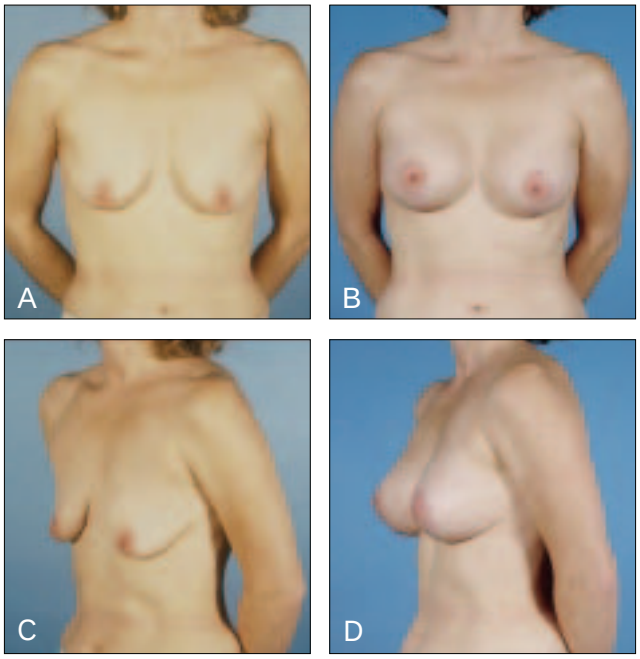


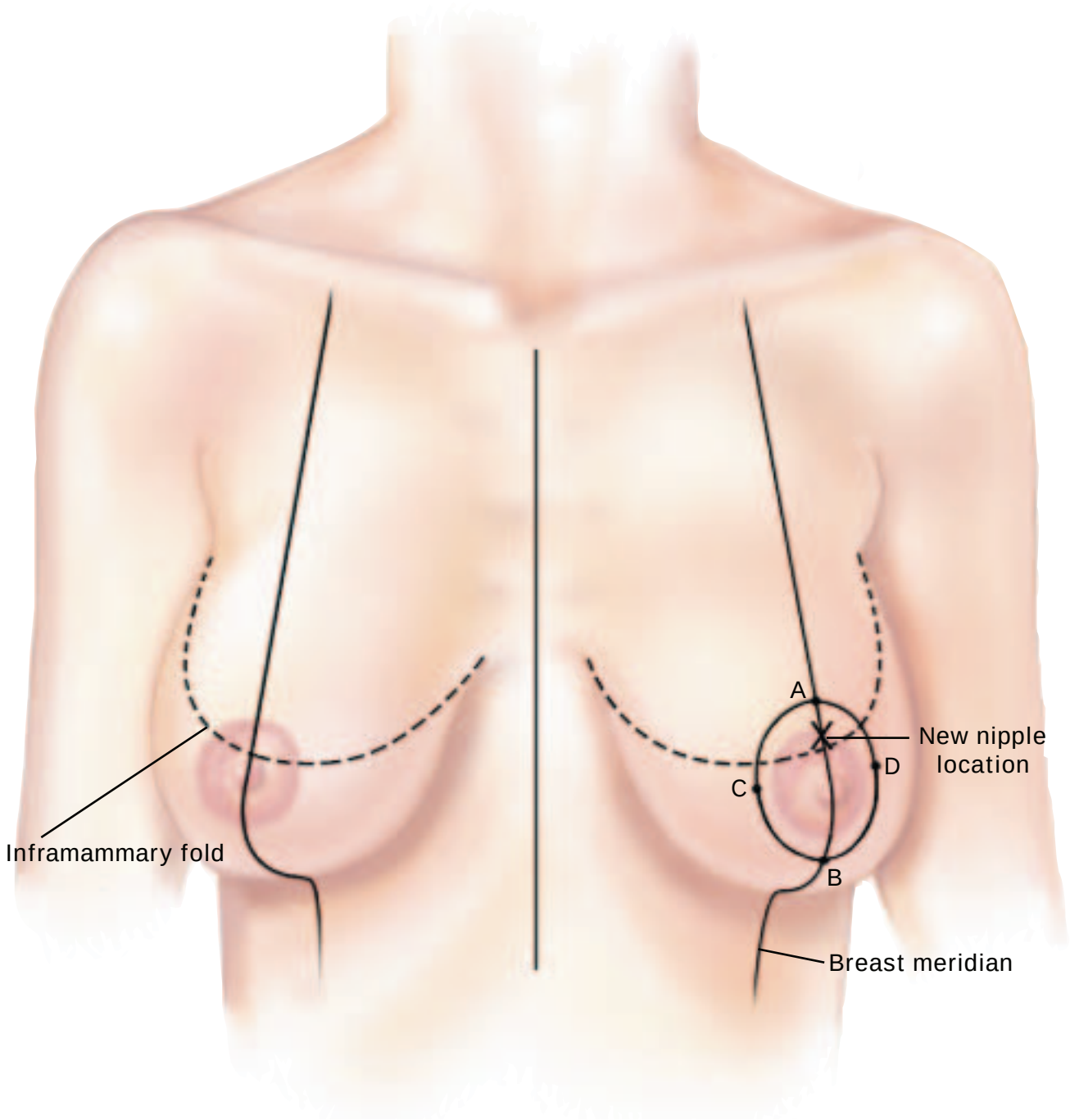

Figure 3. A and C, Preoperative views of a 40-year-old woman with moderate to severe ptosis. B and D, Postoperative views 12 months after an inverted-T scar mastopexy and subpectoral augmentation with a silicone-gel implants.

The second critical factor in patient selection is identification of the primary purpose of the operation. Some patients are primarily interested in breast augmentation whereas others come primarily for a mastopexy. For patients who consider augmentation to be the primary goal, a mastopexy might not even be necessary, or a periareolar mastopexy might suffice. For patients who consider mastopexy paramount, the breast implant should be just large enough to allow the breast to achieve the desired shape.

In our experience, most patients who undergo breast augmentation and mastopexy come in with augmentation as their primary goal. For this reason, the following algorithm is aimed primarily at that group.

Generally speaking, no mastopexy is required for patients seeking breast augmentation when the nipple sits above the inframammary fold preoperatively and there is minimal glandular ptosis (breast overhanging the inframammary fold by no more than 2 cm). In these patients, the placement of an implant alone should keep the nipple on the anterior surface of the breast and sufficiently fill out the breast skin envelope (Figure 1).

A periareolar mastopexy may be unnecessary; it should be considered, however, if the nipple sits on the anterior




Illustrations by William M. Winn, Atlanta, GA.

Figure 4. Preoperative planning for periareolar mastopexy. Planning begins with marking of the midline, breast meridian, and inframammary fold. The desired nipple position is then determined at or just above the inframammary fold and is marked with an X on the breast. Point A is marked 2 cm above the X on the breast meridian. Point B is marked below the areola, also on the breast meridian, 5 to 6 cm above the fold. The distance to point B from the fold corresponds to the desired distance of the inferior border of the postoperative areola to the fold. Points C and D usually skirt the areola edge and complete the 4 landmarks that define the eccentric outside oval of the planned mastopexy.

surface of the breast but lies at the inframammary fold or just below it.[2-12] In patients with first-degree ptosis (nipple at the fold), or mild second-degree ptosis (nipple below the inframammary fold but on the anterior surface of the breast), provided that the degree of glandular ptosis is not too extreme, a simultaneous augmentation and periareolar mastopexy will often suffice. In these patients, the degree of glandular ptosis is typically somewhere

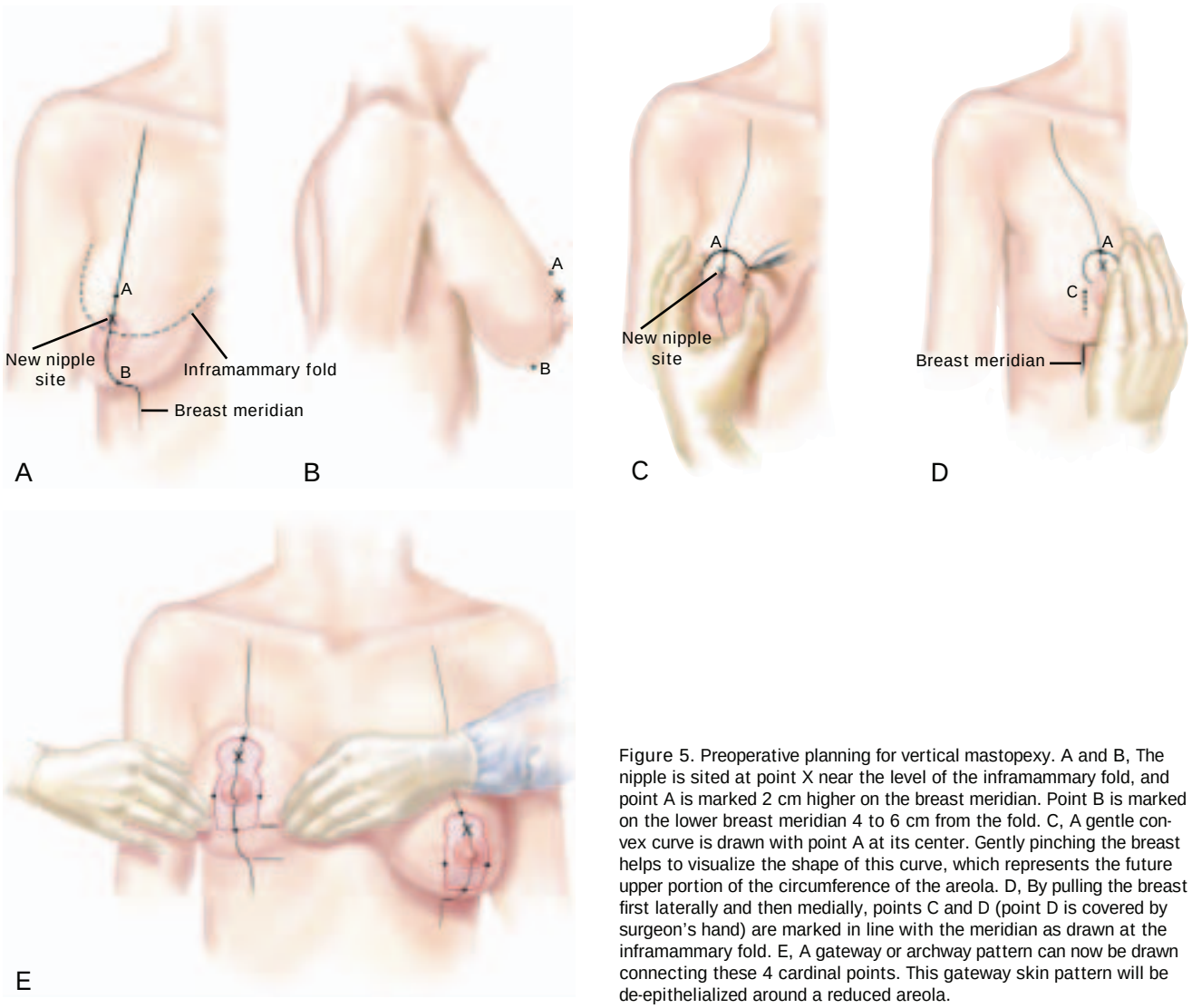



Figure 5. Preoperative planning for vertical mastopexy. A and B, The nipple is sited at point X near the level of the inframammary fold, and point A is marked 2 cm higher on the breast meridian. Point B is marked on the lower breast meridian 4 to 6 cm from the fold. C, A gentle convex curve is drawn with point A at its center. Gently pinching the breast helps to visualize the shape of this curve, which represents the future upper portion of the circumference of the areola. D, By pulling the breast first laterally and then medially, points C and D (point D is covered by surgeon's hand) are marked in line with the meridian as drawn at the inframammary fold. E, A gateway or archway pattern can now be drawn connecting these 4 cardinal points. This gateway skin pattern will be de-epithelialized around a reduced areola.

between 2 and 4 cm, and the placement of the implant combined with periareolar mastopexy reduces the amount of skin laxity while filling out the remaining skin with the implant (Figure 2). Obviously, the larger the implant, the smaller the skin excision.

With a more aggressive mastopexy, using a vertical or inverted-T incision[13,14] is usually necessary in patients with more severe degrees of ptosis, such as when the nipple sits well below the inframammary fold or near the bottom of the breast (Figure 3). In this group of patients, the mastopexy is often the primary motivation and it should therefore be performed more aggressively. Trying to correct severe ptosis using an implant alone requires an extremely large implant and would still yield a disappointing result.

When there is doubt, the staging of these procedures is recommended. In patients for whom the mastopexy is the primary goal and there is some doubt as to the implant placement, we recommend performing the mastopexy first and placing the implant later. For patients in whom the implant is the primary goal and there is doubt about the necessity for a mastopexy, we place the implant first and perform the mastopexy later. A practical strategy used by many surgeons is to perform a "tailor-tack" procedure, in which the planning for the mastopexy is done intraoperatively by tacking the closure with temporary sutures and then excising the skin accordingly.[15]

## Preoperative Markings

The preoperative markings vary with the surgical plan. Certain marks, however, are standard. Using an indelible

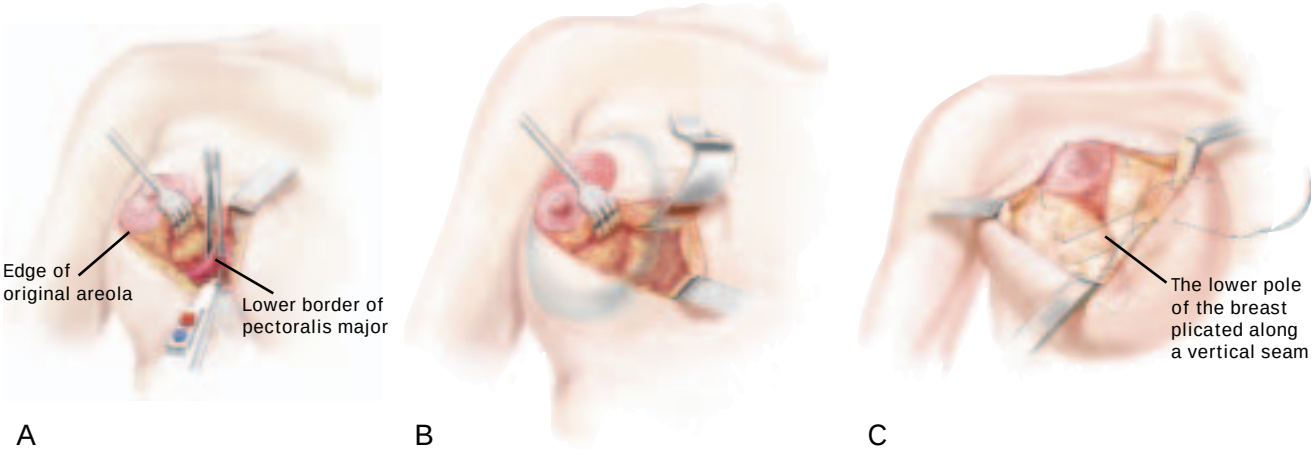



Figure 6. A, A skin incision is made along the edge of the areola and dissection is carried down through the breast to the retromammary space. Placement of the implant can be either entirely subglandular or partly subpectoral with just the lower portion subglandular. For subpectoral placement, the inferolateral edge of the pectoralis major muscle is lifted with an allis clamp and a pocket is created, first with cautery and then with a blunt dilator. After the implant is placed, the breast itself can be shaped by trimming portions or by mobilizing the breast and using sutures to cone it on itself. B, Either before or after the implant is placed, the periareolar skin should be removed and the surrounding breast skin carefully undermined as needed to allow a tidy skin closure and some glandular remodeling, if desired. The lower pole of the gland can be split vertically and crisscrossed, as shown here. C, The lower pole of the gland can also be trimmed and coned by imbrication. During the shaping process, the implant should be left covered by breast tissue as well as skin to the greatest extent possible for the sake of avoiding wound complications and possible extrusion.

marker, mark the midline with the patient positioned upright. In addition, mark the inframammary fold and the meridian of each breast from the clavicle down to the nipple and across the inframammary crease. The estimated ideal position for the nipple should be marked on both breasts with various landmarks, including the inframammary fold, the basic topography of the breast, and even a measured distance from the suprasternal notch on either side. The most dangerous error is setting the nipple too high, particularly during simultaneous augmentation and mastopexy. For the patient who is to undergo a periareolar mastopexy, the marking continues with a mark on the breast meridian of the planned upper margin of the new areola (point A). A similar mark on the breast meridian is placed at point B, which is the planned new lower margin of the areola, typically somewhere between 5 and 7 cm from the inframammary fold. The medial and lateral extents of the mastopexy skin excision are marked at points C and D, and these points are usually fairly close to the current border of the areola, with point C often approximately 8 to 12 cm from the midline (Figure 4).

In patients with more substantial ptosis (eg, second-degree ptosis and 4 cm of breast overhanging the inframammary fold), a more aggressive mastopexy may be required (Figure 5). In these patients, the same initial marks are made at the midline, the breast meridian, the inframammary fold, and the new nipple site. In addition, a skin excision is planned that again begins with a mark at point A—the upper border of the new areola on the breast meridian—and continues as a semicircle or dome, much as in a Wise pattern; the length of the dome should measure approximately 12 to 16 cm. The dome length will be the circumference of the new areola, and a 12 to 16-cm circumference corresponds to a diameter of 4 to 5 cm ($C = \pi d$). At the ends of the dome line, vertical lines are dropped downward along or near the edge of the areola in a parallel fashion toward the inframammary fold; these lines typically stop 4 to 6 cm short of the inframammary fold, where they are then joined in a transverse line. The skin within this drawn arched gateway is removed at the time of the mastopexy, with the exception of the areola and nipple itself. In patients with more severe ptosis, the same planning can be used, except in the rare case in which a formal Wise pattern may be appropriate.

## Surgical Technique

When a periareolar mastopexy with breast augmentation is being performed, the new areola is typically marked with a diameter of 38 to 42 mm. After the circumference of the planned new areola has been marked and before distortion occurs from the implant surgery, the procedure is begun with augmentation through an incision along the edge of the original areola. De-epithelialization of excess skin is optional at this stage, and dissection is

Figure 7. After partial subpectoral placement, the implant sits outside the pectoralis major muscle inferiorly and laterally and beneath the muscle superiorly. Pictured here (superficial to deep): nipple areolar complex and skin repositioned and sutured by the glandular elements of breast pectoralis major muscle, with partial division of the lower insertion, and implant.

carried down through the gland for placement of the implant. A pocket is created in the subglandular space from the level of the nipple down to the inframammary fold and also in either the subglandular or the subpectoral space from the nipple and above (Figures 6, *A* and 7).

Once the implant is placed, the gland is closed with interrupted or running sutures. At this stage, the deepithelialization of the skin around the areola and undermining of some of the remaining skin from the breast should be completed, if this has not already been done.

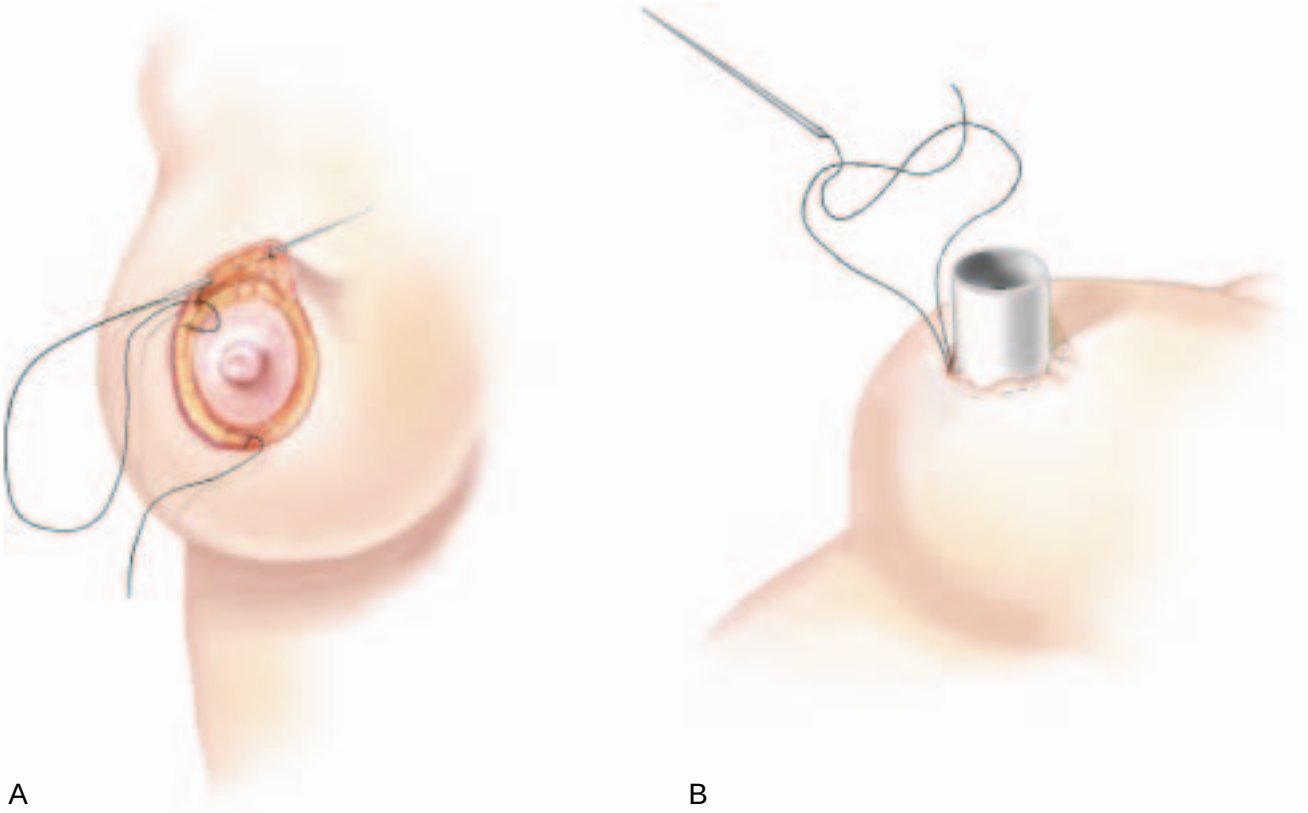



Figure 8. A, A periareolar mastopexy includes a pursestring closure with a Gore-tex, Ethibond (ETHICON, Inc.), or other soft permanent suture on a straight needle. Use of a straight needle allows the suture to stay along the cut dermal edge; this minimizes scalloping of the breast skin edges. Use of a permanent soft suture helps retain the chosen areola diameter while preventing palpable suture ends or knots, which are more common with stiff monofilament sutures. B, To help create an areola aperture of the correct size, the suture may be cinched down around a "cookie-cutter" ring of the desired size. In some cases, it may be of help in aligning the closure to first place 4 inverted dermal stitches at 12, 3, 6, and 9 o'clock using 3-0 or 4-0 Monocryl sutures.

For maximal glandular reshaping, enough of the lower breast may be exposed to allow for significant internal breast rearrangement by suturing together or crisscrossing the medial and lateral pillars to cone the breast (Figure 6, *B* and *C*). On completion of the de-epithelialization and undermining of the periareolar skin, the mastopexy is closed with a combination of key sutures of interrupted buried Monocryl (ETHICON, Inc., Somerville, NJ) between the mastopexy skin edge and the border of the areola, placed either before or after a "blocking" suture of Gore-tex (WL Gore & Associates, Flagstaff, AZ) or other soft permanent suture to cinch down the breast skin to the desired areola diameter (Figure 8). The remaining closure can be performed either with another intradermal suture placed at a more superficial level or with a simple running locking skin suture. The use of a permanent blocking suture as a cerclage around the areola has recently enabled periareolar mastopexies to be performed with a greater area of skin excision than that which was previously considered safe.

Patients requiring a more aggressive mastopexy have the augmentation performed first through an incision along the edge of the areola. The transsection of the gland and the placement of the implant are the same for these patients as for periareolar mastopexy patients. Implant sizers and the "tailor-tack" maneuver can be helpful in choosing the correct device and adjusting the skin excision.[15] At this point, elevation of the nipple more superiorly is rare and would probably be dangerous. Before the skin is closed, glandular remodeling can be performed as described previously with periareolar mastopexy. This procedure is concluded with a gradual repair of the breast skin by closing the superior dome line as a circle and insetting the areola after first closing the mid and upper portions of the vertical excision (Figure 9). The bottom of the breast may be closed either by continuing the skin-clo-

Figure 9. Closure of the vertical scar type mastopexy begins at the waist or central portion of the de-epithelialized opening. Through progressive suturing both caudad and cephalad from that point, the skin that will form the areola aperture should take shape at the same time that the desired length of the vertical scar is created. The vertical incision is closed up toward the areola until the diameter of the opening for the areola reaches the desired length. This can be anywhere from 38 to 60 mm or even more. If the opening that remains is 38 to 42 mm, then it can be closed simply with interrupted and running intradermal sutures. Alternatively, the opening can be left larger so that the remaining circular opening might be closed as in a periareolar mastopexy including a cerclage pursestring suture. Using a pursestring here can reduce the required length of the vertical closure and help minimize any excess at the inframammary fold.

sure in a vertical direction or by removing the dog-ear in the new inframammary fold, as described by Marchac[14] (Figure 10). The final inframammary fold in these cases may ultimately be determined more by where the implant settles than by the actual placement of the incision.

Regardless of which technique is used to perform the mastopexy, it is important to constantly reassess the relationships of the breast to the implant and the nipple to the breast to reduce the likelihood of misalignment. For this reason, the patient should be placed in an upright position before the closure is completed to reassess the relationship between breast, nipple, and implant.

## Postoperative Care

Postoperative care actually begins intraoperatively with an atraumatic dressing, consisting of either a greasy gauze or adherent semipermeable synthetic material. Patients are generally seen within the first few days after surgery to check for early signs of postoperative problems such as bleeding or impending skin loss. Patients with substantial accumulations of blood should be returned to the operating room or, at a minimum, have their hematomas drained. Patients with impending skin loss should be watched carefully and can be treated with greasy dressings, hyperbaric oxygen, or both. Loss of the nipple/areola is extremely rare with mastopexy alone but occurs more often when augmentation and mastopexy are performed simultaneously. The performance of an augmentation or even postaugmentation capsulectomy simultaneously with mastopexy puts the breast skin and areola at increased risk of necrosis.

## Results

The results of combining breast augmentation and mastopexy are less predictable than those associated with mastopexy or augmentation alone. Although severe complications are not common with these combined procedures, disappointments with respect to final nipple position, scar position, implant position, or breast shape frequently occur. It is not unusual for a touch-up to be necessary for these patients several months or even years later. Common problems include migration of the inframammary scar superiorly or some misalignment between nipple, breast, and implant. A touch-up can include repositioning of the implant, scars, or areola. To prevent extrusion of an implant, it is important to avoid devascularizing the breast tissue or skin and to obtain a secure closure of breast tissue and skin over the implant.

Superior malposition of the nipple is another problem that can be extremely difficult to repair. If the nipple is too high after an augmentation-mastopexy, it is sometimes possible to shift it inferiorly by repositioning the implant to a higher position or by removing some skin in the inframammary fold region. ■

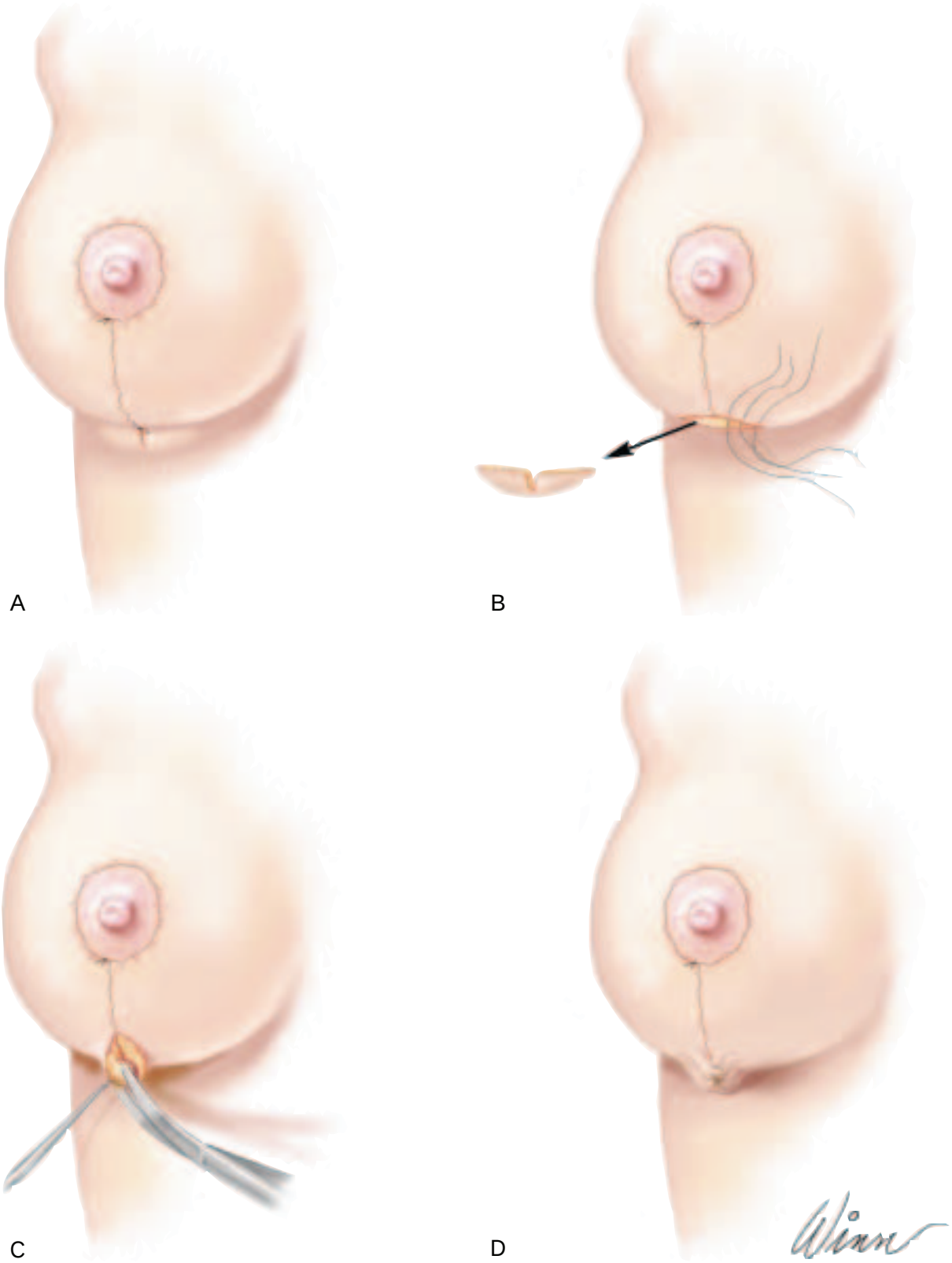



Figure 10. After completing the periareolar and upper vertical closure, any residual excess occurring inferiorly can be handled in one of the following ways: A and B, performing a conservative "dog-ear" excision transversely in the fold; C and D, defatting the area of excess and continuing to close it vertically while suturing it up onto the breast and leaving the excess to settle down over time.

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**Commentary**

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Drs. Spear and Giese have given a clear exposition of Dr. Spear's approach to the patient requiring combined augmentation and mastopexy. This article is particularly welcome because it not only elucidates the technical details of the operation but also reveals Dr. Spear's thought process as he ruminates on the best way to satisfy the conflicting demands of this complex and challenging procedure.

Dr. Spear properly emphasizes the difference between nipple ptosis and glandular ptosis and the importance of this distinction in operative planning. Younger plastic surgeons, in particular, will benefit from a clear understanding of Dr. Spear's approach to planning the best operation for each particular set of circumstances.

My own operative approach for most patients differs significantly from that of Dr. Spear in one respect. My first step in performing simultaneous augmentation-mastopexy is placement of a saline-inflatable implant in the submuscular plane via a transaxillary incision. I have several reasons for this departure from Dr. Spear's technique.

- The transaxillary approach puts the implant in position and stretches out the skin before any distorting incisions are made in the breast skin and parenchyma. Once the implant is in place beneath an intact breast, the patient can be placed in a sitting position to evaluate the effect of the implant. In some patients, mastopexy is obviated. Certainly, the decision as to whether to perform a mastopexy in a borderline case is easier for the surgeon to make if the skin and breast parenchyma have not been violated.
- In patients who still require mastopexy after placement of the implant, fine-tuning the markings and planning the exact dimensions of the skin excision are easier with the implant in position behind an undisturbed breast. The tailor-tack procedure is also somewhat easier to perform when the skin and breast parenchyma have not been incised.
- The transaxillary approach has the disadvantage of placing an extra scar in the axilla, but this incision is so well hidden and heals so kindly that it is rarely a problem. Patients accept the additional scar quite readily as a tradeoff for the possibility of having no scar on the breast (if the mastopexy is not required) and for the advantage it gives to the surgeon in accuracy of planning and performance.

Whatever the approach to placement of the implant, however, it is the thoughtful planning of this operation and its meticulous execution that will yield excellent results.

Several other issues deserve comment.

- In planning the periareolar pursestring mastopexy, Drs. Spear and Giese state that the medial and lateral extent of the mastopexy skin excision should be "fairly close to the current border of the areola"—a point that I would like to emphasize. The planned skin excision should be in the shape of an oval with its long axis in

the vertical dimension. Most of the skin excess is in the vertical dimension, and increased skin tension in the horizontal direction will usually convert the planned oval into an actual circle once the skin has been removed. Conversely, planning and executing the skin excision as a circle will result in excessive tension in the horizontal plane and a horizontally widened areola.

- Although a rather generous amount of skin can be removed with the periareolar skin excision, as the size of the excision increases, problems of scar and shape occur more frequently.
- An excessive periareolar skin excision will result in radial wrinkling and folding of the skin edge along the perimeter of the pursestring closure. A modest amount of wrinkling close to the skin edge will smooth out spontaneously, but more pronounced folding will result in a conspicuous scar with a permanent "starburst" pattern in the skin emanating from the areola border.
- A very large periareolar excision will also result in unsightly flattening of breast shape, even with the addition of an implant. Adding a vertical component to the skin excision improves breast shape in patients who require more extensive excisions.
- Dr. Spear's concept of combining the pursestring closure with the vertical incision is a sophisticated means of getting the most out of the pursestring method and keeping the vertical scar as short as possible while still taking advantage of the coning effect of the vertical excision.
- Last, although I admire Dr. Spear's attempts to improve breast architecture with parenchymal reshaping, I find this maneuver unnecessary for most patients and rarely use it. I am more likely to excise some glandular elements, particularly in the inferior pole and lateral segments, to improve overall breast shape.

My final comment on Dr. Spear's method is that I have altered my own approach to simultaneous breast augmentation and mastopexy as a result of having read this article. All of our readers will benefit from a careful study of this nuanced approach to a common problem.