

Urmen Desai and Wrood Kassira

---

## Introduction

Over the last several decades, there have been significant changes in societal expectations of body image and an increasing acceptance of aesthetic surgery. This increased popularity demands improved preparedness and surgical expertise in breast augmentation [1]. Thorough preoperative planning and patient education are essential for an ideal aesthetic result and patient satisfaction [2]. Adequate preoperative surgical planning, mastery of the intraoperative surgical technique, thorough postoperative care and ability to recognize potential postoperative complications are vital. In order to address patient goals and expectations, a discussion with your patient regarding the type of implant (silicone vs. saline, smooth vs. textured, anatomic vs. round), location of incision (inframammary, periareolar, transaxillary, transumbilical), and location of implant

pocket (subfascial, subglandular, submuscular, subpectoral with dual plane I, II, or III) should take place.

---

## Indications

1. Correct significant breast hypoplasia.
2. Improve upper breast pole fullness and establish medial cleavage.
3. Provide symmetry to developmentally asymmetric breast.
4. Reestablish breast fullness after postpartum deflation.
5. Create proportionality between upper body and lower body contour.
6. Enhance patient self-image and self-confidence.

---

## Essential Steps

### Preoperative Markings and Preparation

1. Obtain a detailed preoperative History and Physical, American Society of Plastic Surgeons (ASPS) consent titled “Breast Augmentation—Silicone Gel” or “Breast Augmentation—Saline Implant,” and preoperative photo documentation.
2. Examine the patient with careful documentation of any signs of chest wall deformity,

---

U. Desai, M.D., M.P.H., F.A.C.S., F.I.C.S. (✉)

Desai Plastic Surgery of Beverly Hills,  
Beverly Hills, California 90210, USA  
e-mail: [desai@post.harvard.edu](mailto:desai@post.harvard.edu)

W. Kassira, M.D., F.A.C.S.

Department of Plastic, Aesthetic, and Reconstructive  
Surgery, Miller School of Medicine, University  
of Miami, 1120 NW 14th Street, Clinical Research  
Building, 4th floor, Miami, FL 33136, USA  
e-mail: [wkassira3@med.miami.edu](mailto:wkassira3@med.miami.edu)

- spinal curvature, asymmetry of breast size, nipple position, and inframammary fold (IMF) position. While palpating the breast for dominant masses or suspicious lymph nodes, carefully assess the quantity and compliance of the breast parenchyma and soft tissue envelope as well as skin elasticity with a pinch test.
3. With the patient standing in the upright position, measure the patient's breast base diameter (BD), the breast height, distance from the nipple-areola complex (NAC) to the inframammary fold (IMF), the distance from the suprasternal notch to the nipple-areola complex, and the intermammary distance [3].
  4. Mark the patient's sternal notch, followed by a vertical marking along the midline chest from the suprasternal notch to the xiphoid process.
  5. Next, mark the existing inframammary fold.
  6. Finally, mark the surgical incision along the inferior half of the border between the areola and the breast skin from 9 o'clock to 3 o'clock positions. The length of this incision is the limiting factor for placement of larger silicone implants.
  7. Start preoperative antibiotics (vancomycin 1 g IV 1 h prior to incision and Ancef 1 g IV).
  8. Confirm operating table can properly flex for intraoperative breast implant evaluation.
  9. Hang preoperative photographs in clear view in the operating room.
  10. Discuss strict blood pressure control with anesthesia colleague.
  11. Make sure Sequential Compression Devices (SCDs) are on patient and power turned on prior to induction.
  12. Secure arms abducted at 90° to the torso, shoulders square, wrapped in Kerlix roll and ACE bandage, with joint surfaces padded.
  4. Inject marked periareolar incisions and subpectoral pocket with 50 mL of a 50:50 mixture of injectable normal saline and 1% lidocaine with 1:100,000 epinephrine.
  5. Use #15 scalpel to make incision through the epidermis.
  6. Transition to Bovie to dissect through the dermis and subcutaneous skin.
  7. Create a stair-step incision by dissecting in a subcutaneous plane to the inferior edge of the breast mound, as less of the breast parenchyma is disrupted and decreased trauma to mammary ducts.
  8. Alternatively, dissect directly down to the pectoralis major fascia.
  9. With the assistance of a fiber-optic lighted retractor or headlight, identify the lateral border of the pectoralis major muscle.
  10. Continue to release the pectoralis major muscle from lateral to medial until the sternal border (right: 7 o'clock position to the 3 o'clock position; left: 5 o'clock position to the 9 o'clock position).
  11. Transition to extended electrocautery tip.
  12. Perform lateral blunt dissection with a finger to avoid injury to the lateral neurovascular bundle and to minimize postoperative paresthesias.
  13. Leave the pectoralis minor muscle down on the chest wall.
  14. Obtain meticulous hemostasis.
  15. If a dual plane dissection is preoperatively planned, retract the pectoralis major muscle with an Allis clamp inferiorly and dissect along the superficial surface of the muscle until the inferior edge of the pectoralis major muscle is below the inferior border of the areola (dual plane I), at the level of the inferior border of the areola (dual plane II), or at the level of the superior border of the areola (dual plane III) [4].
  16. Place breast implant sizers.
  17. Temporary closure with 2-0 Vicryl.
  18. Sit patient upright for implant evaluation.
  19. Mark areas which are under-dissected or have any asymmetry.
  20. Irrigate implant pocket with an antibiotic solution containing 50,000 units of bacitracin, 1 g of cefazolin, and 80 mg of gentamicin per 500 mL of saline [5].

### Intraoperative Details

1. Prep and drape patient in supine position.
2. Place Tegaderm over Nipple-Areola-Complex (NAC) to prevent contamination from organisms residing within mammary ducts.
3. Perform a time-out.

21. Re-prep the skin with Betadine and redrape with four new surgical towels.
22. Change gloves prior to handling the implant.
23. Place implants with “no touch” or “minimal touch” technique.
24. Temporary closure again with 2-0 Vicryl.
25. Sit patient upright for final implant evaluation.
26. Close with 2-0 Vicryl (superficial breast fascia), 3-0 Monocryl (dermal), and 4-0 Monocryl (skin).
27. Photodocument immediate postoperative result.
28. Apply Dermabond or Steri-Strips.

### Postoperative Care

1. Place surgical compression bra on patient.
2. Place breast bandeau superiorly.
3. Monitor in PACU for blood pressure, heart rate, nausea, and pain control.
4. Evaluate patient in PACU prior to discharge.
5. Patients should be discharged on a 3–5-day course of prophylactic oral antibiotics.
6. On the evening of POD#1, patients should sleep on their back with their head elevated.
7. Patients should be seen in follow-up at least 1 day, 1 week, 1 month, and 3 months after surgery with photodocumentation at each visit.
8. Instruction on implant massage should be performed at the 1-week postoperative visit.
9. Patients should refrain from taking aspirin, NSAIDs, smoking, drinking alcohol, and traveling for 2 weeks postoperatively.

### Possible Complications

1. Ecchymosis
2. Paresthesias
3. Capsular contracture
4. Infection
5. Hematoma
6. Seroma
7. Tissue necrosis/poor healing
8. Implant rupture or deflation
9. Implant rippling

10. Implant malposition
11. Double-bubble deformity
12. Pneumothorax
13. Anaplastic large cell lymphoma (ALCL).

### Operative Dictation

Diagnosis: Mammary hypoplasia

Procedure: Bilateral breast augmentation with silicone prosthesis, dual plane I.

Implants:

Right: 600 cm<sup>3</sup> silicone high profile prosthesis.

Left: 600 cm<sup>3</sup> silicone high profile prosthesis.

Implant information:

	Left	Right
Reference number:	350-5504 BC	350-5504 BC
Lot number:	1234567	7654321
Serial number:	1234567-003	7654321-054

### Brief History and Indications for Procedure

This is a woman who presented in consultation for breast enhancement. She complained of under projected breasts and lack of desired fullness particularly in the medial and superior aspect of the breasts. She is seeking prosthetic placement with silicone implants to meet this objective. After extensive consultation she was deemed an appropriate candidate for surgery. Risks, benefits, and alternatives to the procedure were discussed, including but not limited to bleeding, infection, need for implant removal, implant extrusion, implant rupture, implant malposition, contour irregularities, seroma, changes in lactation, residual breast asymmetry, capsular contracture, breast ptosis, scarring, change or loss of nipple sensation, need for implant surveillance, and the need for reoperation. The more recent finding of a possible association of silicone breast implants with a rare lymphoma (ALCL) was also discussed. The patient was allowed to ask questions throughout this discussion, and these were

answered to the patient's satisfaction. She was an active participant regarding the choice of procedure, including incision site and implant type as well as the final breast prosthesis size. The surgery was scheduled following the signing of informed consent documents.

## **Description of the Procedure**

The patient was seen in preoperative holding, and the medical records, lab values, preoperative photos, American Society of Plastic Surgeons (ASPS) consent, and patient expectations were reviewed. The procedure, risks as listed above, and benefits were again discussed in detail. Preoperative markings were made with the patient awake in the standing position. These markings were discussed and demonstrated to the patient in a mirror. The planned incision, implant type, location, and approximate size were again confirmed with the patient who understood and agreed with the operative plan.

The patient was then taken to the operating room and placed in the supine position on the operating room table. All bony prominences were appropriately padded and protected. The arms were placed in 90° of abduction and SCDs were applied to both lower extremities. A time-out was then performed, confirming the patient and the surgical procedures to be performed. Uneventful general anesthesia was then established. Surgical prepping and draping were then done using Betadine solution in the usual sterile fashion after which a final time-out was taken to confirm the patient and procedure. Sterile Tegaderm dressings were placed over each nipple to prevent contamination of organisms from the mammary ducts onto the surgical field. A 50:50 mixture of injectable normal saline and 1% lidocaine with 1:100,000 epinephrine was injected for hemostasis and postoperative analgesia with a total volume of 50 mL into proposed incision sites, breast parenchyma, and beneath the pectoralis major muscle, particularly in the region of the sternal insertion.

Attention was then directed to the right breast. An incision was made with a #15 scalpel approx-

imately 4 cm in length along the inferior half of the border between the areola and the breast skin from 9 o'clock to 3 o'clock positions. This incision was extended through the dermis with sharp dissection. Hemostasis was achieved with electrocautery. Next, the Bovie was used to deepen the incision directly down to the fascia of the pectoralis major muscle. The lateral border of the pectoralis muscle was then grasped and elevated with an Allis clamp, and the subpectoral space was entered bluntly with finger dissection overlying a rib. The subpectoral space was confirmed with digital inspection. At this time, a fiber-optic lighted retractor was inserted, and the muscle and breast tissue were distracted superiorly. Blunt dissection was used at the lateral border of the pectoralis muscle, and electrocautery was used to undermine deep to the pectoralis in the subpectoral loose areolar plane superiorly. Next, an extended electrocautery tip was used to transect the inferior insertions of the pectoralis major approximately 1 cm superior to the chest wall, taking caution to watch for and address any perforating vessels. This was performed in a dual plane I fashion. This transection was started at the 7 o'clock position and was extended just to the underlying prepectoral fascia to the 3 o'clock position thereby minimally lowering the inframammary fold. Minimal blunt dissection was performed laterally to continue the gentle round smooth contour to complete the implant pocket. At this time, visual and manual inspection of the pocket was performed to ensure a smooth contour and hemostasis. The pocket was irrigated with saline solution. A breast implant sizer was placed into the newly created pocket. A single 2-0 Vicryl suture was used to close the dermis and allow temporary approximation of the tissue to better evaluate the breast shape.

Attention was turned to the left breast where an identical procedure was performed. The patient was sat upright to evaluate for any asymmetry or under-dissection. Final corrections were performed, and the patient was laid back into the supine position.

Incisions were opened again, and the pocket was irrigated with saline, and any necessary hemostasis was achieved with the electrocautery

and insulated forceps. The cavity was irrigated with an antibiotic solution of 50,000 units of bacitracin, 1 g of cefazolin, and 80 mg of gentamicin per 500 mL of saline. The chest was re-prepped with Betadine and redraped with four new surgical towels. Surgical gloves were changed at this point in the procedure. The silicone prosthesis was opened and bathed in the antibiotic solution. Next, the implant was inserted into the subpectoral space in a “minimal touch” technique. A single 2-0 Vicryl suture was used to close the dermis and allow temporary approximation of the tissue to better evaluate the final breast shape. The identical procedure was followed on the left side.

The breasts were then evaluated for implant position and symmetry in both the sitting and supine position from multiple angles and with distraction in multiple directions. Any necessary adjustments in pocket conformation were addressed at this time. Once satisfactory implant position and pocket shape were achieved, the patient was again placed in supine position. The breast fascia was approximated with 2-0 Vicryl suture, followed by deep dermal approximation with 3-0 Monocryl and subcuticular approximation of skin with a 4-0 subcuticular Monocryl suture. Finally, nipple-areolar viability was reassessed.

Steri-Strips were placed over the incisions, followed by a surgical compression bra which was placed on the patient. The patient was awakened uneventfully from anesthesia. The patient was then transferred to a stretcher and transported to the recovery room awake and in stable condition. The patient tolerated the procedure well, and there were no complications. Confirmation was made that all sponge and needle counts were correct.

---

## References

1. American Society of Plastic Surgery Top Five Cosmetic Surgical Procedures. <http://www.plasticsurgery.org/news/plastic-surgery-statistics/2014-statistics/top-five-cosmetic-surgery-procedures-2014.html>.
2. Adams Jr WP. The process of breast augmentation: four sequential steps for optimizing outcomes for patients. *Plast Reconstr Surg.* 2008;122(6):1892–900.
3. Tebbetts JB, Adams WP. Five critical decisions in breast augmentation using five measurements in 5 minutes: the high five decision support process. *Plast Reconstr Surg.* 2005;116(7):2005–16.
4. Tebbetts JB. Dual plane breast augmentation: optimizing implant-soft-tissue relationships in a wide range of breast types. *Plast Reconstr Surg.* 2001;107(5):1255–72.
5. Adams Jr WP, Rios JL, Smith SJ. Enhancing patient outcomes in aesthetic and reconstructive breast surgery using triple antibiotic breast irrigation: six-year prospective clinical study. *Plast Reconstr Surg.* 2006;117(1):30–6.