Expander to Implant-Based Reconstruction

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Indications

1. Desire for implant-based breast reconstruction
2. Ideally no radiation therapy to the site
3. Patient with previously placed tissue expander that recruited additional soft tissue coverage for an implant

Essential Steps

Preoperative Markings

1. The patient is marked in standing position.
2. The midline is marked with a vertical line extending from the sternal notch to umbilicus.
3. The current position of the inframammary fold is marked.
4. If there is asymmetry between inframammary folds, the desired location of the inframammary fold is marked by comparing the two sides.
5. The superior breast mound is marked.
6. Areas for capsulorrhaphy/capsulotomy are then marked with careful attention to the current versus desired position of the expander in a horizontal and a vertical plane.

Intraoperative Details

1. The patient is placed in supine position with bilateral sequential compression devices in place.
2. After induction of general endotracheal anesthesia, the arms are abducted and secured to the arm board with Kerlix roll and/or ACE bandage wraps.
3. IV prophylactic antibiotics are administered.
4. The entire chest is prepped carefully to include the anterior aspect of the shoulder and draped in the standard sterile fashion.
5. The skin is incised through the previous mastectomy and tissue expander scar to the level of the pectoralis muscle. Judicious excision of scar can be used for widened or irregular scars. *(Note that some surgeons prefer to use a new incision, which may be at the site of the desired inframammary fold. Also, we prefer to use a stair-step technique, but some surgeons make an incision directly from skin to capsule).*
6. A plane between the muscle and skin/subcutaneous tissue is raised superiorly.

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7. Electrocautery is used to incise the muscle parallel to the fibers through a separate incision, which is continued through the capsule.
8. The tissue expander is removed and sent as a gross specimen.
9. A capsulotomy is then performed by scoring the capsule 3–5 mm above the chest wall with electrocautery superiorly, medially, and inferiorly to reshape the pocket to an appropriate size. (It is rarely needed laterally). Superiorly the avascular plane between the chest wall and the pectoralis is entered and raised cephalad. Inferiorly, it is released to the level of the desired inframammary fold.
10. Warm saline is used to irrigate, and hemostasis is obtained with direct visualization and a lighted retractor.
11. Temporary sizers are placed and the skin is loosely re-approximated with interrupted sutures or staples. The patient is sat up. The form and position of each implant are assessed and adjusted as necessary.
12. The patient is returned to supine position and the sizers are removed.
13. After ensuring adequate hemostasis, the chest skin is re-prepped and draped with clean towels.
14. Clean gloves are then placed, and the pockets are irrigated with antibiotic irrigation consisting of 500 mL of normal saline mixed with 80 mg of gentamicin, 1 g of Ancef, and 50,000 units of bacitracin per side.
15. Using a no or minimal touch technique, the permanent implant is placed with careful avoidance of contact between the implant and skin.
16. The incision is then closed in layers: the muscle is re-approximated with 2-0 Vicryl or PDS, followed by closure of the dermis and then the skin.
17. Surgical glue is then applied.

Postoperative Care

1. If significant capsular work occurs, a round Jackson Pratt may be placed. It usually is removed at the first postoperative visit.
2. A surgical bra may be adorned.
3. Patients are instructed to avoid strenuous activity, heavy lifting, and raising arms above shoulder level for 3 months postoperatively.
4. Patients may shower 48 h after surgery or after the JP drain is removed.

Variations

1. *If the pocket is still contracted after capsulotomy, radial scoring can also assist in release.*
2. *A capsulectomy with removal of a portion of the capsule can also be added for if the pocket remains too constricted.*
3. *If the pocket is too large, a capsulorrhaphy can readjust the shape. Electrocautery is used to score the capsule lateral to the capsulotomy. Buried 2-0 PDS in an interrupted figure of eight or continuous fashion is then used to tighten the pocket.*
4. *If the inframammary fold remains ill-defined, reconstruction of the fold with interrupted or continuous sutures between the rib periosteum/underlying thoracic wall and the capsule/superior fascia can be used to create a new fold.*
5. *Acellular dermal matrix can also be placed as an inframammary sling to reconstruct the inframammary fold or to reinforce areas of capsulectomy.*

Possible Complications

1. Capsular contraction
2. Asymmetry
3. Skin rippling/wrinkling
4. Implant extrusion/skin necrosis
5. Infection
6. Implant rupture
7. Delayed wound healing or wound dehiscence
8. Bleeding
9. Firmness
10. Damage to nearby structures (including pneumothorax)
11. Need for further procedures, such as fat grafting

Operative Dictation

Diagnosis:

1. History of left breast cancer with bilateral mastectomy defects
2. History of immediate bilateral breast reconstruction with tissue expanders

Procedure: Exchange of bilateral tissue expanders with permanent saline/silicone implants with extensive capsulotomy

Indication

The patient is a __-year-old female who was diagnosed with left breast cancer and has elected to undergo a left skin sparing mastectomy with prophylactic right mastectomy with immediate reconstruction with bilateral tissue expanders. She subsequently underwent serial expansion to a size of ___ cc. After reviewing the information on silicone and saline implants, she elected to undergo the second stage of her planned reconstruction with exchange of the expanders for permanent silicone implants. She verbalized understanding of the risks and benefits, and an operative consent was obtained.

Description of the Procedure

After the patient was identified in preoperative holding, she was marked in standing position. She was then taken to the operating room and placed in supine position. All pressure points were padded and she had bilateral sequential compression devices in place. General endotracheal anesthesia was induced. Her arms were abducted and secured to a padded arm board with Kerlix rolls and ACE bandage wraps. Her chest and anterior shoulders were prepped with ChloraPrep, and she was draped in the standard sterile fashion. She received Ancef 2 g and vancomycin 1 g prior to the skin incision. After a time-out verifying the patient's name, identity, procedure, and site, a #15 scalpel was used to incise the skin through the transverse prior scar of the right and left chest. Bovie electrocautery was then used to incise through the subcutaneous tissue to the level of the pectoralis muscle. Skin hooks were placed and used to gently retract the superior skin flap so that 1 cm of skin and subcutaneous flap could be raised above the muscle. This allowed a "stair-step" separate incision to be made through the pectoralis parallel with the muscle fibers and then through the capsule using electrocautery. The right and left tissue expanders were then removed and sent for gross pathology. Using a lighted retractor, an extensive capsulotomy in the right chest pocket was made in the superior pole with Bovie electrocautery. To prevent constriction of the superior pole, the capsulotomy was performed deep to the pectoralis fascia and continued cephalad. In addition, radial scoring of the capsule was necessary. The right inframammary fold was also needed to be lowered, so a capsulotomy was performed inferiorly and medially. This created a larger pocket than the implant base width. Therefore, laterally an ellipse at the edge of the capsule was marked 6×2 cm in size and scored with electrocautery. A lateral capsulorrhaphy was performed using buried 2-0 running PDS. We then carefully inspected for hemostasis and irrigated the pocket with warm saline. The left pocket needed to be medialized to a lesser degree. Therefore, we performed an extensive capsulotomy along the left pocket's superior pole, again entering the capsule and then dissecting to the avascular plane between the pectoralis major and pectoralis minor/chest wall. The capsulotomy was extended medially and to a lesser degree inferiorly. We once again ensured we had adequate hemostasis and irrigated with warm normal saline. We then proceeded to place temporary silicone sizers ___ cc in size. The skin was temporarily reapproximated with interrupted 3-0 Vicryl sutures and the patient was placed in a seated position. She appeared to have a good shape and form of each reconstructed breast, as well as good symmetry of her inframammary folds. Therefore, she was returned to supine position, and the Vicryl sutures and sizers were removed. The pockets were irrigated again with warm normal saline and hemostasis verified. The skin was prepped with betadine and re-draped with sterile green towels. All gloves were changed, and each breast

pocket was then irrigated with antibiotic solution consisting of 500 mL of normal saline, 80 mg of gentamicin, 1 g of Ancef, and 50,000 units of bacitracin. The permanent right silicone implant was placed using a no-touch technique (*include in the dictation brand, size, serial and reference number*). On the left side, the (*include in the dictation brand, size, serial and reference number*) implant was similarly placed. The muscle was then re-approximated with non-buried 2-0 Vicryl interrupted sutures. The soft tissue was then closed with buried 3-0 Vicryl interrupted simple sutures. Finally, the skin was re-approximated with deep dermal 3-0 Monocryl interrupted sutures and a running 4-0 Monocryl in a subcuticular fashion. Dermabond was then applied to the incision. The patient tolerated the procedure well, and there were no immediate intra- or postoperative complications. She was extubated successfully and transported to PACU with plans for discharge home. All instrument, sponge, and needle counts were correct.

Suggested Reading

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