BREAST SESSION 3

Evolution of the Surgical Technique for Direct to Implant Breast Reconstruction: Transitioning from Dual Plane to Pre-Pectoral Implant Placement

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INTRODUCTION: Direct to implant (DTI) breast reconstruction offers the obvious advantages of shortening the reconstructive process and reducing costs. In our practice, DTI has evolved from dual-plane (DP) to prepectoral (PP) implant placement. Prepectoral reconstruction offers additional benefits of elimination of pectoralis muscle animation deformity and potential reduction in postoperative pain and length of stay (LOS). We sought to understand post-operative complications, aesthetic outcomes, postoperative pain and LOS in DTI reconstructions and identify differences in the sub-cohorts (DP, PP).

METHODS: A retrospective review of a prospectively-maintained database was conducted between November, 2014 and February, 2017 to identify DTI reconstruction patients. For DP, standard acellular dermal matrix (ADM) sling with pectoral muscle coverage was used. For PP, an ADM overlay tenting technique was used. Postoperative complication data, re-operation, LOS and 24-hour pain scores were reviewed. Aesthetic outcomes were evaluated by a blinded panel of practitioners using standardized photos.

RESULTS: 96 DTI reconstructions were performed in 59 women; 59% DP and 41% PP. Mean follow up was 12.5 months. Total complications, including infection, hematoma, seroma, poor wound healing, device exposure and capsular contracture, were low at 8.3% (12.3%DP, 2.5%PP, \(p=0.09\)). Overall rate of reoperation for complication was 6.3% (8.7%DP, 2.5%PP, \(p=0.21\)) with 3 implants (3.1%) requiring removal and placement of a tissue expander (n=2 DP, n=1 PP). Aesthetic evaluation included rating the overall reconstructive result (scale 1–10); mean scores were 6.3 DP and 7.3 PP. Mean pain scores were low at 3.5 (DP 3.6, PP 3.5) and mean LOS was similar (DP 1.81d, PP 1.81d). DP reconstructions were significantly more likely (15.8%DP, 0%PP, \(p=0.01\)) to undergo reoperation for aesthetic revision, including lipofilling, implant exchange, and mastopexy of the reconstructed breast(s). Pectoralis muscle animation was completely eliminated from the PP cohort.

CONCLUSION: Overall, DTI reconstruction demonstrated low incidence of post-operative complications and device loss. No difference was seen between DP and PP with regards to pain scores, though standardized management and implementation of our ERAS protocol may better delineate differences. Transition to the prepectoral technique has not resulted in increased complications or degradation of aesthetic results, with PP reconstructions requiring significantly fewer revisional procedures. Prepectoral reconstruction in properly selected patients appears to be a viable option with elimination of animation deformity and enhanced aesthetic results.

Immediate Prepectoral Vs Submuscular Prosthetic Reconstruction in Nipple Sparing Mastectomy Patients: A Single Surgeons Experience with 44 Consecutive Cases

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INTRODUCTION: Nipple sparing mastectomy (NSM) with immediate reconstruction has become the gold standard for surgical management of breast cancer at our institution. Typically, prosthetic reconstruction is performed in the submuscular plane, which involves dissection and
disinsertion of the pectoralis major muscle. This technique can produce significant postoperative pain and lead to breast animation deformities. Prepectoral breast reconstruction is an alternative technique that involves expander/implant placement in the prepectoral space with complete acellular dermal matrix coverage, thus eliminating the need for pectoralis muscle disruption. In this study, we compare the outcomes between immediate prepectoral and submuscular implant based breast reconstructions in NSM patients.

METHODS: We retrospectively reviewed one surgeon’s experience with immediate prosthetic reconstruction following NSM from 2015–2016. Demographics, surgical and perioperative details, expansion course, and complications were compared between prepectoral and submuscular cohorts. All patients had at least 3.5 months follow up for study inclusion.

RESULTS: We identified 44 patients who underwent 73 breast reconstructions following NSM. Twenty-two patients underwent immediate submuscular expander placement at the time of their NSM and 22 patients underwent immediate prepectoral expander placement at the time of their NSM. These groups were statistically similar with respect to age, BMI, and comorbidities. For bilateral reconstructions, total operating time was reduced an average of 23 minutes in the prepectoral cohort (240.2 vs 263.7, p = 0.34). Intraoperative EBL was significantly reduced (22.1 vs 28.7, p <0.01). Postoperative lorazepam consumption trended nearly 30% less in our prepectoral cohort (p = 0.31). Initial expander fill volume (120.3 vs 104.1, p = 0.5) and mean number of fills to complete expansion (4.2 vs 3.9, p = 0.54) were similar between the two cohorts. Overall complication rates were similar between the two groups (12.5% vs 8.11%, 0.55). There were no instances of nipple necrosis/nipple loss in either group. Notably, in the submuscular cohort, the incidence of animation deformity following submuscular expander-implant exchange was 9.38%. In many of these instances, surgical correction of animation deformity, with operative conversion to prepectoral implant position, was planned to address the deformity.

CONCLUSION: Prepectoral prosthetic reconstruction provides a safe and patient-beneficial alternative to submuscular prosthetic reconstruction.

Pre-pectoral Breast Reconstruction Prompts Revisiting the Anatomic Boundaries of the Breast: A Radiographic and Cadaveric Study

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INTRODUCTION: Pre-pectoral breast reconstruction is increasing in popularity due to minimal postoperative pain and lack of animation deformity, however has less soft tissue camouflage due to the subcutaneous position of the implant. A radiographic and cadaveric study of the breast footprint was performed to describe the location of breast fascial condensations, as originally identified by Matousek, et al. We hypothesized that variability in breast anatomy could potentially aid in implant camouflage and redefine the traditional boundaries of the breast.

METHODS: Preoperative breast magnetic resonance imaging (MRI) was reviewed to measure the thickness of peri-areolar and peripheral regions of the skin envelope and the location of the superficial fascial condensations defining the breast footprint relative to the latissimus, clavicle, sternal border and inframammary fold (IMF). Eight cadaveric mastectomies were performed to measure the breast borders relative to these accepted landmarks.

RESULTS: Preoperative MRI was available for 290 breasts. The relationship of breast tissue to standard breast boundaries following MRI and cadaveric investigation correlated closely showing that breast tissue was located an average of 3.9 cm (range 0.93 to 7.7 cm) medial to the edge of the latissimus and an average of 2.1 cm lateral to the sternal border (range 0.5 to 6.7 cm). Breast tissue was located an average of 2.3 cm inferior to the clavicle (0.5 cm to 6.0 cm). Breast tissue never extended inferior to the IMF and was located above the IMF in 87.2% of breasts. MRI of the breast skin flap thickness was greater peripherally (mean 11.5 mm, range 3 to 23 mm) than in the...