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.1 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 the fascial condensations of the breast footprint rarely encountered the traditionally described breast boundaries. Breast tissue was 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 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
peri-areolar region (6.6 mm, range 1.7 to 28 mm). Average cadaver tissue measurements were similar to those found on MRI.

CONCLUSION: Our radiographic and cadaveric findings of the breast fascial condensations correlate suggesting that the breast boundaries do not always extend to the IMF, rarely reach the latissimus and the clavicle and never extend medial to the sternal border. Working with breast oncologists to identify fascial condensations rather than previously established landmarks may lead to better soft tissue camouflage of pre-pectoral implants after mastectomy.

Reference Citations:
1. Matousek SA, Corlett RJ, Ashton MW. Understanding the fascial supporting network of the breast: key ligamentous structures in breast augmentation and a proposed system of nomenclature. Plastic and Reconstructive Surgery. 2014;133(2):273–281.

6-Year Clinical Trial Results with the Structured Breast Implant

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INTRODUCTION: The structured breast implant uses different technology than existing saline or silicone gel implants, making it a third type of implant. It was approved by FDA and Health Canada in November 2014. The 6-year results from the FDA Core clinical trial are presented. Comparison of data for the three types of implants reveals certain advantages of the structured implant over saline and silicone gel implants.

This third type of implant is filled with saline, but uses an internal structure to make it behave as if filled with silicone gel. It contains a series of nested shells that support the upper pole when upright and control fluid movement to prevent bouncing. The result is an implant that combines certain key features and benefits from both saline and silicone gel implants. Like the saline implant, the filler is only saline, which women like for peace of mind in case of a rupture/deflation. Like the silicone gel implant, it has a natural feel, but without the risk of silent rupture and FDA-recommended MRIs - women can simply look in the mirror and know their implants are intact.

METHODS: This US clinical trial began February 2009, with 502 women enrolled by February 2010: 399 for primary augmentation and 103 for replacement of existing saline or silicone gel implants. Investigators included 45 ABPS certified plastic surgeons at 35 sites.

EXPERIENCE: Of the 502 women enrolled, 438 completed their 6-year follow-up visits, a rate of 87.3%. This follow-up visit rate is higher than for any other breast implant clinical trial, providing robust clinical data for analysis.

RESULTS: For the 438 patients with 6-year follow-up, patient satisfaction with the outcome was 89.7% for primary and 91.6% for replacement augmentations; surgeon satisfaction with the outcome was 92.6% for primary and 94.0% for replacement augmentations. Adverse events per patient were tabulated by Kaplan-Meier risk rates of first occurrence: Baker class 3 & 4 capsule contracture – 5.7% for primary, 11.5% for replacements; rupture/deflation – 1.8% for primary, 4.7% for replacements.

CONCLUSION: 6-year results from 438 women show that the structured breast implant has a high rate of patient and surgeon satisfaction, a low rate of capsule contracture and a low rate of rupture/deflation.

Tissue Engineering a Biomimetic Platform for the Study of Breast Cancer Metastasis

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