Pectoral Placement of Tissue Expanders Affects Inpatient Opioid Use

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**PURPOSE:** Prepectoral breast reconstruction promises to minimize breast animation deformity and decrease the pain associated with subpectoral dissection and tissue expansion. This latter benefit is particularly timely given the ongoing opioid epidemic; however, this theoretical benefit remains to be demonstrated clinically. As such, this study aimed to compare inpatient opiate use and prescription practices following prepectoral and subpectoral expander-based breast reconstruction.

**METHODS:** A retrospective review was performed of patients at a single institution undergoing immediate tissue expander placement between January 2017 and April 2018. Medical records were reviewed for surgical details, 24-hour inpatient PRN opioid usage (oral morphine equivalents [OMEs]), and discharge prescriptions. Comparisons were made using chi-square and Student’s t tests, where appropriate.

**RESULTS:** Two hundred thirty-one patients were identified (mean age, 48.8 years), of whom 137 (60%) underwent prepectoral and 94 (40%) subpectoral tissue expander placement. All but 2 prepectoral patients and 2 subpectoral patients were opioid naive. The prevalence of psychiatric comorbidities or chronic pain disorders was not significantly different between either cohort (P = 0.746 and P = 0.680, respectively). Neither the rate of bilateral procedures (P = 0.490) nor axillary dissections (P = 0.821) differed between cohorts. Overall, 92% of patients were discharged within 24 hours, and length of stay did not differ between cohorts (1.07 days prepectoral versus 1.17 days subpectoral; P = 0.0891). Two subpectoral and 2 prepectoral patients required prolonged admission due to postoperative pain. All patients were ordered standing acetaminophen, celecoxib, and gabapentin, and—for subpectoral patients—cyclobenzaprine. Inpatient opioids were offered on an “as needed” (PRN) basis. Opiate usage within the first 24 hours was halved in the prepectoral cohort (22.2 versus 44.5 OME; P = 0.0003). However, patients with a chronic pain disorder (n = 13) had significantly increased opioid usage (P < 0.0001). The presence of anxiety (P = 0.9636) or depression (P = 0.5822) did not have a significant association with opioid use. In addition, the amount of opiates prescribed on discharge (308.42 OME prepectoral versus 336.99 subpectoral; P = 0.3197) and the rates of opioid refills (19% prepectoral versus 29% subpectoral; P = 0.084) were not significantly different between cohorts.

**CONCLUSION:** Prepectoral tissue expander placement seems to be associated with a 50% reduction in inpatient opiate usage postoperatively compared to subpectoral placement. This may represent an opportunity to improve patient safety and satisfaction by decreasing outpatient opiate prescriptions.

Enrichment of Fat Grafts With Adipose-derived Stromal Cells for Breast Augmentation: A Randomized, Double-blind, Placebo-controlled Trial of Fat Graft Survival

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**BACKGROUND:** The main problem with fat grafting is the postoperative graft resorption which often leads to repeated procedures to achieve the desired volume. Cell therapy in the form of adding stromal vascular fraction or culture-expanded, adipose-derived stromal cells to the fat graft are some of the most promising strategies to improve graft retention. To assess the efficacy of using high-dose, culture-expanded, adipose-derived stromal cells to enhance fat graft volume retention in the human breast, we have conducted a randomized, double-blind, placebo-controlled clinical trial.

**METHODS:** This clinical trial was performed in healthy women with small, symmetrical breasts who underwent a bilateral breast augmentation by fat grafting. In each patient, one breast was treated with normal fat grafting and the other with fat grafting enriched with expanded adipose-derived stromal cells (10 × 10⁶ cells/ml fat). The patients underwent 2 surgeries: (1) a small liposuction to obtain the adipose tissue for isolation and ex vivo expansion of the cells for 17 days and (2) a larger liposuction after 17 days to conduct a bilateral breast augmentation with fat grafting with unilateral addition of the expanded cells. Magnetic resonance imaging scans of the breast were performed the day before breast augmentation and 4 months and 1 year after surgery. The primary outcome was fat graft volume retention after 4 months and 1 year based on magnetic resonance imaging. The study is registered at www.clinicaltrialsregister.eu and
was approved by the National Ethics Committee in Denmark (number: 2014-000510-59).

RESULTS: Ten women were enrolled in the study. The mean fat graft volume per breast augmentation was 310 ml fat (range, 300–350 ml). The cell enrichment of the fat grafts did not improve the volume retention after 4 months or 1 year. After 4 months, the retention of the cell-enriched grafts was 54.3% (95% confidence interval [CI], 39.4–69.2) versus 56.2% (95% CI, 42.7–69.6) in the control group ($P$ = 0.552). After 12 months, the retention in the cell-enriched grafts was 54.0% (95% CI, 30.4–77.6) versus 55.9% (95% CI, 28.9–82.9) in the control group ($P$ = 0.566). The difference in mean retention after 1 year was only −1.9% (95% CI, −9.11% to 5.31%). No serious adverse events occurred in any of the patients.

CONCLUSION: Our study showed that enriching fat grafts with high-dose expanded adipose-derived stromal cells did not lead to any improvement in fat graft survival in the breast.

REFERENCE
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Breast Flap Neurotization Following Autologous Breast Reconstruction: A Prospective Trial

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PURPOSE: Restoration of breast sensation following autologous breast reconstruction (ABR) is integral to the reconstructive paradigm for breast cancer patients. We hypothesize that innervation of reconstructed breast flaps will improve sensation and quality of life (QoL).

MATERIALS/METHODS: Free flap ABR patients with and without nerve allograft neurotization were recruited prospectively. Sensation testing was performed with a Pressure Specified Sensory Device (PSSD) at 12–24 months postoperatively in superior, lateral, medial, and inferior poles on both the mastectomy skin and the flap skin. The BREAST-Q was administered.

RESULTS: Thirty-two women were enrolled with a total of 54 reconstructed breasts (neurotized: n = 22; nonneurotized: n = 32). Average age was 51.9 years (range, 21–77) with a mean body mass index of 28.9 (range, 20–47). Average follow-up was 15.8 months (range, 12–24). Free TRAM flaps were most commonly performed (87%). Mastectomy skin exhibited greater sensation than flap skin ($P$ = 0.20) and 1-point moving tests elicited a greater response than 1-point static ($P < 0.00$). In all but one area (inferior mastectomy), the neurotized group had more sensation with 1-point static ($P = 0.01–0.99$) and 1-point moving testing ($P = 0.33–0.92$). The superior mastectomy pole experienced significantly greater sensation in the neurotized group ($P < 0.001$). There was no difference in surgical site outcomes between the groups. Nine percentage neurotized versus 5% nonneurotized patients reported “more sensation” after reconstruction ($P = 0.32$). QoL demonstrated that the neurotized group was more satisfied in 9 of the 11 parameters ($P = 0.09–0.89$).

CONCLUSION: The return of breast sensation after ABR has become an important topic in reconstructive plastic surgery. Although multiple modalities have been proposed to increase postoperative sensation (eg, nerve conduits, allografts, and autografts), there is a paucity of prospective clinical trials investigating sensory outcomes. This abstract highlights the largest cohort to date, which quantitatively and qualitatively measures the effect of neurotization with nerve allografts on the return of sensation following ABR. To do so, we have directly measured sensation, patient-reported return of sensation, and breast-associated QoL. These preliminary results suggest that neurotization during ABR may lead to increased sensation and improved QoL. We hope that these results will further the knowledge of this topic, potentially improve patient outcomes, and stimulate a discussion regarding clinical management.

Incidental Pathologic Findings in Adolescent and Young Adult Reduction Mammoplasty

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Reduction mammoplasty is a safe, effective option that relieves physical and psychosocial symptoms in adolescent