Use of Negative Pressure Wound Therapy with Instillation in Acute Post-Surgical Breast Reconstruction Infections—Retrospective Review

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INTRODUCTION: In recent years, combining instillation of a topical wound solution with negative pressure wound therapy (NPWT) has facilitated wound cleansing. Furthermore, published studies have positively reported on the use of a NPWT system with automated instillation and a dwell time (NPWTi-d) that provides a method of cyclically instilling and dwelling topical solutions to help improve healing outcomes of acute and chronic wounds. Our purpose was to analyze our outcomes of patients who received adjunctive NPWTi-d with a polyhexanide solution to address surgical site occurrences (SSO) following first stage expander-implant breast reconstruction.

METHODS: A retrospective record review was conducted. Patient data were extracted from the electronic medical record by means of manual review and stored in a database. Adult patient records were included for analysis if the patient underwent a mastectomy followed by immediate or delayed expander reconstruction, had infection of at least one pocket confirmed via culture, had received oral and systemic antibiotics for at least one week, and subsequently received NPWTi-d. All procedures were completed between January 1, 2016 and February 1, 2017. Demographics, surgical approach, comorbidities and expander salvage rate were recorded and analyzed.

Six female patients with a median age of 50.8 were included in the analysis. Five of 6 patients had undergone sub-pectoral expander reconstruction and one patient received pre-pectoral expander reconstruction. Antibiotics were also continued based on specific cultures. All surgical site infections were thoroughly debrided and irrigated. Adjunctive NPWTi-d was initiated: instillation of a polyhexanide solution with a 20-minute dwell time, followed by 3.5 hours of -125 mmHg negative pressure. Duration of therapy ranged from 1–3 days.

RESULTS: Salvage of the expander was achieved in all 6 patients. None of the pockets showed signs of infection after application of NPWTi-d. Healthy granulation tissue was present in all NPWTi-d treated pockets. All breast incisions were successfully closed with good cosmetic results and without further sequelae.

CONCLUSION: Tissue expanders could be salvaged in all 6 patients with SSOs in this series who received NPWTi-d. This small sample size does not allow for a reliable extrapolation to the general population. Although further studies are needed, the results from these 6 patients suggest that NPWTi-d may represent an important new adjunctive therapy option in device salvage for breast reconstruction patients.

A Longitudinal Study of Patient-Reported Outcomes in Adolescent Breast Reduction

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INTRODUCTION: To use a validated patient-reported outcomes measure to assess the satisfaction and well-being of adolescent patients before and after surgical treatment for macromastia.

METHODS: This longitudinal study included adolescent females who were managed in clinic for
macromastia and received both pre- and postoperative surveys. All patients who attended shared medical appointments during the study period were administered the preoperative BREAST-Q as a condition-specific measure of satisfaction and wellbeing. Patients who received surgical treatment were also administered the postoperative BREAST-Q at least 3 months after surgery. BREAST-Q scores range from 0–100 for each tested domain, with 100 corresponding to highest well-being or satisfaction. In addition, we recorded grams of breast tissue removed during surgery and postoperative complications.

EXPERIENCE: During the study period, 22 patients who attended shared medical appointments were scheduled for reduction mammoplasty. Six surgeries were cancelled due to inability to obtain insurance coverage. The remaining 16 patients received surgery, eight of whom have taken follow-up surveys and were thus included in this analysis.

RESULTS: For BREAST-Q domains that were measured pre- and postoperatively, the average scores significantly increased after surgery as follows: satisfaction with breasts increased from 21.8 to 76.0 (p=0.01), psychosocial well-being increased from 40.1 to 85.3 (p=0.04), and physical well-being increased from 24.6 to 83.6 (p=0.01). There was not a significant increase for sexual well-being, though average score increased from 35.8 to 72.8 (p=0.68).

Postoperatively, patients also reported an average score of 92.6 for satisfaction with outcome, 81.3 for satisfaction with information, 82.4 for satisfaction with nipples, 100 for satisfaction with surgeon, 100 for satisfaction with medical staff, and 100 for satisfaction with office staff. The average weight of breast tissue removed was 802.0 grams per side.

CONCLUSION: This is the first report of adolescent satisfaction and well-being before and after breast reduction surgery using the BREAST-Q. Given that we saw a significant increase in patient well-being and satisfaction after surgical treatment, the BREAST-Q should continue to be validated in the adolescent population so plastic surgeons can further demonstrate the functional and psychosocial benefits of adolescent reduction mammoplasties to third-party payors.

Reference Citations:
1. Pusic AL, Klassen AF, Scott AM, et al. Development of a new patient reported outcome measure for breast surgery: the BREAST-Q. Plastic and Reconstructive Surgery 2009;124(2):345–53

Mechanical Analysis of Reduction Mammoplasty Effects on Spinal Musculature

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INTRODUCTION: Breast weight places a considerable burden on the spine, and can lead to back pain and postural changes. Reduction mammoplasty improves these physical symptoms, but the mechanical effect of the change in breast mass is unknown. The purpose of the study is to examine the mechanical effects of reduction mammoplasty on the forces across erector spinae muscles. It is hypothesized that the patient’s body habitus, breast size and level of ptosis will affect forces across the erector spinae muscles.

METHODS: Using a cantilever model, the sum of the forces and moments were solved in using static modeling parameters. Mechanical models composed thick and thin body width with high mass and low mass grade III ptotic breasts were created. The variables included were body thickness, mass of the breast, and center of gravity of the breast. It was assumed breasts were homogenous and symmetric. The forces were uniformly distributed across the spine and absorbed by the muscles attached to the spinous process. The mass of the breasts and their center of gravity were altered. The reaction forces across the spine was calculated for each combination of body width, change in breast mass, and change in breast center of gravity.

RESULTS: Independent of body habitus, the percentage of breast tissue mass resected was directly proportional to the decrease in forces on the spiniae erector spinae muscles. Decreasing the amount of breast tissue below the inframammary fold raised the center of the gravity of the breast. The thinner a patient’s trunk the greater the effect raising the center of gravity had on the forces on the spinal muscles.

CONCLUSION: Reduction mammoplasty reduces the force across the spinal muscles. In thin patients reducing the ptotic grade had a greater effect than in overweight patients. Further