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BACKGROUND: Plastic surgery programs have emphasized the importance of ensuring patient safety while providing residents with a complete training experience. Residents have noted aesthetic procedures being the ones they are most uncomfortable in performing during and after training. Given the rising popularity in body contouring procedures in the United States, the impact of resident involvement in these procedures were assessed. Notably, the association between resident involvement and postoperative complications remains largely unknown. As such, the aim of this study was to evaluate the impact of resident involvement on outcomes of body contouring procedures.

METHODS: A retrospective analysis of the National Surgical Quality Improvement Program database was performed (2006–2012) to identify patients undergoing body contouring procedures, using Current Procedural Terminology codes. Outcome measures included: postoperative complications, reoperation, readmission, operative time and hospital length of stay. Multivariate regression models were used to assess the impact of resident involvement and resident experience on outcomes.

RESULTS: A total of 9,638 cases were identified, of which 3,311 involved resident participation. Body contouring patients in resident involvement vs. non-resident involvement groups were significantly older (46.2 vs. 45.5 years, p=0.011), had greater body mass index (BMI) (31.0 vs. 30.6 kg/m², p=0.004), had higher incidence of diabetes (6.9% vs. 4.8%, p<0.001), were more often operated on in an inpatient setting (31.9% vs. 17.7%, p<0.001), and were more often in American Society of Anesthesiologist (ASA) classification III or IV (17.9% vs. 12.6%, p<0.001). After adjusting for confounders, resident involvement was associated with significantly higher overall complications (7.8% vs. 4.4%, p=0.003), surgical site complication rates (5.5% vs. 3.3%, p=0.019), thromboembolic events (0.7% vs. 0.4%, p=0.042), and longer operative time (180.7 vs. 171.9 minutes, p=0.005). There was a significant decrease in odds of overall complications (odds ratio (OR): 0.906; p=0.022) when looking into the impact of resident experience per year increase of post-graduate year (PGY).

CONCLUSION: Resident involvement in body contouring procedures was associated with an increased rate of overall complications in a large, national database. However, the clinical significance of these outcomes may be debated. Increased post graduate year experience as a surgical resident was inversely associated with overall complications. Guided resident autonomy and earlier exposure to body contouring procedures could lead to an optimization of clinical outcomes and resident education.

Frailty Predicts Morbidity, Complications, and Mortality in Patients Undergoing Complex Abdominal Wall Reconstruction

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INTRODUCTION: Frailty is becoming an increasingly-established risk factor for adverse postoperative outcomes. Interestingly, the efficacy of frailty indices in predicting morbidity and mortality in the plastic surgery patient population has not yet been examined. As such, given the innate high morbidity involved in complex abdominal wall reconstruction (CAWR) and the propensity for obesity, diabetes, and other comorbidities among this patient population, we sought out to determine the predictive utility of a frailty index in patients undergoing CAWR.

METHODS: A retrospective analysis was conducted using the American College of Surgeons (ACS) National Surgical Quality Improvement Project (NSQIP) database from 2005–2013. Patients undergoing CAWR were identified using Current Procedural Terminology (CPT) codes for ventral hernia repair +/- components separation technique, +/- placement of prosthetic or biologic mesh, and complexity of the defect. Pre-operative frailty index was calculating using the Modified Frailty Index (mFI) initially described by Saxton et al. Outcomes included overall morbidity, Clavien-Dindo Grade IV complications, and mortality. Multivariate regression models were used to determine the effect of mFI and each component of the mFI on our outcomes.
Recursive partitioning was used to determine a mFI threshold predictive of complications.

**RESULTS:** Of 70,339 patients identified as above, 9,931 had a complication associated with their procedure. mFI of 0.12 (±0.11) was calculated for these patients and was significantly greater than 0.077 (±0.85) for patients with no complications ($p<0.001$). When examining mFI correlation with Clavien-Dindo Grade IV complications ($n=2,541$), mFI once again was significantly greater (0.16±0.12) than those with no Grade IV complications (0.080±0.09; $p<0.001$). Multivariate analyses also showed that all individual factors of the mFI (diabetes mellitus, hx of MI, etc.) were predictive of any complications and Grade IV complications ($p<0.001$). Calculated odds ratios showed that higher pre-operative mFI also had a 7.77x likelihood of having any complication, 35.71x likelihood of having a Grade IV complication, 3.85x likelihood of having a surgical site complication, and a 62.05x likelihood of death (all $p<0.001$). Recursive partitioning revealed that a threshold of greater than 3 indicators of mFI conferred a 2.07x likelihood of a Grade IV complication and a 2.33x likelihood of death (both $p<0.001$).

**DISCUSSION:** We have shown that frailty as measured by mFI is an accurate predictor of morbidity, complications, and mortality in patients undergoing CAWR. Additionally, we have determined a frailty threshold of complications and mortality rate for plastic surgeons to consider during patient selection.

**Impact of Breast Reconstruction Patients on Cosmetic Practice**

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**INTRODUCTION:** Many patients seek breast reconstruction as part of their treatment after mastectomy for breast cancer. While reconstructive surgery helps to improve a patient’s self-image, some patients seek cosmetic procedures in addition to further improve their perceived body image. The purpose of this study is to look at the rate of conversion of primary breast reconstruction patients to receiving either non-invasive or surgical cosmetic procedures after reconstruction.

**METHODS:** A retrospective review of primary breast reconstruction patients of the two senior authors was conducted from January 2014- December 2015. Information including types of cosmetic procedures received and time to first cosmetic procedure were obtained. Time to first cosmetic procedure was assessed from date of initial reconstructive surgery through December 2017.

**RESULTS:** There were 289 primary breast reconstruction patients seen from January 2014- December 2015. A total of 30 (10.4%) patients underwent at least 1 cosmetic procedure after reconstructive surgery through December 2017. The average time to first cosmetic procedure was 8.61 months +/- 6.47 after their initial reconstructive surgery. Majority of patients (20, 66.7%) underwent non-invasive cosmetic procedures only. Six (20%) patients underwent a surgical cosmetic procedure only and 4 (13.3%) patients underwent both non-invasive and surgical cosmetic procedures. For patients that underwent a surgical procedure they have thus far only undergone 1 surgery. For patients that had non-invasive cosmetic procedures, they averaged 4.96 procedures (range 1 to 22).

**CONCLUSION:** While breast reconstruction after breast cancer is a common path that women take, some may seek cosmetic procedures to further improve their self-image. For our senior authors this resulted in an ~10% conversion rate over 4 years of primary breast reconstructive patients. On average patients underwent a procedure about 9 months after the initial reconstructive surgery. Majority of patients underwent non-invasive cosmetic procedures averaging about 5 treatments per patient. Surgical patients underwent 1 surgery each over the timeframe.

**REFERENCES:**
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**Optimization of Clinical Care and Research Using a Novel Digital Data Collection Tool: A Pilot Study**

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