American population, but there is limited literature on creation of the male nipple-areolar complex (NAC) from the female NAC. Studies have been performed to assess the dimensions and positioning of the ideal male nipple, but there are limited techniques to developing that ideal from a female NAC, which tend to have a larger areola, a more prominent nipple, and a different anatomic location. We have developed specific techniques and an algorithm to help create the ideal male NAC in the transgender population.

MATERIALS AND METHODS: 125 FTM patients underwent either periareolar or subcutaneous mastectomies with extended subpectoral incisions at the University of Utah. From the patient population, an algorithm was developed assessing the type of female NAC (large or small) and subsequently, creating an aesthetically appropriate male NAC from the nipple and areolar tissue. We also determined a simple method to determine the ideal position of the NAC using the borders of the pectoralis major muscle.

RESULTS: We found that in the 112 subcutaneous mastectomies with an extended subpectoral incision, free nipple graft was ideal for creation of the male NAC. Of patient's that benefited from free nipple grafting, 32 patients had a large female NAC requiring creation of a composite male nipple by separately harvesting areolar and nipple tissue and creating a neo-nipple-areolar complex. 80 of the free nipple graft patients had a small female NAC requiring harvest of the nipple with a measured cuff of areolar tissue to create the male NAC. In the 13 periareolar mastectomies, reduction of nipple projection was ideal for creation of the male NAC. This consisted of excision of excess nipple volume via a Mercedes incision. Ideal nipple positioning on the chest wall was found to be 1 cm above the inferior border and 1 cm medial to the lateral border of the pectoralis major muscle in all FTM patients.

CONCLUSION: At the University of Utah, we have established an algorithm for creation of a male NAC from a female NAC in FTM population, correcting for differences associated with the NAC size and the type of procedure performed. We also have identified a simple manner to aesthetically position the nipple on the chest wall using anatomic landmarks associated with borders of the pectoralis muscle.

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A Validated Multi-Institutional Approach To Optimizing Outcomes Of Reduction Mammoplasty: A Critical Analysis Of 7,068 Patients

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INTRODUCTION: Recent evidence suggest that compared to other elective non-reconstructive breast surgeries, reduction mammoplasty remains associated with significantly higher rates of overall morbidity, superficial surgical site infections, and wound disruptions (p< 0.05). We aimed to develop a validated risk model to identify patients at higher risk for postoperative surgical site morbidity (SSM) after reduction mammoplasty.

METHODS: Retrospective review of all females undergoing reduction mammoplasties from the ACS-NSQIP 2005–2012 data. SSM included surgical site infection (SSI) and wound disruption events. Stepwise multivariable logistic regression was used to identify the risk factors associated with SSM. The model was validated using bootstrap replications (n=100) and Hosmer-Lemeshow test. The model was converted into a clinical risk score (CRS) predictive of SSM.

RESULTS: We identified 7,068 reduction mammoplasties. Rate of 30-day SSM was 3.98%. Independent risk factors included resident participation(OR=1.5,95%CI:1.1–2.0, p=0.004), BMI(for every 5 unit increase: OR=1.3,95%CI:1.1–1.4,p<0.001), smoking (OR=1.6,95%CI:1.1–2.4,p=0.014), steroid use (OR=3.5,95%CI:1.4–8.4,p=0.006), and operation in 3rd quarter of the year(OR=1.5,95%CI:1.1–1.9,p=0.014). The
factors were integrated into a CRS ranging from 0–16. Predicted probability of SSM associated with each risk score was estimated. Predicted and observed risks of SSM were highly comparable.

CONCLUSION: We present a validated risk stratification tool for predicting 30-day SSM following reduction mammoplasty using data that are readily available to the clinician. This may allow targeted screening and intervention in high-risk patients, better counseling, selective resident participation, and ultimately decrease overall health-care costs. This is the first study to date that provides a well-defined risk assessment tool to improve outcomes in reduction mammoplasty patients. Future studies should determine if implementation of our SSM risk score optimizes safety and reduces morbidity rates after reduction mammoplasty.

DISCLOSURES/FINANCIAL SUPPORT: None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.

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Evaluation of a New Concept in Two-Stage Breast Reconstruction: Patient Controlled Tissue Expansion using the AeroForm CO₂ Tissue Expander System

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BACKGROUND: Two-stage breast reconstruction using saline tissue expanders is the standard of care utilized for greater than 50 years. Recently the status quo has been challenged by a CO₂ filled, remote controlled tissue expander. The AeroForm expander (AirXpanders, Palo Alto, CA) has CE Mark certification and has been commercially available in Australia since 2015. Data from multiple clinical studies have shown that this method can be used effectively and safely to prepare the surgical pocket for placement of a permanent implant. The purpose of this paper is to review the clinical data for the latest generation AeroForm with regard to outcomes and management of patients implanted with this new technology.

METHODS: Data from a US, prospective, multi-center, randomized, controlled study were analyzed for successful second stage surgery, time to complete expansion and reconstruction, and satisfaction. Patients were enrolled and randomized (2:1) to receive either the CO₂ expander or saline expander. Inclusion was limited by age (18–70), BMI (<33) and tissue suitability for expansion.

RESULTS: Data were reviewed for 72 (44 CO₂/28 saline) patients implanted with the current generation of the AeroForm or a saline expander within the same time period. Data are presented by breast (AeroForm = 78, saline = 50) with the primary endpoint achieved in 97.3% (CO₂) and 97.8% (saline) of patients. The treatment difference (-0.51) is within a margin of non-inferiority of -7.7. The study was a non-inferiority design and the protocol stated success range was a margin of < -10 %. The results with the CO₂ device versus earlier reported results reflect enhancements made to the design and manufacturing process during the trial. The average expansion and total reconstruction days were 17 and 111 respectively (CO₂) and 35 and 121 days respectively (saline). Overall satisfaction for the AeroForm was 84% (patient) and 89% (physician).

CONCLUSIONS: The AeroForm expander which uses CO₂ as the filling medium has been used successfully by patients for home dosing in clinical trials in the last five years. These results confirm earlier reports and demonstrate that the current generation of AeroForm is a viable alternative to saline for two-stage breast reconstruction. With the planned introduction of this novel technology in the U.S., patient management and training for home use will be required for its success.

Perfusion Assessment of the Deep Inferior Epigastric Artery Perforator Flap: A Blood Gas Analysis

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PURPOSE: Tissue oxygen saturation is a commonly used method to assess and evaluate free flap physiology. However, it is an indirect proxy, subject to variation by position, lighting, and other systemic factors. In this study of