to assess the effects of procedure type on outcomes, controlling for a range of demographic and clinical variables.

RESULTS: One year follow-up data were available for 693 patients, including 90 PTRAMs, 104 FTRAMs, 398 DIEPs, 62 SIEAs, and 39 Mixed flaps. Among these, 463 patients had two year data (56 PTRAMs, 76 FTRAMs, 261 DIEPs, 44 SIEAs, and 26 Mixed flaps). In the regression model, DIEPs and SIEAs were associated with higher donor-site complication rates at both one (OR=2.2, p=0.03; OR=5.1, p<0.001, respectively) and two years (OR=3.3, p=0.004; OR=7.3, p<0.001), compared with FTRAMs. Analysis of BREAST-Q results at one year showed higher levels of physical well-being-abdomen for DIEPs (Beta=5.6, p=0.02) and SIEAs (Beta=9.3, p=0.007), compared with FTRAMs. Bilateral reconstructions were associated with significantly lower scores on BREAST-Q physical well-being-abdomen (p<0.0001) and with higher PROMIS pain scores (p=0.005), compared with unilateral procedures. Although no procedure effects were seen in physical function or pain on the PROMIS survey at one or two years, older age and higher BMI were associated with lower physical function at two years.

CONCLUSION: Our findings suggest that although DIEP and SIEA flaps are associated with higher risks of complications, they may have less impact on abdominal well-being in the short term, compared with TRAM flaps. Further research is needed on the long-term impacts of these procedures.

Ultrasound Study of the Natrelle 410 Anatomical Silicone Breast Implant Rupture: Over a 5-Year Follow-Up

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PURPOSE: The incidence of breast implant rupture, an important complication, is on the increase. Ruptures usually start as shell rupture, gradually progress into intracapsular rupture, and finally progresses into extracapsular rupture or silicone granuloma. It is recommended that ruptured implants are exchanged before they progress into silicon granuloma. However, since a lower rate of lifetime reoperations is desirable, it is important to ascertain the appropriate time to undergo the operation. Although magnetic resonance imaging is the golden standard for detecting ruptures, ultrasonography is lately recognized as a fast and convenient option. The aim of this study is to reveal rupture rates and to define typical signs of shell rupture and intracapsular rupture.

METHODS: This study included 345 women with 460 implants (379 breast reconstruction and 81 contralateral breast augmentation, all of them were Natrelle 410 breast implants) who had undergone breast reconstruction surgery after mastectomy from 2005–2010 in our institute. From 2014, the authors started ultrasonography on annual visits. Plastic surgeons or ultrasound technicians evaluated implants with high frequency linear probe (12MHz) and classified them into 5 signs (normal, minor shell split, isolated liquid sign, hyperechoic gel between capsule and shell, and hyperechoic inner silicone gel). Magnetic resonance imaging and implant exchange were performed on possibly ruptured implants.

RESULTS: Follow-up rate was 86%. Overall rupture rate at over 5 years was 3.3% (15 of 460 implants). Of those, 9 implants had intracapsular rupture (all of them were exchanged) and 6 implants had shell rupture (2 were exchanged and 4 were put on continuous follow-up). Two explanted implants which had shell rupture showed the ultrasonographic signs of minor shell split or isolated liquid sign. Even though there were very small holes in the shell, shell ruptured implants kept their form and cohesiveness. Nine implants which had intracapsular rupture no longer kept their original form so it was difficult to remove their leaked gel completely. Intracapsular ruptured implants showed both signs of hyperechoic gel between capsule and shell, and hyperechoic area in silicone gel.

CONCLUSIONS: Overall rupture rate was similar to the Natrelle 410 Core Study. In this study, we could distinguish between shell rupture and intracapsular rupture using ultrasound. And implants that had shell rupture were put on careful follow-up until they progress into intracapsular rupture.

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An Algorithm for Creation of the Male Nipple Areolar Complex in the Female to Male Transgender Population

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INTRODUCTION: Female to male (FTM) chest wall reconstruction is becoming widespread in the North
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 Mammaplasty: A Critical Analysis Of 7,068 Patients**

**INTRODUCTION:** Recent evidence suggest that compared to other elective non-reconstructive breast surgeries, reduction mammaplasty 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 mammaplasty.

**METHODS:** Retrospective review of all females undergoing reduction mammaplasties 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 mammaplasties. 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