METHOD: Nationwide Inpatient Sample (2006–2011) was queried to identify bilateral breast reduction cases. Patients with rheumatoid arthritis, systemic lupus erythematosus, Sjogren’s syndrome, Raynaud’s syndrome, psoriatic arthritis, or scleroderma were identified. Demographic factors, co-morbidities, and postoperative complications were compared to patients without CTD using student t-test, chi-square, and risk-adjusted multivariate logistic regression.

RESULTS: A total of 22,653 bilateral breast reductions were performed during study period. Of these, 428 (1.9%) were performed in patients with CTD. Patients with CTD were older (50.5 vs 42.5 years, respectively) and had higher rates of co-morbidities compared to non-CTD patients (p<0.01). Postoperatively, patients with CTD experienced higher rates of wound infections (1.2% vs 0.2%, p<0.01), venous thromboembolism (2.3% vs 0.2%, p<0.01), and major medical complications (4.4% vs 1.8%, p<0.01) compared to non-CTD patients, respectively. On multivariate logistic regression analyses, CTDs were independently associated with increased risk of wound infection (OR 3.6, 95% CI 1.3–10.5), venous thromboembolism (OR 11.7, 95% CI 5.6–24.7), and other major medical complications (OR 1.8, 95% CI 1.1–3.0).

CONCLUSION: Patients with CTD are at significantly increased risk for complications following elective bilateral breast reduction. Such high risk patients require careful patient selection and strategies to minimize risk of serious postoperative complications including venous thromboembolism.

13.

COMPREHENSIVE 13-YEAR REVIEW OF IMPLANT-BASED BREAST RECONSTRUCTION: IS TOTAL MUSCLE COVERAGE OR ALLODERM HUMAN DERMAL MATRIX BETTER?

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PURPOSE: Prosthetic breast reconstruction is the most common method in the treatment of patients undergoing mastectomy. The use of Alloderm has become more popular in implant-based breast reconstruction.

METHODS: Retrospective review was performed of all patients undergoing prosthetic breast reconstruction between 2002 and 2013. Patient demographics, fill volumes, number of expansions, costs, complications, and revisions were evaluated.

RESULTS: A total of 277 patients underwent placement of 466 breast tissue expanders. Although the total overall complication rate was not significantly different between the Alloderm and Total Muscle (TM) groups (31.4% vs. 21.5%, p>0.05), the rate of major complications was significantly higher with Alloderm (26.7% vs. 11.7%, p<0.004). The mean initial fill volume was significantly lower in TM compared to Alloderm group (54 ±47 vs. 167 ±139, p=0.00003) resulting in a higher number of expansions in patients with total muscle coverage (7.7 vs. 6.1, p=0.00076). However, there was no difference in time to exchange for permanent implant (160.4 vs. 165.8 days, p>0.05). There is also an increased rate of revisions with Alloderm after average follow-up of 55.7 months (10.7% vs. 4.4%, p<0.01). Use of Alloderm added a mean cost of $2,217 for each breast.

CONCLUSION: Although the use of Alloderm allows increased initial fill volumes and fewer total expansions, this study shows an increased risk of major complications as well as considerable added cost without the touted benefits of decreasing revisions or time to expander exchange. Total muscle coverage remains an excellent option for providing quality breast reconstruction without increased complications.

14.

SHOULD NERVE COAPTATION BE ROUTINE? BREAST SENSATION FOLLOWING MASTECTOMY +/- RECONSTRUCTION

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PURPOSE: Restoration of breast sensation following breast reconstruction is an evolving part of the reconstructive paradigm. Although spontaneous recovery of sensation has been reported following mastectomy, surgeons are advocating for innervated reconstructions using neurotization at the time of autologous reconstruction. In an effort to further elucidate the evidence basis for nerve coaptation, a meta-analysis of the literature was undertaken.

METHODS: A literature review was conducted according to PRISMA guidelines in effort to perform meta-analysis. Relevant studies reporting breast sensibility following mastectomy with or without reconstruction were extracted, pooled, and compared. The primary outcomes of interest were tactile, thermal, 2-point discriminatory, and vibratory sensibility. The effect of nerve coaptation with and without interposition grafting was examined.

RESULTS: The initial search yielded 505 studies, narrowed to 36. Fourteen trials investigating neurotized breast reconstruction have been reported, and all report quantitatively greater sensibility following neurotized breast reconstruction. 4 studies report statistical analysis (n=168), and of these, 56 patients underwent nerve-grafted reconstruction, whereas 86 patients served as controls (no nerve-grafting). Based on results from the relevant studies, nerve coaptation significantly improved breast mound sensation above mastectomy alone, implant reconstruction, and tissue reconstruction without nerve coaptation.

CONCLUSION: Restoring sensation to the reconstructed breast via nerve coaptation is an invaluable adjunctive procedure in breast reconstruction. Based on this systematic review, evidence-based recommendation for nerve coaptation can be offered.

15. BETTER LIVING THROUGH CHEMISTRY: A NOVEL BREAST IMPLANT SURFACE COATING SIGNIFICANTLY REDUCES PERI-PROSTHETIC CAPSULE FORMATION

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PURPOSE: The body responds to prosthetic devices with an inflammatory foreign body response and deposition of a fibrous capsule. Capsular contracture (CC) is the most common complication of aesthetic and reconstructive breast surgery. CC is the source of significant patient morbidity and can result in pain, suboptimal aesthetic outcomes, implant failure and increased costs. The underlying mechanism remains unknown. Treatment is limited to re-operation and capsule excision, however recurrence rates remain high. Herein we altered the surface chemistry of silicone implants with a proprietary anti-inflammatory coating to reduce capsule formation.

METHODS: Silicone implants were created from polydimethylsiloxane and coated with RZA15 or E9, two novel, biocompatible, anti-inflammatory, proprietary molecules. Uncoated, RZA15- and E9-coated implants were implanted in twenty C57BL/6 mice. After four weeks, peri-prosthetic tissue was removed for histologic analysis of capsule thickness.

RESULTS: After 31 days, there was a statistically significant reduction in capsule thickness of RZA15- (71.12 microns; p=0.0194) and E9-coated implants (76.84 microns; p=0.0463) compared to uncoated (103.8 microns).

CONCLUSION: Coating the surface of silicone implants with RZA15 and E9 significantly reduced capsule thickness in a mouse model for implant-based breast surgery. These results are promising as there are no known measures for preventing this highly morbid complication. Furthermore, as peri-prosthetic capsule formation is a complication without anatomical boundaries, this novel chemistry may have additional applications, including coating of any implanted device.

16. TIME-DEPENDENT FACTORS IN DIEP FLAP BREAST RECONSTRUCTION

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