patient encountered the first two events in one of these sequences, the chance of subsequent RF was 60–70%.

CONCLUSION: Flap necrosis and seroma are niduses for subsequent complications, which tend to occur within a three-week window after these initial events. When a subsequent complication does occur, risk of RF can exceed 60%. Understanding the pedigree of RF may help the surgeon anticipate, surveil for, and manage complications.

Tissue Expander Failure in Breast Reconstruction

Presenter: Rachael M. Payne, BS
Co-Authors: Ricardo J. Bello, MD, MPHL; Charalampos Siotos, MD; Carisa M. Cooney, MPH; Gedge D. Rosson, MD
Affiliation: Johns Hopkins University School of Medicine, Baltimore, MD

INTRODUCTION: Nearly 75% of breast reconstruction procedures performed by ASPS members in 2015 involved tissue expanders. Despite the advantages of expander-based reconstruction, complications are common and can require early removal of the tissue expander. Patient preference and oncologic factors may also prompt unanticipated removal of the tissue expander. We present our experience with tissue expander failures in breast reconstruction patients.

METHODS: After IRB approval, a retrospective review was performed of breast reconstruction patients who underwent early tissue expander removal from January 2009 to November 2015. Data was collected from medical records including the reason for early tissue expander removal. The surgical outcome was described as continuing or abandoning breast reconstruction after tissue expander removal and type of breast reconstruction in patients who proceeded. Wilcoxon rank sum test, Chi-squared test, and multivariable logistic regression were used to identify predictors of continuing breast reconstruction after early tissue expander removal.

RESULTS: A total of 137 patients were included. Mean age was 53 years (range: 26–74 years). Reasons for premature tissue expander removal were infection (51%), patient preference (18%), exposure (8%), oncologic reasons (6%), wound issues (5%), pain (4%), and other (7%). Forty-three percent of patients (95% confidence interval: 34–52%) continued with breast reconstruction. In univariate analysis, factors associated with continuing breast reconstruction included bilateral reconstruction (p=0.009), shorter time with tissue expander (p=0.003), presence of a contralateral tissue expander (p<0.001), younger age (p<0.001), and infection causing expander removal (p<0.001). Of these, infection causing expander removal (p=0.038), younger age (p=0.024), and shorter time with tissue expander (p=0.005) were still significant, independent predictors of continuing reconstruction with multivariable analysis. Successful final reconstruction was achieved with autologous reconstruction in 26 patients (48%), implants in 20 patients (37%), and combination of both in 4 patients (7%). Four patients (7%) failed final reconstruction.

CONCLUSION: Tissue expanders are a key feature of breast reconstruction. To our knowledge, this is the most comprehensive description of tissue expander failure long-term outcomes to date. Most early tissue expander removals are due to infection and a considerable portion of patients abandon reconstruction. New factors have been identified which may predict patients likely to continue breast reconstruction after early tissue expander removal. Both implant-based and autologous reconstruction may be utilized for successful final reconstruction in these patients.

Device Explantation after Prosthetic Breast Reconstruction: Patient Characteristics and Timeline

Presenter: Cemile Nurdan Ozturk, MD
Co-Authors: Can Ozturk, MD; Allison Soucise, MS; Mary Platek, PhD; Nabiha Ahsan, BS; Mariangela Rivera, MD; Robert Lohman, MD; Wong Moon, MD; Risal Djohan, MD
Affiliation: Roswell Park Cancer Institute, Buffalo, NY
INTRODUCTION: Explantation after prosthetic breast reconstruction may be performed due to various reasons including postoperative complications and patient request. The goals of this study were (1) to characterize a cohort of patients with device explantation after prosthetic breast reconstruction, (2) to perform a time based analysis of explantation, (3) to identify reasons for premature explantation, and (4) to review the bacteriology associated with explanted devices.

METHODS: Retrospective review of a prospectively maintained database was performed to identify patients who underwent two stage prosthetic breast reconstruction with expanders and implants, followed by explantation. Patient characteristics, surgical technique, adjuvant therapies, reason for explantation, postoperative complications, culture data was obtained. Data was analyzed according to timing of explantation (0–30 days, >30 days, after stage I, after stage II).

RESULTS: A total of 55 devices (78% tissue expanders, 22% implants) in 43 patients underwent explantation during the study period. Reasons for explantation was infection (58%), patient request (22%), and wound related complications (20%). Of explants due to patient request, a contralateral explantation due to a complication was the most frequent reason (34%). Majority of explantations occurred after 30 days (62%), and after Stage I (81%). Median days to explantation was 62. No differences were observed when patient characteristics and surgical details were compared in early vs late explant groups. Older age \((p=0.01)\) and high BMI \((p=0.04)\) were found to be significant predictors of explantation for Stage I explantation when compared to Stage II. Among patients who underwent radiation, infection was the most common indication for device removal, with most explants occurring after adjuvant radiation therapy (64%). The most commonly cultured organisms were S.epidermidis \((n=6, 10.9\%)\), S.Aureus \((n=6, 10.9\%)\) and P.aeruginosa \((n=6, 10.9\%)\). Antibiotic resistance was commonly encountered for ampicillin, cefazolin, penicillin, and erythromycin.

CONCLUSION: Infection is the most common reason for explantation after prosthetic breast reconstruction. Patients should be carefully monitored for a prolonged period of time after Stage I, as majority of the explantations occur in this stage but beyond 30 days. For oral treatment, fluoroquinolones and trimethoprim-sulfamethoxazol and; for IV treatment a combination of vancomycin or daptomycin with piperacillin-tazobactam or imipenems/carbapenems appear to be appropriate choices according to our culture and sensitivity results.

CRANIOMAXILLOFACIAL/HEAD & NECK SESSION 1

Altered Brain Functional Connectivity Varies By Form of Craniosynostosis

Presenter: Alexander H. Sun, BS

Co-Authors: Jeffrey Eilbott, Carolyn Chuang, BS; Jenny F. Yang, MD; Eric Brooks, MD; Joel Beckett, MD; Derek M. Steinbacher, MD, DMD; Kevin Pelphrey, PhD; John A. Persing, MD

Affiliation: Yale School of Medicine, New Haven, CT

INTRODUCTION: Recent studies have begun to elucidate the long-term neurocognitive and behavioral sequelae of nonsyndromic craniosynostosis (NSC). With advances in functional MRI (fMRI) techniques with improved statistical rigor, this study seeks to determine if there is neurologic evidence of altered brain connectivity in NSC, and to investigate if these aberrations vary by form of synostosis.

METHODS. Twenty participants (average age 11.6±2.27 years, 15 males) with surgically-treated NSC (10 sagittal (SSO), 5 right unilateral coronal (UCS), 5 metopic (MSO)) were individually matched to controls by age, gender, and handedness. Resting-state fMRI was acquired in a 3T Siemens TIM Trio scanner (Erlangen, Germany). Data was motion-corrected with SPM (University College London) and underwent CSF and WM signal regression. BioImage Suite (Yale School of Medicine) was then used to analyze whole-brain intrinsic connectivity as well as seed-based connectivity for Brodmann Areas (BA) 7, 39 and 40, which are areas of language and visuospatial integration that have been previously implicated. Resulting group-level t-maps were cluster-corrected using nonparametric permutation tests with 5000 permutations in FSL (FMRIB, Oxford, UK).