breast implant, metabolize fatty acid oleic acid present in the breast tissue milieu to oxylipins, one such oxylipin identified from this study is (10S)-hydroxy-(8E)-octadecenoic acid (10-HOME). We hypothesize that immunomodulatory effects of oxylipin 10-HOME produced by biofilm present on the implant could be correlated with BII pathogenesis.

Methods: Capsulectomy and breast implants from clinically indicated procedures for patients requesting prosthetic removal were collected using clinical parameters outlined in previous studies, and questionnaire screened for the commonly reported symptoms associated with BII. Predictive variables included age, diabetes status, comorbidities, nature and duration of implant. Scanning electron microscopy (SEM), Wheat Germ Agglutinin (WGA) and 16SrRNA sequencing were used for bacterial biofilm bacterial identification. 10-HOME was quantitated through targeted and untargeted lipidomic analyses using LC-MS-MS.

Results: Sixty eight Implant, associated capsules and breast tissue specimen were collected for BII (n=46) and two control groups, group I, (non-BII, n=14) patients with breast implants, no BII symptoms. Group II (normal tissue, n = 8), patients without an implant, whose breast tissue was removed due to surgical procedures. Bacterial biofilm was detected through SEM in both BII and non BII cohorts. However, WGA analysis (quantitative analysis) indicated increased abundance of biofilm in the BII cohort (n=7, p=0.0036). 16SrRNA (genomic) sequencing identified increased abundance of Staphylococcus epidermidis (Fisher’s exact test, p<0.001) in the BII group (63.04%) compared to non-BII group (14.3%) and the normal group. The BII group was 9.8 times significantly more likely to have Staphylococcus epidermidis colonization compared to the non-BII group (p=0.003, logistic regression), compared to normal, it is 17.4 times more likely to have Staphylococcus epidermidis (p=0.0021). Elevated levels of 10-HOME BII compared to non-BII samples, (p < 0.0001) were observed through mass spectrometry. Positive correlation was observed between bacterial abundance and concentration of 10-HOME in BII subjects (R2=0.88). Similar correlation was observed in BII subjects with Staphylococcus epidermidis (R2=0.77).

Conclusion: This study investigated the biofilm hypothesis of breast implant illness through a host-pathogen interaction. The breast microenvironment led to formation of biofilm derived 10-HOME from host oleic acid. The study provides the first evidence of a possible correlation between bacterial biofilm and biofilm derived 10-HOME in the context of 10-HOME. In consideration of reports of biofilm association with other metal implants, the findings of this study can possibly explain autoimmune response associated with those implants.

QS10

TOWARD AN OBJECTIVE OUTCOME IN FACIAL REJUVENATION SURGERY: AN EYETRACKING STUDY

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Purpose: The availability of an objective outcome measure for facial reconstructive surgery remains elusive. Evaluations submitted by external raters or by patient self-report are subjective, and may unreliably convey how one is perceived by others. We are interested in observers’ instantaneous responses to the human face. The goal of modern facelift and associated procedures for facial rejuvenation are to achieve subtle differences that lead to the perception of youth and attractiveness, yet the observer cannot pinpoint what exactly have been done to the patient’s face. We explored the visual markers that lead to differential perception of patients before and after facial rejuvenation surgery (high SMAS facelift, neck lift, fat grafting, brow lifts and blepharoplasty).

Methods: 40 images were obtained which portrayed pre and post operative photos of patients who underwent high SMAS facelift, fat grafting, and browlifts and blepharoplasty for facial rejuvenation. Photographs were obtained before and after surgical correction (>3 months postop). 40 observers examined the images while an infrared eye-tracking camera recorded their eye movements. The observers were then asked to rate the image for character attributes (attractiveness, trustworthiness, sociability, healthy, and capability, 1-7 scale, and also estimate the age of the patient).

Results: (i) The surgical intervention was found to decrease observers’ attention to the cervical region, but did not change how other areas are perceived significantly.(ii) The surgical intervention was found to significantly increase the character ratings for all five attributes compared to pre op controls: (sociable 3.53 to 4.18, trustworthy 3.85 to 4.20, attractive 3.34 to 3.3.90, health 4.07 to 4.61, capable 3.91
to 4.43.(iii) Average age estimate of the photos decreased significantly from 54 years (SD 6) to 48.6 years (SD 5.2), with true average age of 57.4 (7.6).

Conclusion: We provide data illustrating a novel and objective technique to evaluate the effect of reconstructive intervention for facial rejuvenation. Consistent with the goals of subtle facial rejuvenation, the observers did not detect any particular areas of difference post operatively, but gain a more favorable impression of the person, and also perceived them as younger by a decade compared to their true age.

QS11
Does the Processing System Matter? A Comparison of Two Filtration Devices in Autologous Fat Grafting for Breast Reconstruction

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Purpose: The use of autologous fat grafting (AFG) is becoming increasingly common as an adjunct to breast reconstruction. However, there is a paucity of data comparing the varying processing devices. The goal of this study is to compare the outcomes of two commercially available AFG processing devices.

Methods: The authors conducted a retrospective review of patients who underwent AFG using dual filter (Puregraft®) or single filter (RevolveTM) processing systems between 2016 and 2019. Propensity score matching was utilized to adjust for confounding. A total of 38 breasts from the Puregraft® group were matched with 38 breasts from the RevolveTM system.

Results: Matching was successful in achieving a similar distribution of baseline characteristics between the two groups. The mean number of AFG sessions was comparable between the two groups (p=0.37) with a similar median total volume (Puregraft®, 159 ml vs. RevolveTM, 130 ml, p=0.23). Complication rates were similar between the two devices (Puregraft®, 26%; RevolveTM, 18%; p=0.47). Patients with at least one complication had higher overall AFG volume (median, 200 vs. 130 ml, p=0.03) and number of sessions (mean, 2.4 vs. 1.8, p=0.009) compared to those without any postoperative complication.

Conclusion: The decision for which processing system to use for autologous fat grafting should be based on surgeon preference as overall complication rates were comparable between two commonly used commercially available systems. Future studies are underway to decipher whether either system has superior graft retention, cosmetic or patient reported outcomes.