more in the subpectoral group ($P = 0.03$). There were no differences in cost for complications, readmissions, or revisions between cohorts. Six (50%) prepectoral patients and 9 (22%) subpectoral patients had ≥1 reoperation ($P = 0.06$). Four (33%) prepectoral patients and 9 (22%) subpectoral patients had ≥1 readmission ($P = 0.42$). Among bilateral reconstructions, the TCR at follow-up was $240,000 for the prepectoral cohort and $220,000 for the subpectoral cohort ($P = 0.19$) The average cost of initial operation was $27,000 more for the prepectoral group ($P < 0.01$), and the average cost of implant exchange was $11,000 more in the subpectoral group ($P = 0.01$). There were no differences in costs for complications, readmissions, or revisions between cohorts. Ten (63%) prepectoral patients and 31 (58%) subpectoral patients had ≥1 reoperation ($P = 0.78$). Two (13%) prepectoral patients and 17 (32%) subpectoral patients had ≥1 readmission ($P = 0.12$). Subpectoral patients trended toward more admissions for pain control following any surgical procedure at 25% versus 6% ($P = 0.11$).

CONCLUSIONS: The costs associated with prepectoral breast reconstruction were not statistically different from subpectoral breast reconstruction at our institution in patients with ≥1-year follow-up. Although trends toward higher costs of total reconstruction were seen in the prepectoral group, these are likely offset by quality of life measures, less invasive nature, and decreased long-term revisions for animation deformity and capsular contracture that have not yet been measured. Longer follow-up may allow a more detailed assessment of any difference in overall cost between these 2 techniques.

Safety of Retrograde Flow of Internal Mammary Vein: A Cadaveric Study and an Anatomical Evidence

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PURPOSE: Internal mammary artery and internal mammary vein (IMV) are one of the most widely used recipient vessels for performing the free autologous tissue-based breast reconstruction. In some cases, however, additional vessels may be required to handle multiple flaps for volume addition, to boost a blood flow for supercharging purposes, or to use the other vessels when an anterograde flow of IMV is obstructed. In these situations, the opposite direction of the internal mammary vessel can be used as a retrograde flow.[1,2] However, there are doubts and concerns about the safety of using this flow.

METHODS AND MATERIALS: Forty sides of the chest from 20 fresh cadavers with intact thoracic cage and IMV were used for the study. The numbers and location of the IMV valves were checked, and the location of starting vein bifurcation was also confirmed. Infusion of indocyanine green in the retrograde direction was followed by fluorescent angiography to confirm the direction of flow. Additional flow using saline infusion was checked to verify the flow in the opposite vein over the sternum.

RESULTS: Twenty-eight valves were identified in 40 sides of the chest, and an average of 0.7 valves per each side of the chest was identified. Twenty-three (82.1%) valves out of 28 were located above the second intercostal space (ICS). The bifurcation the IMV most commonly occurred at third ICS (18/41, 43.9%), followed by second (9/41, 22%), fourth (8/41, 19.5%), and first (4/41, 9.8%) ICS. The average number of communicating veins between the 2 veins after branching was 1.76 numbers. Indocyanine green fluorescent angiography proved that the retrograde flow was shown to the caudal direction through the bypass. A large amount of the retrograde flow was drained to each level of the intercostal veins and the opposite IMV cross over the caudal border of the sternum around the xiphoid.

CONCLUSION: IMV valves are located concentrically above second costal cartilage level even though 0.7 IMV valves of each side of the chests were confirmed. Based on these results, it is highly unlikely the retrograde flow to be disturbed by the valve because the level of the retrograde anastomosis would be used below the second ICS. Furthermore, vein starts to make the bifurcation below the second or third ICS which having the 1.76 average number of communicating veins. It will allow keeping the flow if the valve interferes. The bypass flows into the intercostal vein, and the sternal vein through crossing the xiphoid is also possible. In conclusion, IMV retrograde flow is considered safe.

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Oncologic Safety and Surveillance of Autologous Fat Grafting Following Breast Conservation Therapy: A Matched Control Study

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BACKGROUND: Autologous fat grafting (AFG) has become an increasingly popular adjunct following breast reconstruction. The impact of AFG on oncologic safety and surveillance remains questionable in breast conservation therapy (BCT). The purpose of this retrospective study was to compare oncologic outcomes of delayed AFG in the setting of BCT (lumpectomy with radiation) to a matched cohort of BCT patients not reconstructed with AFG.

METHODS: The authors retrospectively reviewed a prospectively maintained database for patients who underwent delayed AFG following BCT between 2006 and 2016. A control group of patients with BCT, but not AFG, was identified with similar cancer stage, age, body mass index, and length of follow-up. All patients had follow-up visits and imaging at regular intervals at our institution. The primary outcome of interest was locoregional recurrence (LRR). Secondary outcomes included postoperative complications such as palpable mass, fat necrosis, calcifications, and oncologic surveillance.

RESULTS: Seventy-two patients were identified per cohort (BCT versus BCT + AFG). There were no differences in median age (50 versus 51 years; $P = 0.87$), body mass index (28.2 versus 27.2 kg/m^2; $P = 0.38$), or length of follow-up (61.9 versus 66.8 months; $P = 0.144$) between BCT and BCT + AFG patients, respectively. Overall, 4 patients in each cohort experienced LRR (5.6%; $P = 1.00$) with similar cumulative incidence estimates observed (log-rank test $P = 0.534$). There were no significant differences in postoperative palpable mass (9.7% versus 19.4; $P = 0.1$), fat necrosis (34.7% versus 33.3%; $P = 0.86$), calcifications on mammogram (37.5% versus 34.7%; $P = 0.73$), or indication for breast biopsy (15.3 versus 22.2; $P = 0.23$) between BCT and BCT + AFG cohorts, respectively.

CONCLUSIONS: Overall, we found no differences in LRR in BCT patients with or without delayed AFG. Furthermore, there was no difference in the rates of fat necrosis, palpable mass, and abnormal radiographic findings. Biopsy rates were similar between the groups. This study represents the largest matched comparative cohort of AFG in BCT demonstrating oncologic safety and no interference with follow-up surveillance.

Establishing Institution-specific Normative Data for the BREAST-Q Reconstruction Module: A Prospective Study

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BACKGROUND: The BREAST-Q has been used extensively to assess patient-reported breast surgery outcomes; however, breast satisfaction in a general female population is relatively unknown, and prior research in the army of women (AoW) did not reflect the general US population or our community.[1] We sought to assess breast satisfaction in a cohort of female participants more representative of the general US population and of our patient population at Johns Hopkins (JH).

METHODS: This is a single-center, cross-sectional, patient-reported outcomes study. A preoperative BREAST-Q reconstruction module and demographic form were administered to 300 female participants who presented for gynecology appointments (JH population). Eligible patients were women with no history of breast cancer or breast surgery and were not pregnant. We assessed participant-related factors capable of influencing BREAST-Q scores using linear multivariate regression analysis and compared JH population demographics to the AoW study population and the US Census Bureau data using the independent *t* test and Pearson's chi-square test. JH population mean BREAST-Q scores were compared to AoW using the minimal important difference (MID) to establish clinical significance.[2,3]

RESULTS: Increasing body mass index had a significant association with lower Satisfaction with Breast and lower Psychosocial Well-being scores. Increasing participant age was associated with significantly lower Sexual Well-being scores. African American participants had significantly higher scores for Satisfaction with Breasts, Psychosocial Well-being, and Sexual Well-being compared to white participants. Participants with bra cup sizes A, B, C, and DD had significantly higher Sexual Well-being scores than sizes less than A; bra cup sizes A, B, and C were associated with significantly higher Physical Well-being Chest scores than sizes less than A. Study participant*s* reported lower Physical Well-being Chest scores, but higher Physical Well-being Abdomen scores than the AoW members. After comparing MID, Physical Well-being Chest scores were clinically significantly lower in our study participants compared to AoW members (MID >1). All other BREAST-Q domains had a MID <1.

CONCLUSIONS: We found associations between BREAST-Q scores and body mass index, age, race, and