Autologous Breast Reconstruction in the Post-Bariatric Patient Population

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Purpose:
Over 175,000 Americans underwent bariatric surgery in 2013 alone, and the number of patients with massive weight loss is growing at an astonishing rate. As obesity is a known risk factor for breast cancer, and there are an increasing amount of post-bariatric surgery patients being diagnosed with malignancy, plastic surgeons are now being challenged to reconstruct the breasts of massive weight loss patients after oncologic resection. The goal of this study is to assess the outcomes of autologous breast reconstruction in post-bariatric surgery patients at a single institution.

Methods:
Patients who underwent autologous breast reconstruction with a history of bariatric surgery were identified and compared to patients who underwent autologous reconstruction without a history of bariatric surgery. Analysis included age, ethnicity, BMI, comorbidities, flap type, operative complications, and reoperation rates. Propensity matched analysis was also conducted to control for preoperative differences.

Results:
Fourteen women underwent breast reconstruction following bariatric surgery, compared against 1,012 controls. Table 1 demonstrates demographic comparisons. Outcomes analysis revealed significant differences in breast revisions (p=0.0055), implant placements (p=0.0003), and total OR visits (p=0.0007). Of note, there was no significant difference noted in delayed healing of the breast (p=0.087) or at the donor site (p=1). Table 2 compiles complete outcomes analysis.

Conclusions:
As the rise in bariatric surgery mirrors that of obesity, an increasing amount of massive weight loss patients undergo treatment for breast cancer. We present the largest review of postoperative outcomes in autologous breast reconstruction in the post-bariatric patient. Our findings highlight profound differences in this patient population, particularly the amount of operative revisions required. This large difference in revisions is not completely accounted for by differences in complication rates, and remains significant despite propensity matching for preoperative differences. This could indicate a major difference in post-reconstruction rates of satisfaction resulting in a higher likelihood to return to the operating room, or a true difference in healing that is not captured by deficiencies noted preoperatively.

Legends:
Table 1: Preoperative demographics identify our patient cohorts and highlight comorbidities.
Table 2: Outcomes analysis demonstrates the significant differences in rates of revision, implant/expander placement, and total OR visits.

Table 1. Comparison of preoperative patient characteristics for those with and without a history of bariatric surgery before breast reconstruction

	With	Without	*p*
Total patients, n	14	1012	
BMI at Breast Reconstruction (kg/m^2), x̄ (±SD)	32.67 (±5.91)	28.43 (±5.90)	***0.0076***
Age at Breast Reconstruction (years), x̄ (±SD)	50.99	50.83 (±9.08)	*0.762*

	(±7.58)		
Ethnicity, n (%)			*0.073*
African-American	4 (28.6)	144 (14.2)	
Asian	0 (0)	16 (1.6)	
Caucasian	8 (57.1)	748 (73.9)	
Hispanic	1 (7.1)	19 (1.9)	
Other	1 (7.1)	17 (1.7)	
Smoking, n (%)			*0.668*
Current	2 (14.2)	114 (11.3)	
Never	7 (50.0)	594 (58.7)	
Quit	5 (35.7)	298 (29.4)	
ASA Physical Status, n (%)			*1.00*
1	0 (0)	33 (3.3)	
2	11 (78.6)	728 (71.9)	
3	2 (14.3)	166 (16.4)	
Hypertension, n (%)	6 (42.9)	258 (25.4)	*0.213*
Diabetes Mellitus, n (%)	1 (7.1)	66 (6.5)	*0.616*
Coronary Artery Disease, n (%)	0 (0)	11 (1.1)	*1.00*
Peripheral Vascular Disease, n (%)	0 (0)	8 (0.8)	*1.00*
Dyslipidemia, n (%)	4 (28.6)	185 (18.3)	*0.306*
COPD, n (%)	0 (0)	13 (1.3)	*1.00*
Preoperative Chemotherapy, n (%)	5 (35.7)	429 (42.4)	*0.787*
Ipsilateral Preoperative Radiation, n (%)	3 (21.4)	300 (29.6)	*0.573*
Contralateral Preoperative Radiation, n (%)	1 (7.1)	46 (4.5)	*0.544*

ASA, American Society of Anesthesiologists

Table 2. Intraoperative and postoperative outcomes comparisons between patients with and without a history of bariatric surgery before breast reconstruction

	With	Without	*p*
Total patients, n	14	1012	
Bilateral Reconstruction, n (%)	12 (85.7)	560 (55.3)	***0.028***
Ipsilateral Flap Type, n (%)			***0.005***
DIEP	1 (7.1)	242 (23.9)	
GAP	0 (0)	20 (2.0)	
SIEA	3 (21.4)	68 (6.7)	
TRAM	8 (57.1)	667 (65.9)	
TUG	2 (14.3)	10 (1.0)	
Contralateral Flap Type, n (%)			*0.066*
DIEP	3 (25.0)	131 (23.4)	
SIEA	2 (16.7)	34 (6.1)	
TRAM	6 (50.0)	386 (68.9)	
TUG	1 (8.3)	8 (1.4)	
Fat Necrosis, n (%)	3 (21.4)	100 (9.9)	*0.159*
Delayed Healing – Donor Site, n (%)	2 (14.3)	160 (15.8)	*1.00*
†Delayed Healing – Breast, n (%)	8 (57.4)	341 (33.7)	*0.087*
†OR-Based Breast Revisions*, x̄ (±SD)	1.35 (±1.15)	0.61 (± 0.50)	***0.0055***
†OR-Based Implant/Expander Placements*, x̄ (±SD)	0.42 (±0.76)	0.08 (±0.41)	***0.0003***
†Total OR Visits*, x̄ (±SD)	2.78 (±1.36)	1.67 (±0.90)	***0.0007***