this setting. The purpose of this study was to compare the clinical outcomes of prepectoral versus subpectoral 2-stage implant-based breast reconstruction in patients undergoing adjuvant XRT.

METHODS: We conducted a retrospective review of all consecutive 2-stage implant-based breast reconstructions performed at our institution during a 22-month period from September 2016 to July 2018, with a minimum follow-up of 10 months. Patients who received adjuvant XRT were identified, and 2 cohorts were created: those who underwent prepectoral versus subpectoral breast reconstruction. We collected data including patient demographics, operative variables, and clinical outcomes. Univariate analyses and multivariate logistic regression were conducted, with statistical significance set as $P < 0.05$.

RESULTS: We captured 313 patients, or 492 breasts, who had undergone 2-stage reconstruction. Of those, 69 breasts received adjuvant XRT. Twenty-eight were reconstructed prepectorally, and 41 breasts subpectorally. The 2 cohorts were well matched, with no differences in age, body mass index, smoking, mastectomy location, need for lymph node biopsy, mastectomy specimen weight, or use of incisional wound vacuum ($P > 0.05$). The prepectoral cohort had a higher rate of diabetes (14.3% versus 0.0%, $P = 0.02$). We detected no differences in clinical outcomes between the 2 groups (prepectoral versus subpectoral, $P > 0.05$), including rate of return to the operating room (OR), capsular contracture, explantation, necrosis of the nipple or skin, infection, hematoma, seroma, dehiscence, or readmission. There, however, were differences in certain perioperative variables. Prepectoral reconstruction was associated with a shorter time in the OR (257.0 versus 325.6 minutes; $P = 0.006$), shorter length of stay (1.0 versus 1.4 days; $P = 0.02$), higher cost ($28391.7 versus $23316.7; P = 0.03$), and shorter time to final reconstruction (320.2 versus 422.7 days; $P = 0.04$). Multivariate logistic regression demonstrated that prepectoral reconstruction does not predict likelihood of developing a complication (odds ratio, 0.63; CI, 0.21–1.83; $P > 0.05$).

CONCLUSIONS: We found that prepectoral reconstruction is safe in the setting of adjuvant XRT, with similar rates of all complications as compared with subpectoral reconstruction. To our knowledge, this is the largest cohort of radiated prepectoral 2-stage breast reconstructions to be studied. Although radiation is a known risk factor for all complications following breast reconstruction, we did not find device location to influence complication rate in this high-risk population. Importantly, although rate of capsular contracture is reported to be higher in the general prepectoral population, we did not find this to be true in our radiated population. Prepectoral reconstruction is associated with higher OR cost; however, this cost may be recuperated with the overall shorter length of stay. Aesthetic outcomes were not considered but will be studied prospectively in future studies.

A Quantitative Analysis of Inframammary Fold Position Changes With Radiation After Tissue Expander Placement and Exchange

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BACKGROUND: Postmastectomy radiation therapy has well-defined ill effects on the character of the skin envelope of the breast, most directly causing contraction and elevation of the breast, especially at the inframammary fold (IMF). These effects negatively impact breast symmetry, overall aesthetic outcomes, and patient satisfaction. Though radiation-induced skin changes have been qualitatively described, quantitative changes to the position of the IMF due to radiation have not yet been described. Despite maneuvers to lower the fold when postmastectomy radiation therapy is expected, the reoperation rates have been reported as high as 28%. Delineating numerical values may allow more specific intraoperative adjustments to better approximate the IMF to the pretreatment level. Herein we discuss our analysis of the effect of radiation on IMF position in patients who underwent expander placement and subsequent radiation.

METHODS: Patients who underwent breast reconstruction with tissue expanders from January 2015 to October 2019 at UCLA by four attending surgeons were reviewed. Operative reports were reviewed and indicated disruption of the IMF in all patients during mastectomies, requiring resetting of the IMF with suture. Patient inclusion criteria required that patients have corresponding sets of pictures at three timepoints: (1) preoperative (before mastectomy), (2) postoperative (after tissue expander placement and before radiation), and (3) postradiation (before exchange to permanent.
 Photographs were retrospectively analyzed by a single surgeon. In the lateral view, the distance from the acromion to IMF was measured, compared with acromion to elbow, and recorded as a ratio to allow for variation of photographic focal length differences. Changes in IMF from pre- to postradiation were measured as a percentage change.

RESULTS: Fifteen patients with appropriate photos over the past year were analyzed of which 10 had pictures at all three timepoints, and 5 had only the last 2 timepoints and were excluded. All operative reports were reviewed verifying that the IMF was disrupted after mastectomy in all group. Fourteen had unilateral radiation and 1 had bilateral radiation, thus 16 breasts were reviewed separately. For the 10 patients with preoperative photos, the IMF ratio from timepoints 1–3 (preoperative to postradiation) was −12.5% ± 5.2%, indicating a significant elevation of the IMF following radiation.

CONCLUSIONS: Inframammary position after tissue expander placement and radiation reliably elevates approximately 12% above the position of the preoperative fold. This study is the first of its kind to quantitatively measure radiation change elevation on the IMF in tissue expander reconstructions. This finding may be a useful guide for setting the IMF at the time of tissue expander placement and avoid need for the second stage fold lowering at the time of implant exchange.

Improvment in Quality of Life Following Breast Reconstruction in Patients With Stage IV Metastatic Breast Cancer

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PURPOSE: Metastatic breast cancer makes up approximately 6% of all newly diagnosed breast cancer, but with enhancements in treatment options, more patients with advanced disease are living longer. Although more advanced staged patients are undergoing breast reconstruction, there are few published reports on the benefits and risks of reconstruction in the setting of metastatic breast cancer. Such investigations are important in light of the potential impact of adjuvant cancer therapies on surgical complications and postreconstruction quality of life. In this study, we assessed patient-reported outcomes (PROs) and risks of mastectomy reconstruction in patients with Stage IV breast cancer.

METHODS AND MATERIALS: This study utilized the Mastectomy Reconstruction Outcomes Consortium data set, which prospectively collected data from 11 institutions from 2012 to 2015. Patient characteristics by groups and complications were analyzed using chi-square tests and/or independent t tests as appropriate. Single factor linear mixed models were used to account for hospital-level clustering and to compare groups for satisfaction with breast, psychosocial well-being, and sexual well-being using the Breast-Q at baseline (prereconstruction) and 2 years post reconstruction.

RESULTS: There were 26 Mastectomy Reconstruction Outcomes Consortium patients with Stage IV breast cancer and 2613 with Stage I–III disease (controls). There were no differences between the cohorts for mean age (control 50.1 ± 9.9 versus 48.8 ± 10.4 in the metastatic group), body mass index, smoking status, race, ethnicity, income, marital status, or employment. There was no significant difference in radiation between groups, but there were significant differences in receipt of chemotherapy and in surgical evaluation of lymph node status. We evaluated PROs at baseline and 2 years. We found that metastatic patients had significantly lower baseline scores for satisfaction with breast (46.39 versus 58.50; \( P < 0.005 \)), psychosocial well-being (61.28 versus 68.27; \( P < 0.05 \)), and sexual well-being (38.16 versus 53.08; \( P < 0.001 \)). Interestingly, at 2 years post reconstruction, there were no significant differences in scores between Stage IV and Stage I–III patients. Finally, evaluation of any (all) and major (requiring reoperation or rehospitalization) complications demonstrated no difference between the control and metastatic cohort.

CONCLUSIONS: With improvements in treatment, patients with metastatic breast cancer are living longer, and more of them are undergoing breast reconstruction. We found that patients with Stage IV disease reported significant improvements in satisfaction with breast, psychosocial well-being, and sexual well-being, with 2-year PRO scores comparable to those of women with nonmetastatic disease. Furthermore, disease stage had no significant effects on risks of complications. Although this study has some limitations (ie, small sample size, possibility of confounding), we believe these data support the important role of breast reconstruction women with metastatic breast cancer.