

INTRODUCTION: Use of Alloderm for infero-lateral tissue expander coverage in expander-implant breast reconstruction with subpectoral expander placement is popular in immediate breast reconstruction. However, the outcomes of this approach after total skin-sparing mastectomy have not been well-documented, nor has a strategy for optimal case selection for Alloderm use been well-defined.

METHODS: Patient, tumor, and treatment characteristics, as well as post-operative complications, were reviewed in three cohorts of patients who underwent total skin-sparing mastectomy and immediate expander-implant breast reconstruction from 2006-2010 at our institution. Cohort 1 ("No Alloderm") comprised 59 consecutive patients who did not have Alloderm placed. Cohort 2 ("Consecutive Alloderm") comprised the next 65 consecutive patients, who all received Alloderm. The final cohort, Cohort 3 ("Selective Alloderm"), comprised the next 159 consecutive patients, who had Alloderm selectively placed based on intra-operative assessment of mastectomy skin flap thickness by the plastic surgeon. Proportions between cohorts were compared by chi-square analysis using STATA 10.

RESULTS: A total of 283 patients (444 breasts) underwent reconstruction during the study period. Mean follow-up was 23.7 months. Patient and treatment characteristics, including age, BMI, medical co-morbidities, smoking status, post-operative radiation therapy, and systemic therapy were not significantly different between the three cohorts. Overall, 23% of patients had post-mastectomy radiation therapy, 34% had neoadjuvant chemotherapy, and 20% had adjuvant chemotherapy. The incidence of post-operative infection requiring admission for intravenous antibiotics was 15.3% for the No Alloderm cohort, 9.9% for the Consecutive Alloderm cohort, and 11.2% for the Selective Alloderm cohort ($p = 0.048$). Unplanned return to the operating room was necessary in 22.3%, 11.9%, and 9.7% of patients, respectively ($p = 0.009$). Expander/implant loss occurred in 8.2%, 4%, and 5.8% of patients, respectively ($p = 0.007$).

CONCLUSIONS: The use of Alloderm in immediate expander-implant reconstruction after total skin-sparing mastectomy reduced the incidence of major post-operative complications in this study. Selective use of Alloderm conferred the same benefit as use in all patients with resultant optimization of patient outcomes and cost-effective care.