Positive Impact of Meshing Autogenous Dermal Matrix (ADM) on Pain, Length of Stay and Length of Time Required for Post-Operative Drains in Tissue Expander Based Breast Reconstruction

Sarah E Hagarty, BS, MD, Lawrence Yen, BS, Christopher Fosco, MD, Manorama Khare, PhD.

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Introduction: Seroma rates when ADM is used in tissue expander based breast reconstruction have been of concern. [1,2,3.] The impact of fenestrating and perforating various ADMs has been studied. [4,5] We tested a simple and reproducible method to mesh ADM. We hypothesized this would have a positive impact on postoperative drainage.

Materials and Methods: Thin Alloderm® was meshed with either a Brennan® or Zimmer® device for expander based reconstruction in a single surgeon practice over 2 years. This cohort was compared to a previous cohort, with unmeshed ADM. Drain times, length of stay (LOS), parenteral narcotic usage (mg morphine), and complication rates were compared: 36 meshed versus 116 unmeshed breasts, 19 and 84 patients respectively. T-test and Levine's test for equality of variances were employed. Outcomes in the two groups were analyzed, controlling for variables: diabetes, hypertension, smoking status, BMI, expander size, fill volume, and prior radiation therapy. Follow up was 2 and 8 years respectively.

Results: In bivariate analysis, mean time for drain removal was 18(+/-5) days in meshed, versus 29(+/-19) days unmeshed, ($p < 0.001$). Parenteral narcotic use decreased in the meshed group, (6.8 versus 29 mg morphine, $p < 0.002$), with no difference in intraoperative fill volumes. LOS decreased from 1.8 to 1.1 days, ($p<0.002$). Complication rates were not significantly different. Minor complications trended lower (13.9 % meshed versus 27.4%, $p=0.09$). Major complication rates (8.3% meshed versus 4.8%) were not significantly different, ($p=0.42$). Prior radiation was higher in the meshed group (21% versus 2%). The major complication rate trended lower (0% versus 4.8%), when discounting prior radiation.

Conclusions: We present a novel, and easily reproducible technique to manipulate ADM, resulting in a significant decrease in time for drains, use of parenteral narcotics, and length of stay. Further statistical analysis is pending with a larger cohort to determine if differences in complication rates will reach statistical significance.

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