

# **Association between ADM Thickness and Complication Risks in Tissue Expander Breast Reconstruction**

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## **BACKGROUND**

Tissue-expander breast reconstruction (TEBR) is a common method of post-mastectomy reconstruction. The use of acellular dermal matrix (ADMs) during this procedure allows implants to be better supported and placed in the prepectoral plane. One of the factors to consider during the process of reconstruction is ADM selection – surgeons have many options to choose from, all with different specifications. Though work has been done in comparing ADM brands, there is a paucity of data regarding the importance of ADM thickness. In this study, we examine the association of ADM thickness with complications in TEBR.

## **METHODS**

Our study retrospectively reviews patients undergoing TEBR with ADM, grouped by ADM thickness: 0.53mm – 1.2mm (Group 1) versus greater than 1.2mm (Group 2). Patients undergoing delayed or autologous reconstruction, or TEBR without ADM, were excluded.

## **RESULTS**

228 reconstructions (137 patients) were included in the study; Group 1 included 134 reconstructions, Group 2 included 94 reconstructions. Group 2 had a higher rate of diabetes mellitus II than Group 1 (0% vs 7.1%,  $p=.016$ ). Logistic regression did not reveal this to increase the likelihood of any complication studied. There was otherwise no significant difference in demographics or comorbidities between the two groups.

Comparison of complications between reconstructed breasts in Group 1 versus Group 2 revealed significantly increased rates of skin necrosis (3.0% versus 10.6%,  $p=.018$ ) in Group 2. Rates of infection were also increased among Group 2 (10.4% vs 18.1%,  $p=.098$ ) which approached

significance. There was no difference in reconstructive failure, conversion to autologous reconstruction, seroma, wound dehiscence, hematoma, or fat necrosis between the two groups.

## **CONCLUSION**

To date, this study represents the largest analysis of the effect of ADM thickness on complications after TEBR. Thicker ADMs were significantly correlated with increased rates of skin necrosis, though there may not likely be a direct causality in this relationship. The increased infection rate, though not significant, may be caused by the potential for the ADM to act as a nidus for infection as well as prolonged time of thicker ADM incorporation and neovascularization. Our results, similar to previous studies conducted on smaller patient samples (1), show that ADM thickness does indeed play a role in complication rates, and selection of ADM should be conducted carefully.

## **REFERENCES**

- Rose JF, Zafar SN, Ellsworth Iv WA. Does Acellular Dermal Matrix Thickness Affect Complication Rate in Tissue Expander Based Breast Reconstruction?. *Plast Surg Int.* 2016;2016:2867097. doi:10.1155/2016/2867097