

Acellular Dermal Matrix And Prepectoral Two-stage Breast Reconstruction: A Cohort Analysis Of Alloderm, FlexHD And SurgiMend

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Purpose

- To determine the impact of acellular dermal matrix (ADM) type on early complications after prepectoral breast reconstruction with tissue expanders.

Background

- ADM is frequently used in prepectoral breast reconstruction.
- ADMs have differences in source and processing methods, which may impact clinical outcomes.
- Few studies have examined role of ADM type on complications in prepectoral reconstruction.

Methods

- Retrospective review** of two-stage prepectoral breast reconstruction with ADM patients at Memorial Sloan Kettering Cancer Center from 1/2018 to 12/2021.
- Primary outcome:** Tissue expander loss
- Secondary outcomes:** Seroma, mastectomy skin flap necrosis, hematoma, TE exposure, TE malposition/rotation, overall complications

Results

- 726 patients** (Alloderm: 115, SurgiMend: 554, FlexHD: 57)
- 1054 TEs** (Alloderm: 194, SurgiMend: 767, FlexHD: 93)
- Cohorts were similar in terms of age, race, comorbidities, radiation, chemotherapy, laterality, and axillary lymph node dissection
- Cohorts differed in terms of nipple-sparing mastectomy, use of perforated ADM, and ADM size

Complication	Alloderm (194 TEs)	SurgiMend (767 TEs)	FlexHD (93 TEs)	p-value
Seroma	23 (11.9%)	64 (8.3%)	4 (4.3%)	0.089
Mastectomy skin flap necrosis	5 (2.6%)	31 (4.0%)	4 (4.3%)	0.589
Hematoma	3 (1.5%)	20 (2.6%)	0 (0.0%)	0.251
TE Infection /Cellulitis	11 (5.7%)	66 (8.6%)	3 (3.2%)	0.111
TE Exposure	3 (1.5%)	15 (2.0%)	1 (1.1%)	1.000
TE Malposition or Rotation	3 (1.5%)	11 (1.4%)	1 (1.1%)	1.000
TE Loss	8 (4.1%)	28 (3.7%)	3 (3.2%)	0.483
Complications, overall	41 (21.1%)	170 (22.2%)	10 (10.8%)	0.030



Comparison	Odds Ratio (95% CI)	p-value
Alloderm v FlexHD	2.219 (1.0266, 5.229)	0.03265
Alloderm v SurgiMend	0.941 (0.624,1.398)	0.8461
FlexHD v SurgiMend	0.423 (0.192, 0.842)	0.00992

Outcome Variable	Odds Ratio (95% CI)	p-value
Overall complications		
Alloderm	Reference	-
FlexHD	0.489 (0.231, 1.035)	0.062
SurgiMend	1.117 (0.755, 1.652)	0.580
TE loss		
Alloderm	Reference	-
FlexHD	0.732 (0.184, 2.915)	0.658
SurgiMend	0.816 (0.357, 1.867)	0.631

Logistic regression controlling for smoking, diabetes, chemotherapy, radiation, mastectomy type, and axillary lymph node dissection,

Conclusions

- ADM type does not impact risk of TE loss or other early complications after prepectoral breast reconstruction**
- Surgeons should take into consideration other factors (cost, ease-of-use, long-term outcomes) when choosing ADM type**
- Limitations:**
 - Smaller sample size of FlexHD TEs
 - ADMs used during different time points of study period
- Future research:**
 - Examine long-term outcomes (capsular contracture)
 - Prospective study with larger cohort