Abdominal Wall Reinforcement Using Acellular Tissue Matrix After Deep Inferior Epigastric Perforator Flap Harvest for Breast Reconstruction

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Background

- Deep inferior epigastric perforator (DIEP) flap is a common method of autologous breast reconstruction.
- Abdominal complications following DIEP flaps include abdominal wall bulges and hernias.
- Synthetic meshes have been found to decrease bulges by up to 70%,
  - These meshes can lead to seromas, infections, and foreign body responses.
- Reinforced tissue matrix (RTM) mesh is another material that can be used for abdominal wall reinforcement.
  - It can recruit fibroblasts and provide a scaffold for cell proliferation
- This study aimed to evaluate the efficacy and safety of its use in this setting.

Methods

- Retrospective review was performed on all patients undergoing unilateral or bilateral DIEP flap harvest for autologous breast reconstruction between 01/2020-12/2022.
- Patients with at least 6 months of follow up were included .
- RTM used in this study was Ovitex which is a fenestrated xenograft made of four layers of ovine (sheep) extracellular matrix
  - Mesh was placed in the recto-rectus space.
- Patient, cancer, and reconstruction characteristics were collected and analyzed.

Disclosures and References

- We have no financial disclosures of conflicts of interest
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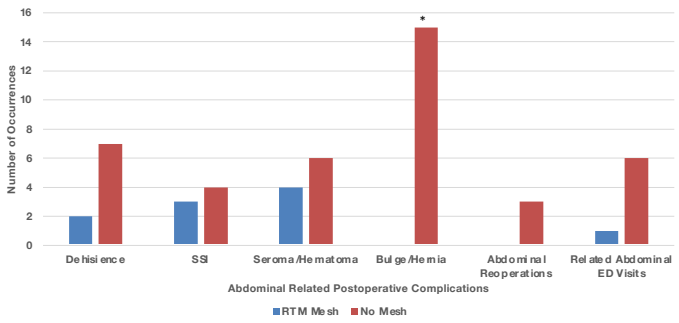
Patient Characteristics and Outcome Variables

Parameter (mean ± SD)	RTM (N = 45)	No Mesh (N = 104)	P-Value
Age	52.0 ± 10.6	50.5 ± 9.5	0.408
BMI	29.0 ± 5.0	30.2 ± 6.1	0.198
CCI	2.7 ± 2.2	2.5 ± 1.4	0.690
Follow up	391.3 ± 151.7	628.6 ± 219.7	<0.001



Complication rates in the RTM and no mesh cohorts
*** Indicates Significance between RTM and no mesh cohorts, P<0.05**

Results

- Total of 152 patients were included
- Abdominal wall reinforcement was completed in 48 (31.58%)
  - 45 (93.75%) received RTM mesh
  - 3 (6.25%) received synthetic mesh
- A bulge or hernia developed in 16 (10.53%) of the 152 patients
  - 15 (14.42%) patients in the no mesh cohort developed a bulge or hernia
  - None of the RTM mesh cohort developed a bulge or hernia (*P*<0.01)
  - 1 (33.33%) of the synthetic mesh cohort developed a bulge or hernia
- RTM mesh cohort developed less seromas/hematomas when compared to synthetic mesh (8.89% *vs* 100%, *P*<0.01)
- RTM mesh cohort did not differ significantly in seroma/hematoma rates when compared to the no-mesh cohort (8.89% *vs* 5.61%, *P*=0.49)

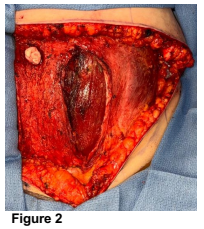


Figure 2
Abdominal wall Defect

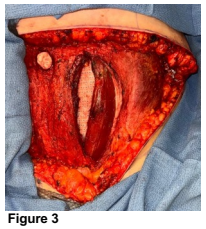


Figure 3
Ovitex Mesh in sublay position

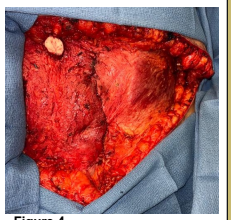


Figure 4
Closure over mesh

Conclusions

- RTM mesh is safe and efficacious in reducing the rate of bulges and hernias following DIEP flap harvest.
- Future work is to increase sample size by an additional 6 months of patients