



Effect of Prophylactic Mesh and Placement Plane on Abdominal Wall Outcomes Following DIEP Flap Reconstruction

Kathryn Borders, BS; Parhom Towfighi, MD; Rachel Danforth, MD; Jason VonDerHaar, MD; Mary Lester, MD; Aladdin H. Hassanein, MD, M.M.Sc.; Ravi Bamba, MD

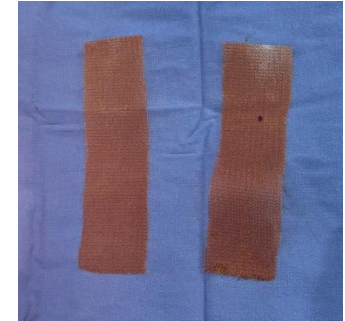
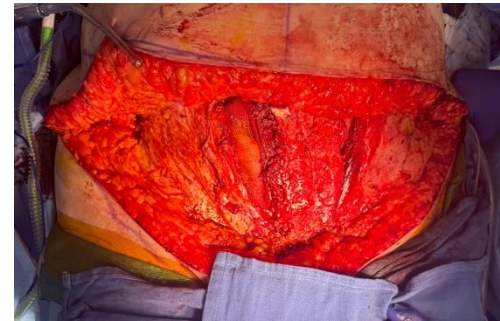
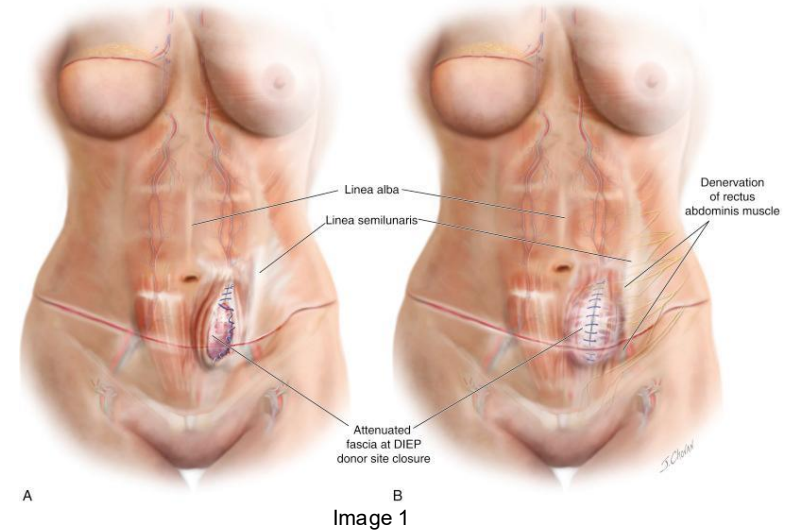
Indiana University Health, Division of Plastic and Reconstructive Surgery

Background and Objective

- Abdominal bulge remains a donor site complication of DIEP flap reconstruction
- Prophylactic mesh placement decreases donor site morbidity
- Optimal plane of mesh placement remains unclear

Objective: Examine abdominal wall outcomes in patients undergoing DIEP flap reconstruction

- With vs without prophylactic mesh
- By mesh placement plane (retrorectus vs overlay)



Methods

- Retrospective review of 250 patients that underwent DIEP flap surgery from 2021-2025
 - Divided into 2 groups: mesh vs no mesh
 - Mesh placement divided by plane: retrorectus vs overlay
- Utilized Phasix™ mesh and Transorb™ mesh
- Primary outcomes measured were rates of hernia and abdominal bulge
- Secondary outcome measured were post-operative complications such as seroma, hematoma, and infection



Results

	Mesh (n = 150)	No Mesh (n = 100)	P value
Age (years)	48.6 ± 2.83	51.5 ± 12.02	0.373
Females (%)	150 (100)	100 (100)	1.00
BMI (kg/m ²)	35.2 ± 1.98	29.3 ± 1.27	0.312
Race (%)			0.374
White	133 (88.6)	81 (81)	-
Black	12 (8)	18 (18)	-
Asian	4 (3)	1 (1)	-
Pacific Islander	1 (0.7)	0 (0)	-
DM (%)	12 (8)	9 (9)	0.780
CKD (%)	3 (2)	1 (1)	0.537
HTN (%)	43 (28.7)	27 (27)	0.774
CAD (%)	1 (0.7)	0 (0)	1.00
CHF (%)	0 (0)	0 (0)	1.00
COPD (%)	0 (0)	0 (0)	1.00
Quadriplegia/Paraplegia (%)	0 (0)	0 (0)	1.00
PVD (%)	2 (1.3)	1 (1)	0.813
Smoking History (%)	2 (1.3)	2 (2)	0.681
Recreational Drug Use (%)	11 (7.3)	7 (7)	0.920
Immunosuppression (neutropenia, chemotherapy) (%)	53 (35.3)	42 (42)	0.287
Connective Tissue Disorder (%)	0 (0)	0 (0)	1.00

Table 1. Demographic and Comorbidities Grouped By Prophylactic Placement of Mesh



Results

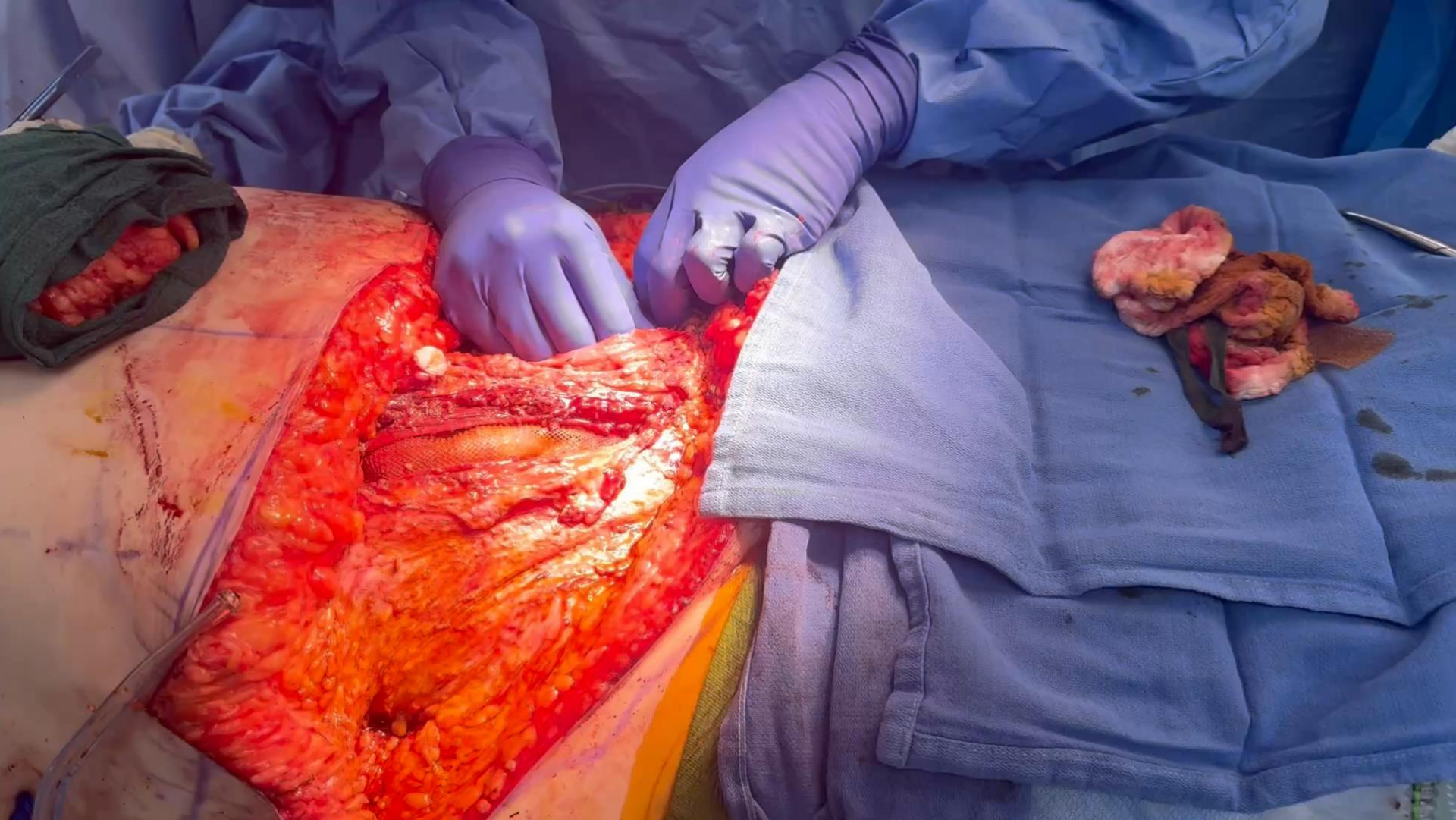
	Mesh (n = 150)	No Mesh (n = 100)	P-Value
Abdominal Bulge	2.7%	9%	0.027

Table 2. Abdominal Bulge Rates in Patients With vs Without Mesh Placed

	Retrorectus (n=81)	Overlay (n=69)	No Mesh (n=100)	P value
Abdominal Bulge	1.2%	4.3%	9%	0.06
Infection	8.6%	8.7%	6%	0.74
Hernia	1.2%	2.9%	5%	0.35

Table 3. Donor site complications stratified by plane of mesh





Conclusions

- Prophylactic mesh placement reduces abdominal bulge after DIEP flap reconstruction
- Retrorectus placement trended toward the lowest bulge rate compared to overlay
- Mesh placement does not increase donor site complications



Limitations/Further Research

- Retrospective nature
- Single institution – selection bias (surgeon's discretion)
- Underpowered to detect statistical significance between tissue planes
- Follow-up duration restricted
- Further direction – compare tissue plane and mesh type, increasing sample size, and allotting more time for follow-up



References

Image 1: Atlas. Repair of Post-TRAM Bulges and Hernias - Clinical Tree. Clinical Tree. Published January 25, 2024. Accessed January 29, 2026. <https://clinicalpub.com/repair-of-posttram-bulges-and-hernias/>

