

Evaluating Mesh Reinforcements in Abdominal Wall Closure During Autologous Breast Reconstruction with Abdominal Free Flaps

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Background/Objective:

Breast cancer is the most common cancer among women, and immediate breast reconstruction at the time of mastectomy has become well accepted. Autologous breast reconstruction uses a woman's own tissue for breast reconstruction, and this technique using abdominal tissue (Deep Inferior Epigastric Artery (DIEP) flap) is increasing in popularity. Abdominal weakness/bulging and hernias are possible complications as a result of dissection of the deep inferior epigastric artery. While rates of abdominal donor site weakness are low, mesh placement in the abdominal wall is becoming more common. The purpose of this study is to compare abdominal wall outcomes in patients who underwent DIEP flaps with and without mesh.

Methods:

A retrospective chart review was conducted on 227 patients who underwent DIEP flap surgery between 2021 and 2025. Patients were grouped by mesh type Poly-L-lactide, poly-trimethylene carbonate copolymer (Transorb™) (n = 29), Poly-4-hydroxybutyrate (Phasix™) (n = 100), and no mesh (n = 98). Demographic data and postoperative complications were collected. Chi-square analysis was used to compare abdominal bulge and hernia incidence between patients with and without mesh placement.

Results:

There was a lack of postoperative complications associated with mesh use, supporting its safety profile. Mesh placement (transorb and phasix) was linked to a lower rate of abdominal bulge formation compared to no mesh placement (3.10% mesh, 9.18% no mesh, p-value = 0.051). There was no statistically significant effect on hernia occurrence across groups (2.33% mesh, 5.10% no mesh, p-value = 0.261).

Conclusion and Clinical Impact:

Mesh use in abdominal wall reinforcement is safe with a low complication rate with use. Patients who had mesh abdominal wall reinforcement after DIEP flaps had a lower incidence of abdominal bulge. When considering abdominal wall closure in abdominally based autologous breast reconstruction, surgeons should consider use of mesh to decrease abdominal wall weakness.