

# Stacked Four Flap Autologous Breast Reconstruction from a Single Abdominal Donor Site

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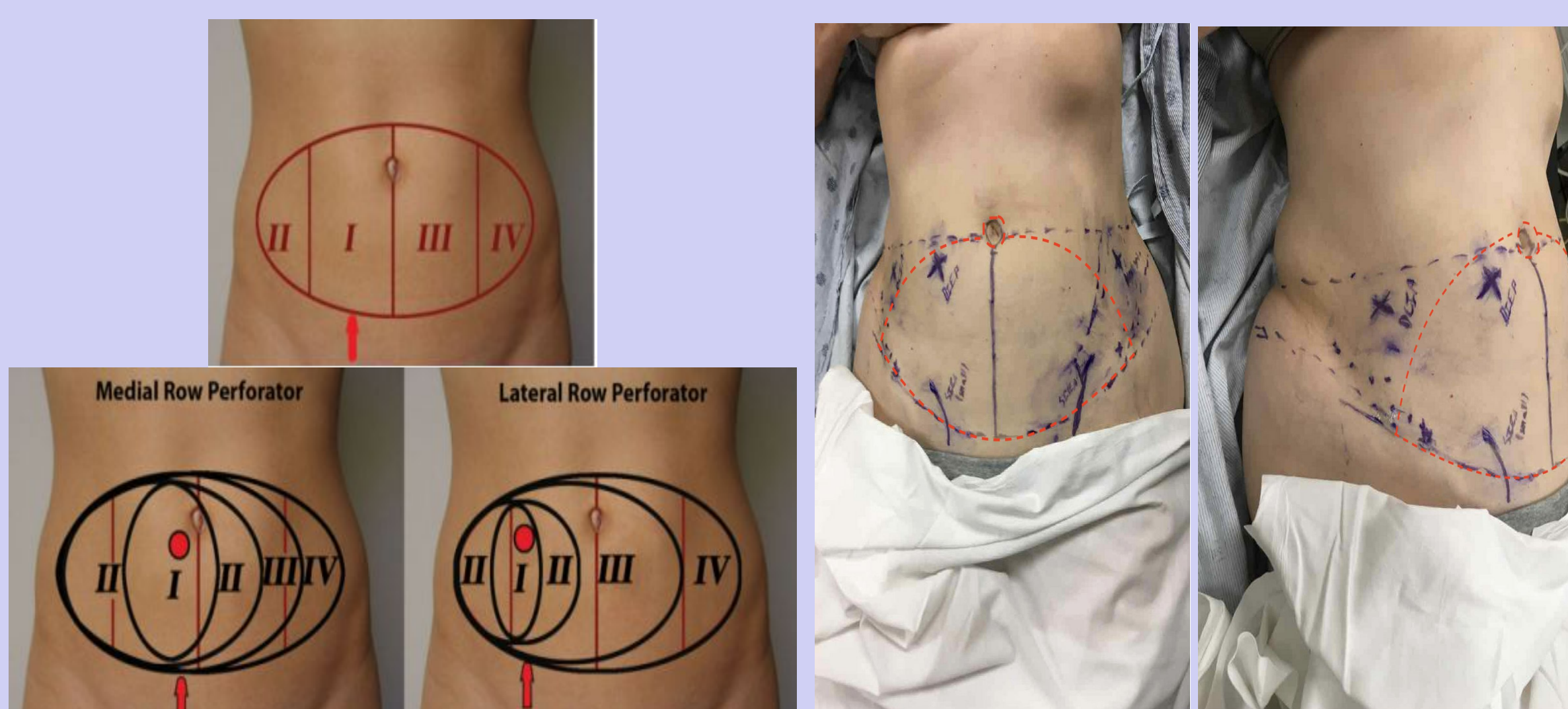
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## Introduction

- The abdominal donor site, typically DIEP (Deep Inferior Epigastric Perforator) flap, is the gold standard in breast reconstruction
- DIEP flap recreates the breast without taking underlying muscle thus maintaining abdominal strength with decreased hernia risk
- Lateral abdominal tissue is less perfused and often discarded in DIEP reconstruction
  - farther distance from perforator = less perfusion tissue
- Patients with insufficient infraumbilical tissue based off typical DIEP angiosome to recreate current breast size requires recruitment of additional tissue
- Additional well-perfused truncal tissue can be achieved by harvesting an abdominal flap from the hemiabdomen based off more lateral blood vessels
  - SIEA (Superficial Inferior Epigastric Artery)
  - DCIA (Deep Circumflex Iliac Artery)
- Retrospective review performed of 3 cases performed using four flaps from single abdominal donor site for bilateral breast reconstruction

## Indications



- An angiosome is a three-dimensional region of tissue that is supplied by a specific artery and its accompanying vessels, including perforators
- Utilization of angiosome-guided vascular planning to incorporate additional vascular contributions from the SIEA or DCIA, can improve blood flow to the flaps thus promoting better healing and reducing the risk of necrosis

## Figures



**Figure 1.**

A. 32-year-old female (BMI 24.3) with grade III left invasive ductal carcinoma in situ s/p bilateral nipple-sparing mastectomy and left SLNB (mastectomy weight: right 459 g; left 474 g) and prepectoral tissue expander placement.

B. Patient s/p bilateral stacked flap breast reconstruction with bilateral DIEP and SIEA free flaps. During flap inset, the bilateral DIEP flaps were positioned superiorly and SIEA free flaps were positioned inferiorly for contralateral breast reconstruction. Final volume: right breast 660 g; left breast 756 g. Procedure length: 9 hours and 6 minutes.



**Figure 2.**

A. 60-year-old female (BMI 24.1) with grade IIb right multifocal breast carcinoma s/p bilateral nipple-sparing mastectomy with right SLNB (mastectomy weight: right 530 g; left 492 g) and prepectoral tissue expander placement, as well as, right adjuvant radiation.

B. Patient 2 weeks s/p breast reconstruction with bilateral DIEP, left SIEA, and right DCIA free flaps anastomosed to contralateral breast. Final volume: right breast 744 g; left breast 686 g. Procedure length: 9 hours and 1 minute.

## Discussion

- Breast reconstruction from abdominal donor site remains the gold standard
- Abdominal four flap reconstruction (using DIEP, SIEA, DCIA) improves transplanted tissue perfusion and volume by incorporating smaller, more vascularized flaps thus likely reduced incidence of fat necrosis
  - Delay phenomena combined with technique improves perforator size and perfusion
- Technique improves flap inset and breast shape
  - DIEP flaps superiorly for upper pole fullness with SIEA/DCIA flaps inferiorly
  - Flaps anastomosed to antegrade and retrograde IMA/IMV (internal mammary artery/vein)
- Technique benefits patients with larger breast and minimal infraumbilical adiposity
  - allows greater region of tissue transfer
- Single donor site minimizes donor site morbidity and preserves alternative donor sites (such as thighs and back)
- Complications: venous congestion in one of sixteen flaps (6.25%), superficial flap infection (33%), abdominal dehiscence (33%), and infected seroma (33%). There was one take-back procedure with successful salvage of the flap. Of note, there were no flap losses
- Limitations: Technically more complex approach with additional anastomoses and less conventional arterial pedicles

## Conclusion

- Stacked four flap bilateral breast reconstruction from abdominal donor site is a viable option in select patient population with relative large breast and/or limited infraumbilical adiposity
- Enables immediate reconstruction with a large volume of tissue, reducing need for the delay phenomenon.
  - Technique can be combined with surgical delay increasing perforator size and flap perfusion
- Enhances symmetry and contour of bilateral breasts with improved inset and shape
- Reduced likelihood of fat necrosis
  - decreased reliance on a single perforator for total transplanted tissue supply