

Ryan D. Hoffman BS¹.; Suma S. Maddox MD.², Anna E. Meade³, Hugo St. Hilaire MD.², Jamie C Zampell MD.⁴, Robert J Allen Sr. MD.²

¹School of Medicine, LSUHSC New Orleans, LA; ² Division of Plastic and Reconstructive Surgery, LSUHSC New Orleans, LA;

³School of Medicine, Tulane University, New Orleans, LA; ⁴Ochsner Medical Center, Jefferson, LA

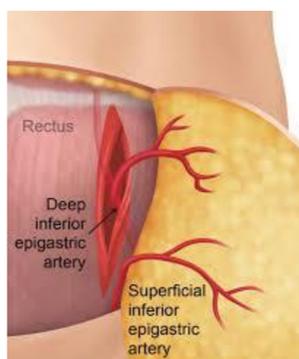
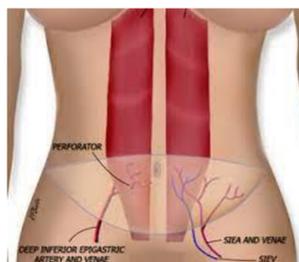
Introduction

The most popular autologous breast reconstruction donor site is the lower abdomen

Compared to the DIEP flap, the SIEA flap allows transfer of lower abdominal tissue without violating the rectus fascia

Traditionally the SIEA can be utilized in single stage reconstruction when the vessel caliber is ≥ 1.5 mm

56-70% of SIEAs are <1.5 mm and therefore cannot reliably support free tissue transfer.

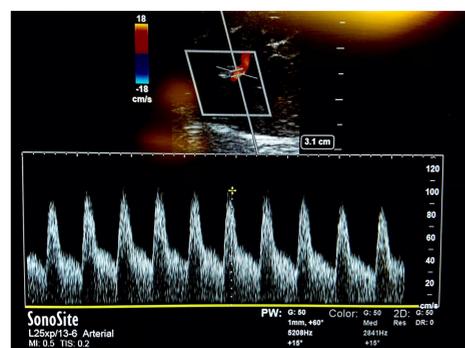
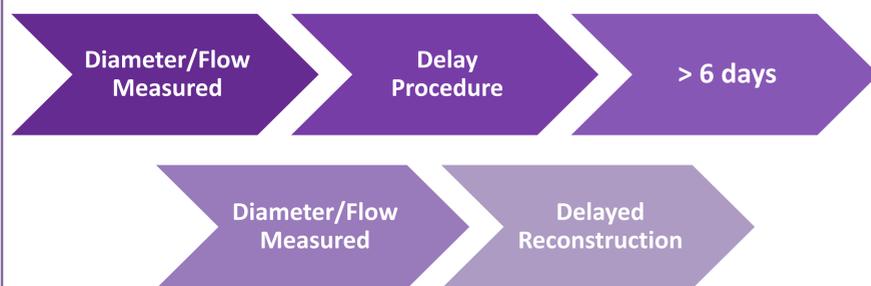


<https://www.microsurgeon.org/Siea>

Hypothesis:

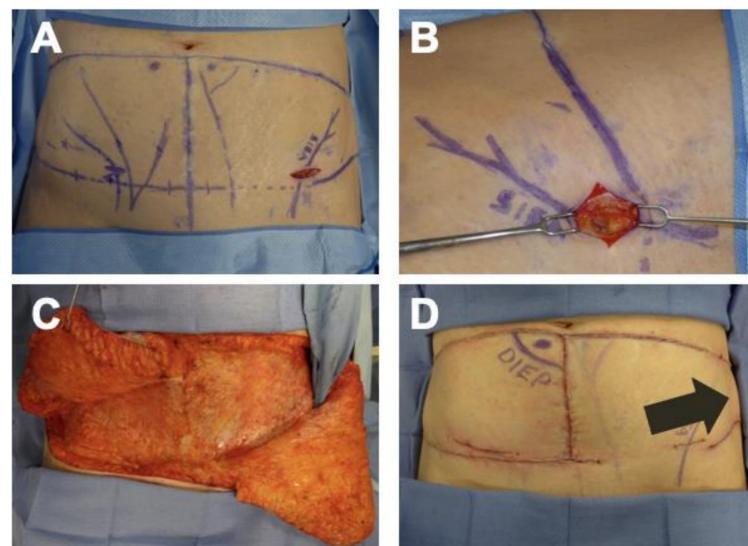
Surgical delay of the SIEA will induce hemodynamic alterations within the flap, increasing SIEA diameter and blood flow

Methods



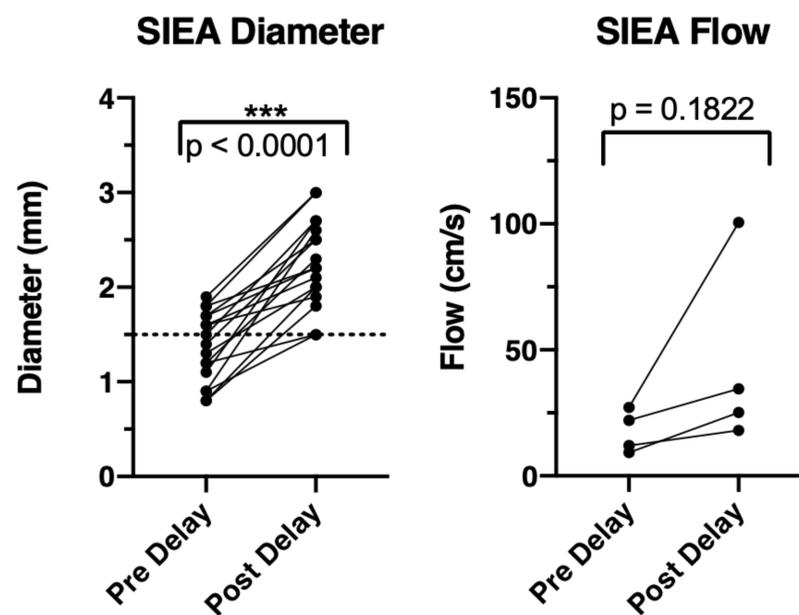
Doppler ultrasound assessment of the SIEA diameter (mm) and peak systolic blood flow velocity (cm/s) at the level of the inferior flap boarder

Methods



Surgical delay procedure of left SIEA flap and right DIEP. A) Preoperative markings of abdominal flap design including the location and course of the SIEA, SIEV, and DIEA perforators B) Incision over SIEA to verify arterial size intraoperatively. C) Elevated left SIEA and right DIEP flaps. D) Skin closure of delayed flaps, note the lateral skin and fascial attachment left during the delay procedure (arrow).

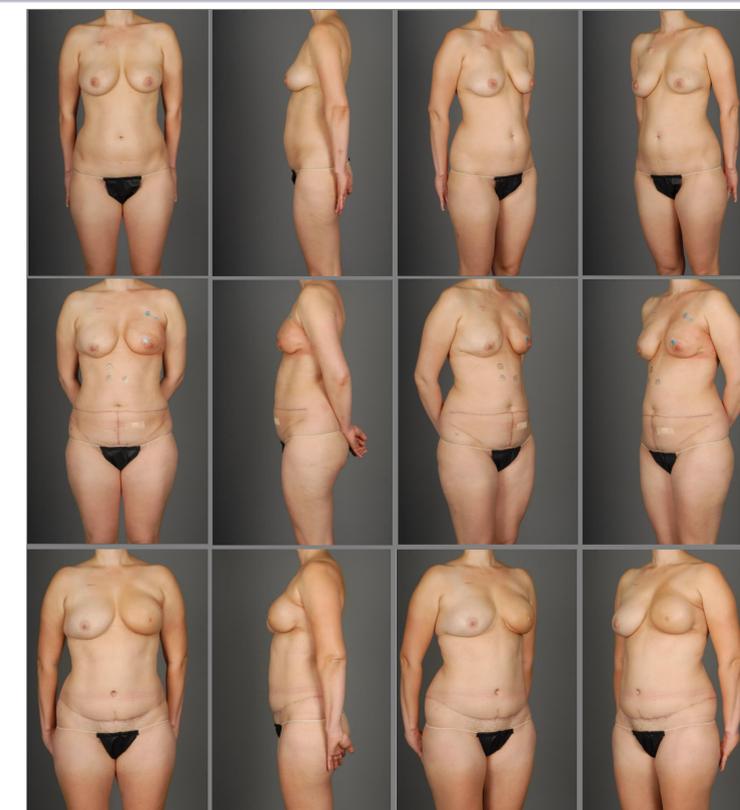
Results



Pre- Delay: 1.37 ± 0.20 mm
Post Delay: 2.26 ± 0.24 mm
Increase: 0.9 ± 0.22 mm

Pre- Delay: 14.43 ± 13.38 cm/s
Post Delay: 44.61 ± 60.35 cm/s
Increase: 26.99 ± 49.66 cm/s

Results



Bilateral Delayed SIEA Reconstruction.

- First row: Pre-op images of 36 year old female with BRCA gene mutation and invasive ductal carcinoma of left breast
- Second row: Post-op day 70 after surgical delay of bilateral SIEA flaps with concurrent bilateral nipple sparing mastectomy and tissue expander placement
- Third row: Images 54 days after second stage reconstruction with removal of skin islands at inframammary fold and dog ear excision.

Conclusions

- Surgical delay of the SIEA flap significantly augments SIEA diameter
- While more patients are needed to assess blood flow, the delay procedure increased peak systolic blood flow in the SIEA in all patients
- Use of surgical delay can expand the implementation of SIEA flap reconstruction to a larger number of patients reducing abdominal morbidity associated with autologous breast reconstruction
- Questions: Rhoff3@lsuhsc.edu