

Sub-scarpal Fat Pad Thickness May Predict Perfusion Patterns In Abdominal Wall Flaps

Kevin Small, M.D.; John Bast, M.D.; David Otterburn, MD

Abstract Text:

Background: Abdominal wall flaps are routinely used in reconstructive procedures. Large caliber of the deep inferior epigastric vessels lends these flaps to good outcomes. Occasionally, these deep system perforators are of limited caliber, which may lead to either poor flap perfusion or venous congestion from poor drainage. The superficial inferior epigastric vessels are occasionally of sufficient size to allow for microvascular revascularization, however they have a higher rate of fat necrosis from poor perfusion. We designed this study to look at the relationship of the sub and supra-scarpal fat layers, to the number of deep system perforators and SIEV size

Methods: 14 abdominal/pelvic CTA s were examined of women (ages 34 -70). The CTAs were examined for number of perforators, SIEV size at 10cm below the umbilicus, height of sub-scarpal fat pad and supra-scarpal fat pad at 10 cm below the umbilicus at the edge of rectus fascia. These data were gathered for each hemi abdomen giving 28 data points.

Results: The average supra-fascial height was 20.73 mm with a range of 4.3 to 50 mm. Average sub-fascial height was 7.06mm with a range of 2.0 to 14.5 mm. The average ratio of fat pads was 3.72 with a range of 1.13 to 11.5. Average SIEV diameter was 2.86 range (1.48-5.4mm). Average number of perforators was 3.4, range (1-7). Hemi-abdomens with supra-fascial fat greater than 21 mm in height had greater vein diameter 3.8 v 2.26mm but fewer perforators 3.1 v 3.6. Sub-fascial fat greater than 7mm had less perforators 2.3 v 4.1 and greater SIEV diameter 3.5 v 2.42mm. Neither an above or below average ratio of the fat layer heights had a difference in SIEV size (2.74 v 2.9 mm respectively). Above average ratios had 3.7 perforators verses 3.2 for below average ratios.

Conclusion: A sub-scarpal fascial layer thicker than 7mm may indicate poorer abdominal flap perfusion off the deep inferior epigastric system as these hemi-abdomens had fewer perforators and larger SIEVs. This may serve to warn us during harvesting to preserve the superficial vessels in patients who fit this criteria.

Disclosure/Financial Support

None of the authors has a financial interest in any of the products, devices, or drugs mentioned in this manuscript.