Leveraging technology and technique to drive better results

saphena medical Venapax®

"81% of the major damage to EVH harvested veins were within 3mm of the branch"

"Intraoperative OCT of the saphenous vein conduit in patients undergoing coronary artery bypass surgery", Edward Lundy, MD, PhD, Circulation: Cardiovascular Interventions. 2021: 14

Endoscopic vein harvesting (EVH) plays a pivotal role in coronary artery bypass grafting yet concerns persist regarding endothelial integrity and graft quality. A recent study conducted by Dr. Enoch Akowuah and published in The Journal of Thoracic Disease, found that OVH is still favored over EVH with regards to vein graft stenosis, occlusion and long term patency.

By embracing new technologies and operative techniques, harvesters can address these concerns and potentially provide better long-term results for their patients.

Optical Coherence Tomography, OCT, has become an invaluable tool in evaluating vein grafts. Early studies utilizing OCT underscore disruptions in the media and intima of endoscopically harvested veins, additionally prompting a reevaluation of EVH techniques.

These studies identified damage to the intima within 3 mm of side branches *(figure 1)*. A suspected cause could be the over-tensioning of the vein while freeing it from its surrounding tissue or in an effort to gain branch length during conduit removal.

OCT is helping to inspire innovations in minimal-touch techniques. The Saphena Venapax unitary EVH system continues to drive the creation of new EVH techniques geared to avoiding intimal and media damage *(figure 2)*.

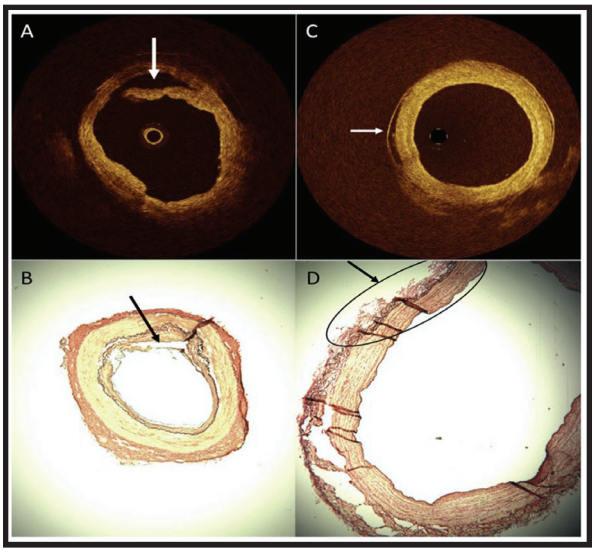

Figure 1
OCT scans from an early study on veins harvested with contact-based EVH systems. The arrows indicate intimal (A) and media (C) damage with OCT scanning of EVH saphenous vein.

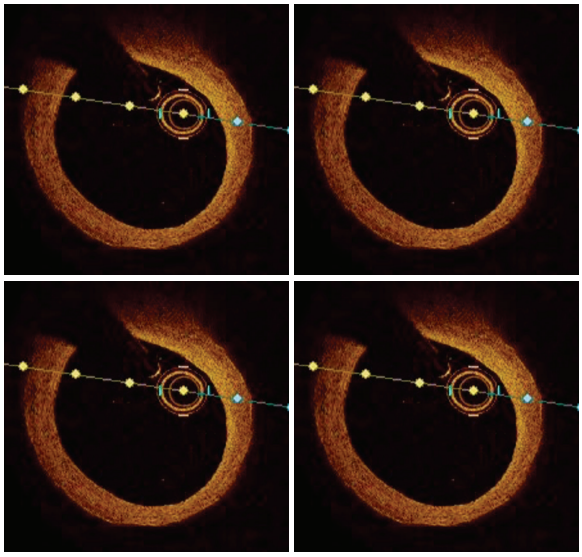

Figure 2
Scans of veins harvested with Saphena Venapax incorporating recommended techniques designed to minimize damage to the conduit. These scans show no media damage to the harvested vein.

Applying the techniques... The Venapax difference

Two-pass minimal-touch techniques

The following images demonstrate the minimal-touch techniques using the Venapax system that may help you avoid intimal and media damage.

Posterior Pass

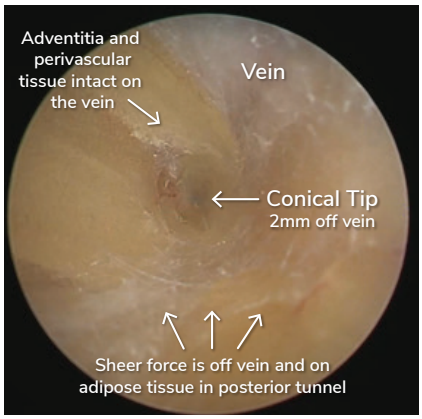

Figure 1

Branch Taking

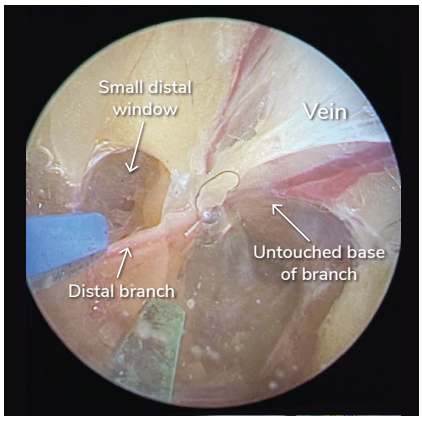

Figure 2A – Distal Branch Dissection and Ligation

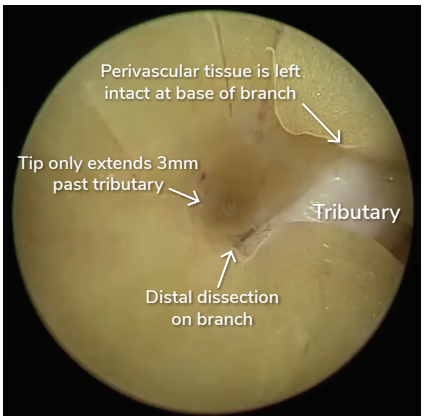

Figure 2B – Distal Branch Dissection

Anterior Pass

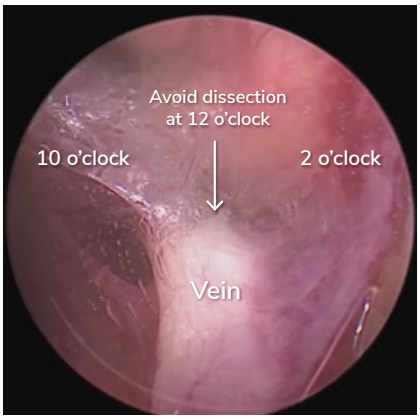

Figure 3A – Avoid dissection at 12 o'clock

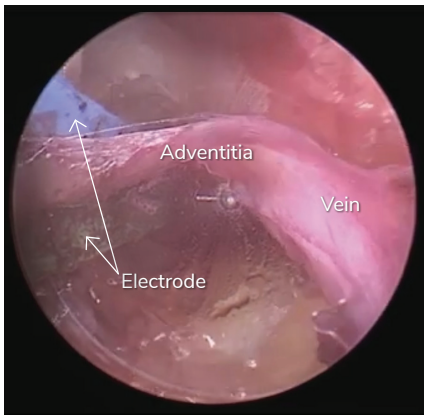

Figure 3B

Figure 1, Posterior Pass: Stay in the correct plane leaving adventitia and simply create a tunnel below the vein to perform the subsequent anterior pass with minimal contact with the vein.

Figure 2 A&B, Branch Taking: This technique is driven by the OCT studies minimizing stress and avoiding over-tensioning at the base of the branch of the vein. In addition, branches are always taken in front of the conical tip with the electrodes, freeing them from the tunnel wall when encountered, which may reduce avulsions while further navigating the tunnel.

Figure 3 A&B, Anterior Pass: Leave perivascular structures intact. The unitary device enables the harvester to use the electrodes like a pair of metzenbaum scissors, cauterizing and cutting the adipose tissue and perivascular structures.

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