

Position Statement on the Recent Debate about Endoscopic Saphenous Vein Harvesting

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Terumo is aware of the publicity around the recently released study in the *New England Journal of Medicine* (NEJM), "Endoscopic versus Open Vein-Graft Harvesting in Coronary Artery Bypass Surgery¹." The authors' suggestions -- that endoscopic vein harvesting (EVH) increases the risk of mortality and other long-term complications following coronary surgery and that the adverse effects are due to trauma imposed on the vein during the harvesting procedure -- have become a source of debate within the clinical community.

While Terumo has long been concerned about reducing trauma to the saphenous vein during the harvesting procedure, it cannot comment specifically on the technology or technique used in the study as the authors did not use Terumo technology.

However, given that the debate centers on the merits of endoscopic vein harvesting, Terumo believes it is appropriate to inform the clinical community about newer technologies for saphenous vein harvesting not available at the time of the study.

Terumo introduced its VirtuoSaph™ Endoscopic Vein Harvesting System in 2005, two years after the NEJM study was concluded. The VirtuoSaph system employs EVH technology specifically designed to reduce trauma and preserve vein quality:

- **Graft perfusion maintained during the harvesting procedure**
Distal insufflation and a non-occlusive trocar create an "open CO₂ system" that allows continuous graft perfusion during the harvesting procedure, an optimal condition for preserving vein quality². In addition, an open system has been associated with a lower risk of CO₂ embolism and intraluminal clot³.
- **Less vein manipulation during dissection**
The system is designed so that vein dissection can be completed in only one anterior and one posterior pass. An atraumatic conical dissection tip and centering rings allow better visualization and control during dissection.
- **Cautery mechanism maintained at a fixed and controlled distance from the vein**
The fixed distance between the cautery mechanism and the vein results in consistent branch lengths and helps ensure that sealing and cutting take place near the tunnel wall, as far away from the vein as possible.



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Terumo also believes that the debate on saphenous vein harvesting should be equally informed by a review of the many studies that support the benefits of the endoscopic procedure, including: reduction of wound complications^{4,5}, days to ambulation⁶, length of hospital stay⁷, readmission and outpatient visits^{8,9}, treatment costs⁸, reliability of vein quality¹⁰ and patency^{11,12}.

For more information on the VirtuoSaph system:

- Contact a Terumo Cardiovascular Systems sales representative
- Call Terumo Cardiovascular Systems Customer Service, 1-800-521-2818
- Visit www.terumo-cvs.com/products/virtuosaphsystem

¹Lopes et al. *Endoscopic versus Open Vein-Graft Harvesting in Coronary-Artery Bypass Surgery*. N Engl J Med 2009; 361:235-244.

²Lamm et al. *Continuous Graft Perfusion: Optimizing the Quality of Saphenous Vein Grafts*. Heart Surgery Forum 2002;5(4): S355-361.

³Brown et al. *Strategies to reduce intraluminal clot formation in endoscopically harvested saphenous veins*. J. Thorac Cardiovasc Surg 2007;134:1259-1265

⁴Lai et al. *The transition from open to endoscopic saphenous vein harvesting and its clinical impact*. Texas Heart Institute Journal 2006;33:316-320.

⁵Bitondo et al. *Endoscopic versus open saphenous vein harvest: A comparison of postoperative wound complications*. Annals of Thoracic Surgery 2002;73:523-528.

⁶Bonde et al. *Endoscopic vein harvest: Early results of a prospective randomized trial with open vein harvest*. Heart Surgery Forum 2002;5(Suppl.4):S378-S391

⁷Illig et al. *Reduction in wound morbidity rates following endoscopic saphenous vein harvest*. Annals of Vascular Surgery 2001;15(1):104-109.

⁸Illig et al. *Financial impact of endoscopic vein harvest for infrainguinal bypass*. Journal of Vascular Surgery 2003;37:323-330.

⁹Allen et al. *Influence of endoscopic versus traditional saphenectomy on event-free survival: Five year follow-up of a prospective randomized trial*. Heart Surgery Forum 2003;6(6):E143-E145.

¹⁰Alawari et al. *Nitric oxide expression by interleukin-10 in the endoscopic and open methods of vein harvesting in coronary artery bypass surgery*. Journal of the Society of Laparoendoscopic Surgeons 2002;6(1):5-9.

¹¹Perrault et al. *Early quantitative coronary angiography of saphenous vein grafts for coronary artery bypass grafting harvested by means of open versus endoscopic saphenectomy: A prospective randomized trial*. The Journal of Thoracic and Cardiovascular Surg 2004; 127: 1402-1407.

¹²Yun et al. *Randomized trial of endoscopic versus open vein harvest for coronary artery bypass grafting: Six month patency rates*. Journal of Thoracic and Cardiovascular Surgery 2005;129:496-503.