iCirculation
https://www.sciltp.com/journals/iCirculation

Comment

Comment on Dashwood, M.R. What Is the Fate of Saphenous Vein Graft Vasa Vasorum after Coronary Artery Bypass Surgery: An Open-and-Shut Case? *iCirculation* 2026, *1*, 2

Masashi Komeda

Cardiovascular Center, Fukuda General Hospital, Osaka 573-1178, Japan; zeek-m@bf7.so-net.ne.jp
Received: 20 April 2026; Accepted: 23 April 2026; Published: 18 September 2026

How To Cite: Komeda, M. Comment on Dashwood, M.R. What Is the Fate of Saphenous Vein Graft Vasa Vasorum after Coronary Artery Bypass Surgery: An Open-and-Shut Case? *iCirculation* **2026**, *1*, 2. *iCirculation* **2026**, *1*(2), 10. https://doi.org/10.53941/icirculation.2026.100010

Dashwood's review on the role of the vasa vasorum (VV) in saphenous vein (SV) grafts is highly comprehensive and rich in valuable insights, and I read it with great admiration.

In coronary artery bypass grafting (CABG), increasing evidence demonstrates that SV grafts harvested using the no-touch (NT) technique—with preservation of surrounding tissues—exhibit superior long-term patency compared with those obtained by the conventional technique (CT). Consequently, attention has expanded beyond the intima to include the adventitia of the SV graft. The concept of regarding the SV not merely as a tissue but as an "organ" has long existed. For example, techniques have been described in which an artificial conduit is wrapped around the SV to prevent excessive dilatation and provide mechanical support. Furthermore, since the 1980s in Toronto, under the guidance of Professor Tirone E. David, surgeons were instructed to harvest the SV using sharp dissection with Metzenbaum scissors and to avoid blunt dissection, as the latter could avulse small branches and injure the intima. Although it was recognized at that time that the SV wall receives its nutritional supply from the adventitial side via the VV, little attention was paid to preserving perivascular fat (PVF) or VV, as it was assumed that no external blood supply would be available to the graft after implantation.

Against this background, the NT technique appears to have addressed, at least in part, a longstanding limitation of CABG. The review presents compelling concepts and evidence suggesting that preservation of VV, together with PVF, maintains "inside-out/outside-in" communication and thereby protects the SV as a functional organ. The notion that preserving adventitial structures safeguards the vessel as a whole—and in turn maintains intimal integrity—is both logical and convincing. It is also persuasive that the structural integrity of NT SV grafts can be maintained even after implantation, despite the absence of an external blood supply.

Nevertheless, the patency of NT SV grafts still does not match that of the internal thoracic artery (ITA). This discrepancy may partly reflect the inherently favorable characteristics of the ITA for long-term patency—such as vessel diameter, structural features of the intima and media, and advantageous flow dynamics in situ. However, variability in NT harvesting techniques among surgeons and institutions likely also contributes. This issue is particularly evident in the context of endoscopic vein harvesting (EVH).

From this perspective, further refinement, standardization, and dissemination of NT harvesting techniques—with particular emphasis on VV preservation—are of critical importance. In particular, the development of NT-compatible techniques under EVH conditions is needed. Although antispasmodic agents have long been used in graft preparation, it is noteworthy that many of these agents may also exert protective effects on the VV. Reconsideration of antispasmodic strategies from the standpoint of VV preservation may therefore be warranted. It may not be an exaggeration to suggest that we are approaching an era of "VV-preserving surgery" for SV grafts. In addition, the development of intraoperative modalities to assess VV integrity would be highly desirable. While current high-frequency surface ultrasound (e.g., 15 MHz [1]) may provide useful information with sufficient experience, more VV-specific imaging techniques are eagerly awaited.

In the past, considerable efforts were made to apply gene therapy [2] and tissue engineering approaches to SV grafts in an attempt to render them comparable to arterial conduits. Although these approaches yielded promising results, they have not yet reached clinical application [3]. However, if the fundamental structural integrity of the SV—particularly the VV—is preserved and the graft is maintained as a "healthy organ," such advanced therapies may achieve greater success, potentially leading to the development of a "super SV." This may represent a renaissance of the SV and could open new avenues in CABG.

Furthermore, insights into the VV of SV grafts may have implications for arterial conduits. Skeletonized ITA grafts are widely used due to their technical advantages and favorable long-term outcomes. However, it is worth considering whether greater preservation of VV in the ITA could further enhance graft patency and conduit performance. In this issue, the review by He discusses the potential advantages of pedicled ITA, suggesting that VV preservation may further strengthen the performance of arterial grafts and contribute to the continued evolution of CABG [4]. This concept is of particular interest for the radial artery (RA), where vasospasm remains a clinical concern.

Overall, this review stimulates long-held aspirations among cardiac surgeons and provides a compelling perspective for future innovation in CABG.

Conflicts of Interest

The author declares no conflict of interest.

Use of AI and AI-Assisted Technologies

During the preparation of this work, the author used Chat GPT 5.5 to correct English. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the published article.

References

1. Miwa, S.; Nishina, T.; Ueyama, K.; et al. Visualization of intramuscular left anterior descending coronary arteries during off-pump bypass surgery. *Ann. Thorac. Surg.* **2004**, 77, 344–346.
2. Ohno, N.; Itoh, H.; Ikeda, T.; et al. Accelerated reendothelialization with suppressed thrombogenic property and neointimal hyperplasia of rabbit jugular vein grafts by adenovirus-mediated gene transfer of C-Type natriuretic peptide. *Circulation* **2002**, 105, 1623–1626.
3. McKavanagh, P.; Yanagawa, B.; Zawadowski, G.; et al. Management and Prevention of Saphenous Vein Graft Failure: A Review. *Cardiol. Ther.* **2017**, *6*, 203–223. https://doi.org/10.1007/s40119-017-0094-6.
4. He, G.W. Which Is Better? Pedicled versus Skeletonized Internal Mammary Artery Grafts in Coronary Artery Bypass Grafting: Emphasis on the Antispastic Role of Perivascular Adipose Tissue. *iCirculation* **2026**, *1*, 4. https://doi.org/10.53941/icirculation.2026.100004