

University of Groningen

Reply on: Autologous pericardium could be a good option as patch material for sensitive patients undergoing carotid endarterectomy surgery to avoid legal consequences

Liesker, David J.; Gareb, Barzi; Looman, Rick S.; Zeebregts, Clark J.; Saleem, Ben R.

Published in:
Journal of Vascular Surgery

DOI:
[10.1016/j.jvs.2022.11.051](https://doi.org/10.1016/j.jvs.2022.11.051)

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2023

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Liesker, D. J., Gareb, B., Looman, R. S., Zeebregts, C. J., & Saleem, B. R. (2023). Reply on: Autologous pericardium could be a good option as patch material for sensitive patients undergoing carotid endarterectomy surgery to avoid legal consequences. *Journal of Vascular Surgery*, 77(2), 666-667. <https://doi.org/10.1016/j.jvs.2022.11.051>

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Autologous pericardium could be a good option as patch material for sensitive patients undergoing carotid endarterectomy surgery to avoid legal consequences



We recently read the article titled “Patch angioplasty during carotid endarterectomy using different materials has similar clinical outcomes” by Liesker et al.¹ We congratulate them for their largescale study results. Their results are consistent with a recently reported Cochrane database analysis.² We know that no consensus has been reached regarding the best patch material to use for such patients. As a biologic patch material, bovine pericardial patches were found to be comparable in cost with the cost of other patch materials owing to their low risk of infection and advantages in terms of postoperative bleeding. The main reason for these advantages is that this patch material is an acellular xenograft. However, the patient population in general will not be homogeneous. The number of individuals who could be concerned about the use of ingredients of animal origin has been increasing and is an issue that we, as health-care professionals, should no longer ignore. We should not forget that it is unethical to use a product when we know that its use is against the patient’s wishes. Thus, the use of biologic xenografts could result in legal consequences, and it will become necessary to obtain the consent of the patient for the use of these materials.³ Therefore, the use of bovine pericardial patches could be a disadvantage for ethnic groups who are particularly sensitive about the use of additional biologic xenograft materials. We believe autologous pericardium might be a good alternative as a biologic patch material for patients sensitive about the use of bovine pericardial patches who require simultaneous carotid endarterectomy and coronary artery bypass grafting surgery. Recently, our retrospective results were reported (titled “Autologous pericardium may be an alternative carotid patch material in patient with undergoing simultaneous carotid endarterectomy and coronary artery bypass grafting”).⁴ To the best of our knowledge, our study was the first study of the use of autologous pericardium as an alternative patch material during carotid endarterectomy surgery. Our study results revealed no statistically significant differences between the Dacron and autologous pericardial patch group, except for bleeding. Although our study had some limitations such as the retrospective design and small sample size, the use of autologous pericardium could be good option for sensitive patients as a biologic carotid patch owing to low postoperative bleeding profile, absence of immunoreactivity, its biocompatibility and resistance to infection, easy availability, and low cost.

Emre Kubat, MD

Department of Cardiovascular Surgery
Cülhane Training and Research Hospital
Ankara, Turkey

Veysel Başar, MD

Department of Cardiovascular Surgery
Hisar Intercontinental Hospital
Istanbul, Turkey

Ferit Çiçekçioğlu, MD

Department of Cardiovascular Surgery
Ankara Etlik City Hospital
Ankara, Turkey

REFERENCES

1. Liesker DJ, Gareb B, Looman RS, Donners SJA, de Borst GJ, Zeebregts CJ, et al. Patch angioplasty during carotid endarterectomy using different materials has similar clinical outcomes. *J Vasc Surg* 2023;77:559-66.
2. Orrapin S, Benyakorn T, Howard DP, Siribumrungwong B, Rerkasem K. Patches of different types for carotid patch angioplasty. *Cochrane Database Syst Rev* 2021;2:CD000071.
3. Hodge S, Greaves N, Murray D. The use of bovine pericardial patches in vascular surgery: where do we draw the line in obtaining informed consent? *Ann Vasc Surg* 2021;76:536-41.
4. Başar V, Kubat E, Çiçekçioğlu F, Yanartaş M, Sunar H. Autologous pericardium may be an alternative carotid patch material in patient with undergoing simultaneous carotid endarterectomy and coronary artery bypass grafting. *Genel Tıp Derg* 2022;32:551-5.

<https://doi.org/10.1016/j.jvs.2022.11.052>

Reply



With great interest, we read the comments by Kubat et al¹ regarding our study comparing bovine pericardial and polyester patches for carotid endarterectomy (CEA). We agree that it is necessary to discuss the use of animal-derived materials with patients owing to the potential aversion they might have to these graft materials.² At our center, we disclose this information (including the use of bovine pericardial patches) to ensure the patient is able to make an informed decision before CEA.³

Although we agree that autologous pericardium could be an option, high-quality evidence to fully support this suggested alternative is unavailable. Başar et al⁴ examined patients who had undergone concomitant CEA and coronary artery bypass grafting (CABG). They showed promising results in favor of the autologous pericardial patch (n = 13). However, the sample size was too small to draw firm conclusions.⁴ The Society for Vascular Surgery and European Society for Vascular Surgery guidelines have stated that CEA should be considered before or concurrent with CABG for patients with symptomatic

carotid stenosis (50%-99%), bilateral asymptomatic stenosis (70%-99%), or unilateral stenosis (70%-99%) with contralateral occlusion who require both procedures.^{5,6} For CABG patients with unilateral asymptomatic stenosis, staged or concomitant carotid intervention has not been recommended.⁶ No specific recommendations on sequencing have been provided. Few patients have undergone concomitant CEA and CABG. Therefore, autologous pericardium is not often available.

When comparing the safety and durability of bovine and polyester patches, our results were basically similar to those found in a Cochrane review.⁷ Minor differences were observed regarding the incidence of patch infection and postoperative hematoma. This had most probably resulted from the nature of the bovine pericardial patch, because it is an acellular xenograft of collagen that might provide a natural environment for host cell migration and proliferation. This, in turn, causes re-endothelialization.⁸ However, at present, reported data are lacking to support the use of a biologic patch instead of a polyester patch. Therefore, with only minor differences between the two patches, we would advise the use of a polyester patch for CEA with patch angioplasty for patients who choose not to receive xenograft material.

David J. Liesker, MD

Division of Vascular Surgery
Department of Surgery
University Medical Center Groningen
University of Groningen
Groningen, The Netherlands

Barzi Gareb, MD, DMD, PhD

Department Oral and Maxillofacial Surgery
University Medical Center Groningen
University of Groningen
Groningen, The Netherlands

Rick S. Looman, BSc

Clark J. Zeebregts, MD, PhD

Ben R. Saleem, MD, PhD

Division of Vascular Surgery
Department of Surgery
University Medical Center Groningen
University of Groningen
Groningen, The Netherlands

REFERENCES

1. Liesker DJ, Gareb B, Looman RS, Donners SJA, de Borst GJ, Zeebregts CJ, et al. Patch angioplasty during carotid endarterectomy using different materials has similar clinical outcomes. *J Vasc Surg* 2023;77:559-66.
2. Easterbrook C. Porcine and bovine surgical products. *Arch Surg* 2008;143:366.
3. Hodge S, Greaves N, Murray D. The use of bovine pericardial patches in vascular surgery: where do we draw the line in obtaining informed consent? *Ann Vasc Surg* 2021;76:536-41.
4. Başar V, Kubat E, Çiçekçiöğlü F, Yanartaş M, Sunar H. Autologous pericardium may be an alternative carotid patch material in patient with undergoing simultaneous carotid endarterectomy and coronary artery bypass grafting. *Genel Tip Derg* 2022;32:551-5.
5. AbuRahma AF, Avgerinos ED, Chang RW, Darling RC, Duncan AA, Forbes TL, et al. Society for Vascular Surgery clinical practice guidelines for management of extracranial cerebrovascular disease. *J Vasc Surg* 2022;75:4S-22S.
6. Naylor AR, Rantner B, Ancetti S, de Borst GJ, De Carlo M, Halliday A, et al. European society for vascular surgery (ESVS) 2023 clinical practice guidelines on the management of atherosclerotic carotid and vertebral artery disease. [e-pub ahead of print]. *Eur J Vasc Endovasc Surg*. <https://doi.org/10.1016/j.ejvs.2022.04.011>. Accessed November 15, 2022.
7. Orrapin S, Benyakorn T, Howard DP, Siribumrungwong B, Rerkasem K. Patches of different types for carotid patch angioplasty. *Cochrane Database Syst Rev* 2021;2:CD000071.
8. Li X, Guo Y, Ziegler KR, Model LS, Eghbalieh SDD, Brenes RA, et al. Current usage and future directions for the bovine pericardial patch. *Ann Vasc Surg* 2011;561-8.

<https://doi.org/10.1016/j.jvs.2022.11.051>