©Copyright by Croatian Cardiac Society. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/) which permits users to read, download, copy, distribute, print, search, or link to the full texts of these articles in any medium or format and to remix, transform and build upon the material, provided the original work is properly cited and any changes properly indicated.

Multilevel carotid artery disease: An endovascular solution for a high-risk cardiovascular patient

Radojka Trajkovska*, **Svetlana Jovevska**, **Sasko Nikolov**, **Slavica Jordanova**, **Blagoja Vasilev**, **Gordana Kamceva Mihailova**

Faculty of Medical Sciences, Goce Delcev University, Stip, North Macedonia

KEYWORDS: carotid artery stenting, common carotid artery, internal carotid artery, endovascular treatment, stroke.

CITATION: Cardiol Croat. 2026;21(11-12):319. | https://doi.org/10.15836/ccar2026.319

***ADDRESS FOR CORRESPONDENCE:** Radojka Trajkovska, Clinical Hospital Stip, Stip, North Macedonia / Phone: +389-78-600-696 / E-mail: radojka.trajkovska@gmail.com

ORCID: Radojka Trajkovska, https://orcid.org/0009-0006-5008-9113 • Svetlana Jovevska, https://orcid.org/0009-0005-9703-5350 Sasko Nikolov, https://orcid.org/0009-0006-5666-7754 • Slavica Jordanova, https://orcid.org/0009-0005-5427-4335 Blagoja Vasilev, https://orcid.org/0009-0002-2969-482X • Gordana Kamceva Mihailova, https://orcid.org/0009-0000-4082-5769

Introduction: Patients with a history of ischemic stroke and advanced carotid atherosclerosis remain at increased risk of recurrent cerebrovascular events. Complex atherosclerotic disease involving both the proximal common carotid artery (CCA) and the ipsilateral internal carotid artery (ICA) represents a significant therapeutic challenge. The presence of a critical ostial CCA lesion limits the applicability of conventional carotid endarterectomy as a standalone treatment, while open reconstruction may require a more extensive surgical approach.[1,2]

Case report: 63-year-old man with established atherosclerotic cardiovascular disease, previous percutaneous coronary intervention, and a history of stroke was evaluated for carotid artery disease. Carotid duplex ultrasonography revealed significant carotid atherosclerosis, prompting further evaluation with computed tomography angiography, which confirmed the findings. The patient was referred for vascular surgery; however, due to the potential need for sternotomy, an endovascular approach was recommended. Catheter angiography was performed via right transfemoral arterial access using a 6F SIM 2 diagnostic catheter. Imaging demonstrated chronic occlusion of the right ICA and right vertebral artery. On the left, angiography demonstrated critical (99%) ostial CCA stenosis with markedly impaired antegrade flow and severe 80% ICA stenosis, while the left vertebral artery was patent without significant stenosis. The intervention was performed using a 6F, 90-cm Destination guiding catheter with a telescoping technique and a FilterWire distal embolic protection device. Initial balloon predilation of the ostial left CCA was performed using a 4.0 × 30 mm balloon at 16 atm. This was followed by implantation of two ROADSAVER stents (8 × 20 mm): the first in the left ICA and the second across the left CCA–ICA segment. Postdilation was performed using a 5.5 × 20 mm balloon at 16 atm and a 5.0 × 8 mm non-compliant (NC) balloon at 18 atm. Finally, an EXPRESS balloon-expandable stent (8 × 37 mm) was deployed at the ostium of the left CCA, extending proximally into the aortic arch. Completion angiography confirmed successful revascularization with restored antegrade flow. No periprocedural clinical or neurological complications occurred. At the two-month follow-up, carotid duplex ultrasonography demonstrated patent stents with preserved flow and no evidence of significant restenosis.[3,4]

Conclusion: This case highlights the value of endovascular treatment in complex carotid artery disease. Successful multilevel revascularization restored carotid blood flow while avoiding extensive surgical reconstruction, potentially contributing to secondary stroke prevention.

RECEIVED:
October 18, 2026
UPDATED:
November 4, 2026

LITERATURE

1. Mazzolai L, Teixido-Tura G, Lanzi S, Boc V, Bossone E, Brodmann M, et al. 2024 ESC Guidelines for the management of peripheral arterial and aortic diseases. Eur Heart J. 2024;45(36):3538-3700. https://doi.org/10.1093/eurheartj/ehae179
2. Naylor R, Rantner B, Ancetti S, de Borst GJ, De Carlo M, Halliday A, et al. Editor's Choice - European Society for Vascular Surgery (ESVS) 2023 Clinical Practice Guidelines on the Management of Atherosclerotic Carotid and Vertebral Artery Disease. Eur J Vasc Endovasc Surg. 2023;65(1):7-111. https://doi.org/10.1016/j.ejvs.2022.04.011
3. Ito H, Uchida M, Sase T, Kushiro Y, Ikeda T, Takasuna H, et al. A case of tandem stenoses at the proximal common and internal carotid arteries treated with transbrachial stenting: a case report. Interv Neuroradiol. 2019;25(2):225-229. https://doi.org/10.1177/1591019918806471
4. Robertson V, Poli F, Saratzis A, Divall P, Naylor AR. A systematic review of procedural outcomes in patients with proximal common carotid or innominate artery disease with or without tandem ipsilateral internal carotid artery disease. Eur J Vasc Endovasc Surg. 2020;60(6):817-827. https://doi.org/10.1016/j.ejvs.2020.06.040