Revista Portuguesa de Cardiologia 45 (2026) 463–464

Revista Portuguesa de
Cardiologia
Portuguese Journal of Cardiology
www.revportcardiol.org

IMAGE IN CARDIOLOGY

OCT-documented cutting-balloon fenestration of intramural hematoma in right coronary artery dissection

Angioplastia com *cutting-balloon* em disseção da coronária direita: documentação por OCT de fenestração de hematoma intramural

Ricardo Carvalheiro*, **André Grazina**, **Tiago Mendonça**

Department of Cardiology, Unidade Local de São José/Hospital de Santa Marta, Lisbon, Portugal

Available online 29 June 2026

Coronary artery dissection can impair coronary blood flow primarily due to an intramural hematoma (IMH) rather than luminal obstruction caused by an intimal flap, which makes percutaneous coronary intervention (PCI) challenging. Cutting balloon (CB) angioplasty has been proposed as a method to fenestrate the intima and decompress the IMH, although direct confirmation using intravascular imaging is rarely reported.

A 46-year-old man presented with an inferior ST-segment elevation myocardial infarction. Emergency coronary angiography revealed a critical lesion in the distal right coronary artery (RCA) with tapering at the far end. After crossing the lesion with a guidewire, coronary flow deteriorated, and angiography revealed an extensive spiral dissection extending retrogradely to the RCA ostium. No IVUS catheters were available. Optical coherence tomography (OCT) confirmed the wire was positioned in the true lumen and revealed pan-arterial IMH compressing the true lumen along the RCA (Figure 1 and Video 1).

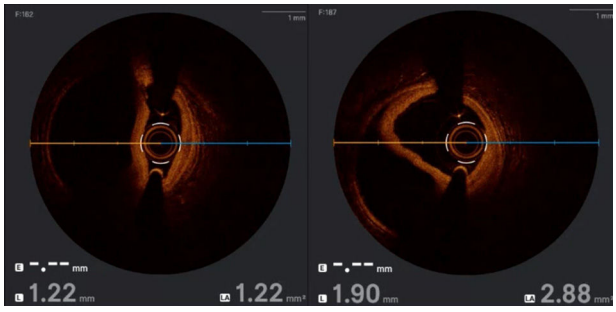

Figure 1 Imaging-guided strategies can help restore blood flow while minimizing the length of stents used in selected high-risk coronary dissections.

To stabilize the proximal entry and protect the ostium, a drug-eluting stent was implanted at the RCA ostium. Distal flow did not recover, consistent with a persistently pressurized IMH. Sequential CB angioplasty was performed on the

* Corresponding author.
E-mail address: rsilvacarvalheiro@gmail.com (R. Carvalheiro).

https://doi.org/10.1016/j.repc.2026.03.012
0870-2551/© 2026 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

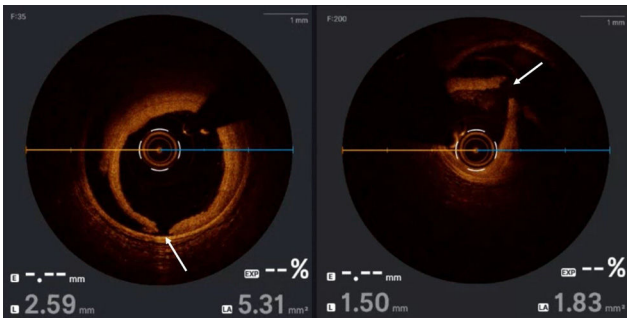

Figure 2 Post-cutting-balloon OCT demonstrating linear intimal fenestrations (arrows) with decompression of the intramural hematoma.

mid and distal segments of the RCA, successfully restoring TIMI 3 flow.

Post-procedural OCT revealed multiple linear intimal disruptions connecting the true and false lumens, consistent with successful IMH fenestration (Figure 2 and Video 2).

This case provides OCT evidence that CB angioplasty restores coronary flow in dissection by fenestrating and decompressing the IMH. Imaging-guided strategies may allow flow restoration while limiting unnecessary stent length in selected high-risk coronary dissections.

Patient consent

Informed consent was obtained from the patient for publication of the case details and associated media.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used ChatGPT (OpenAI) to assist with language editing and clarification of wording during manuscript drafting. After using this tool/service, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

Funding

The authors received no specific grant from any funding agency, commercial entity, or not-for-profit sector.

Conflicts of interest

The authors declare no conflicts of interest related to this case.

Appendix A. Supplementary data

Supplementary data associated with this article can be found in the online version available at https://doi.org/10.1016/j.repc.2026.03.012.