

IMAGES IN INTERVENTION

A Honeycomb-Like Structure in the Left Anterior Descending Coronary Artery

Demonstration of Recanalized Thrombus by Optical Coherence Tomography

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A 41-year-old man presented with atypical chest pain in another hospital with an electrocardiogram negative for ischemia, but with slightly elevated troponin I levels (0.12 ng/ml). The patient underwent cardiac catheterization within 24 h. Coronary angiography revealed 2 nonsignificant lesions at the proximal left anterior descending (LAD) coronary artery and angiographic haziness in the middle LAD, but with Thrombolysis In Myocardial Infarction flow grade 3. The patient was referred to our institution for intravascular lesion assessment.

Coronary angiography (Fig. 1) was repeated in our institution 3 days later. The haziness was still

present, so we assessed the segment between the lines in Figure 1 by optical coherence tomography (OCT). Image analysis (Fig. 2, Online Video 1) revealed a honeycomb-like structure with multiple intraluminal channels, separated by tissue with high signal intensity and low signal attenuation, consistent with white thrombus. We concluded that this appearance was compatible with intraluminal thrombus recanalization. Interestingly, the vascular wall had normal vessel intima morphology, without evidence of atheromatic changes. The site was then treated with an everolimus-eluting stent (Promus Element Monorail, 2.75 × 20 mm, Boston Scientific, Natick, Massachusetts).

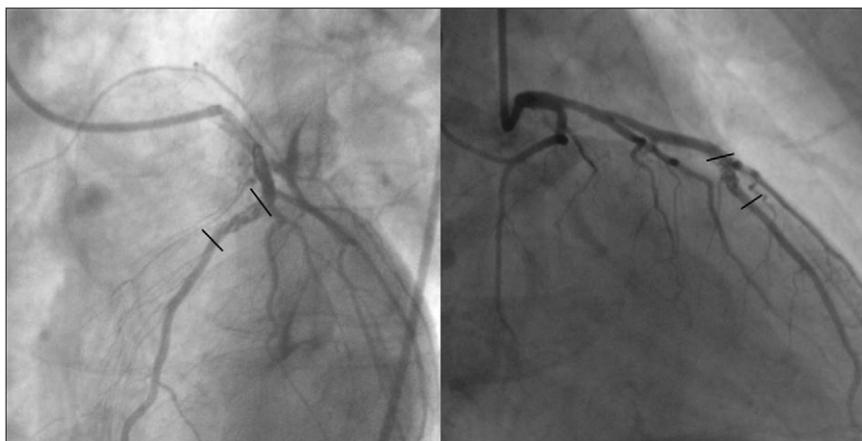


Figure 1. Coronary Angiography of the Left Coronary Artery

Optical coherence tomography image acquisition was performed in the segment between the lines.

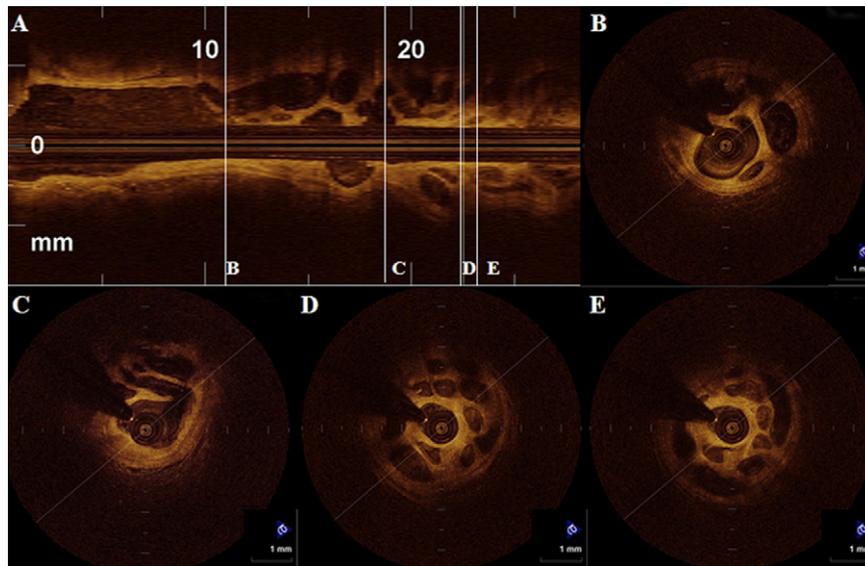


Figure 2. Longitudinal and Cross-Sectional Morphology of the Microchannels

(A) L-mode image showing the longitudinal morphology of the microchannels. (B to E) Optical coherence tomography cross-sectional images acquired from the sites corresponding to the lines in A. See Online Video 1.

In this case, OCT was used for the assessment of angiographic haziness, being the best method for intracoronary thrombus evaluation. Recanalized thrombus is a rare finding in patients undergoing coronary angiography, and by using OCT, we demonstrated *in vivo* a honeycomb-like structure comprised of multiple microchannels, separated by bridges of organized thrombus. Interestingly, the underlying vascular wall was nonatheromatic, suggesting either the possibility of plaque erosion or proximal embolism as the cause of thrombus formation.

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▶ APPENDIX

For an accompanying video, please see the online version of this article.