

Successful Percutaneous Intervention of Contained Coronary Artery Rupture: The Role of Intracoronary Imaging

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A 66-year-old male presented with ST-segment elevation myocardial infarction. Emergent coronary angiography showed thrombotic occlusion of the distal right coronary artery (RCA). Percutaneous coronary intervention (PCI) of the culprit RCA lesion was performed with 2 overlapping drug-eluting stents. During PCI, a small wire-related perforation was noted in the proximal posterolateral branch. At the end of the procedure, the perforation was no longer visible, and the patient was clinically stable. It was decided to proceed with conservative management.

Left coronary angiogram revealed significant mid left anterior descending artery (LAD) disease and proximal nondominant left circumflex artery stenosis. One month later, coronary angiography was planned for intervention of the LAD and circumflex lesions. Angiographic evaluation showed

a focal dilation at the site of the earlier wire perforation, adjacent to the coronary side branch for the atrioventricular node (Figure 1A).

Intravascular ultrasound (IVUS) and optical coherence tomography (OCT) visualized a defect in the coronary vascular wall with interrupted intima and internal elastic membrane at the perforated site (Figure 1B and Figure 1C).

Due to the possible risk of fatal complications such as a coronary rupture, we performed exclusion of the coronary pseudoaneurysm with a 3 mm x 20 mm polyurethane-covered stent, which completely sealed the pseudoaneurysm (Figure 1D). The complete apposition of the covered stent and exclusion of pseudoaneurysm were demonstrated with IVUS and OCT (Figure 1E and Figure 1F).

During stent implantation, occlusion of the coronary side branch for the atrioventricular node

occurred, associated with third-degree atrioventricular block. The patient required temporary cardiac pacing that was removed after 48 hours. He subsequently recovered and was stable on follow-up.

Intracoronary imaging should be employed to identify the underlying mechanisms and guide treatment options for post-PCI coronary pseudoaneurysms. ■

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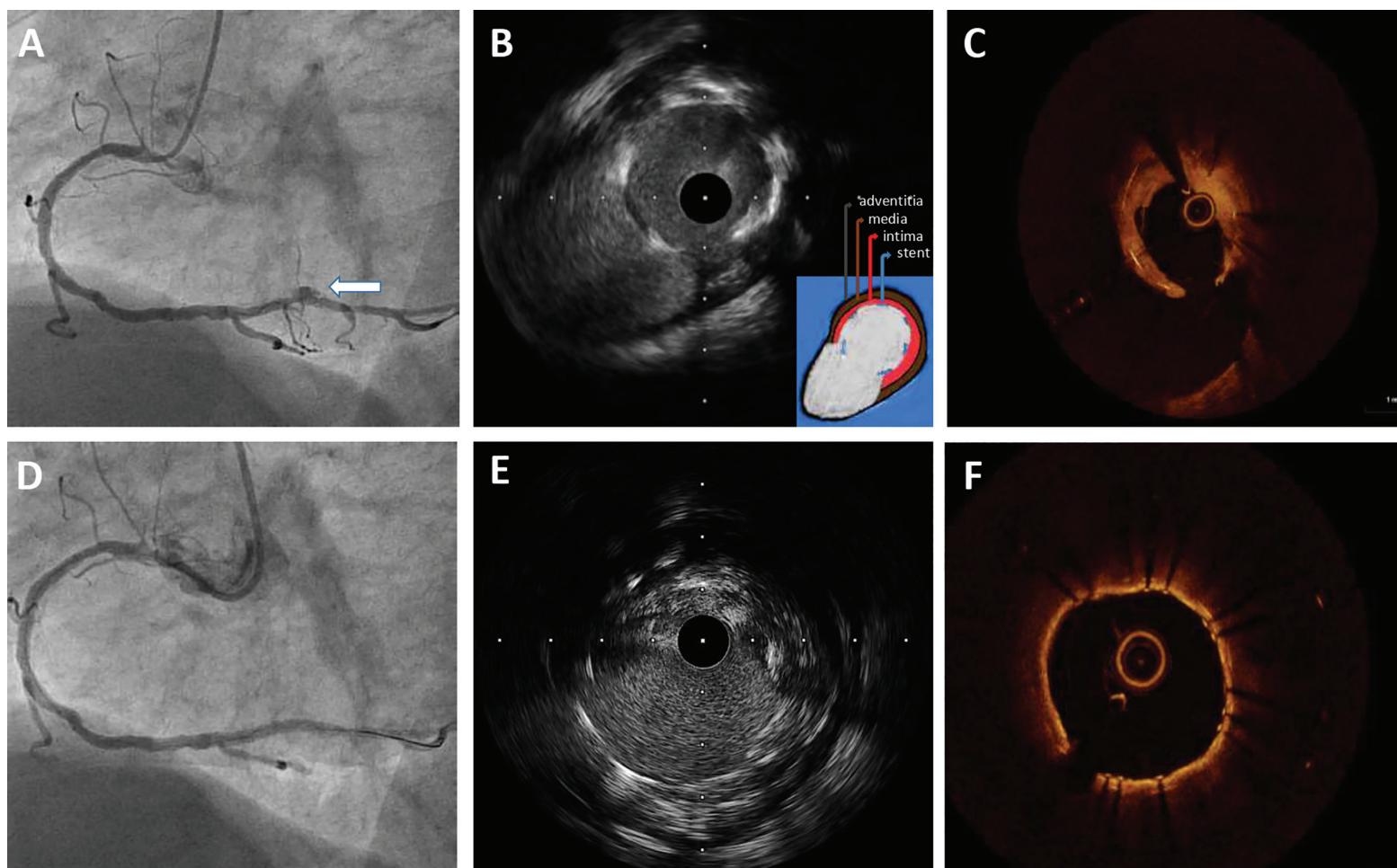


Figure 1. Percutaneous intervention of contained coronary artery rupture. (A) Left oblique projection of the right coronary artery demonstrating a focal dilation (arrow). (B, C) Intravascular ultrasound (IVUS) and optical coherence tomography (OCT) showed a pseudoaneurysm with disruption of the intima and internal elastic membrane. (D) A covered stent was placed to exclude the pseudoaneurysm. (E, F) IVUS and OCT showed complete apposition of the covered stent and exclusion of the pseudoaneurysm.