

A Hybrid Covered Stent–Coil Strategy for Complex Dual Aneurysms of the Left Anterior Descending Artery

Coronary artery aneurysms are uncommon and may be particularly difficult to treat when they coexist with significant stenosis and branch vessel involvement. We present a 67-year-old man with stable angina and no previous coronary imaging. Coronary computed tomography angiography demonstrated 2 adjacent aneurysms in the proximal left anterior descending artery (LAD): a fusiform aneurysm followed by a larger saccular aneurysm. Coronary angiography confirmed sequential dual LAD aneurysms with preserved distal flow, while the first and second diagonal branches arose from the distal margin of the saccular aneurysm (Figure 1). Intravascular ultrasound clarified aneurysm morphology, branch

E-PAGE ORIGINAL IMAGE

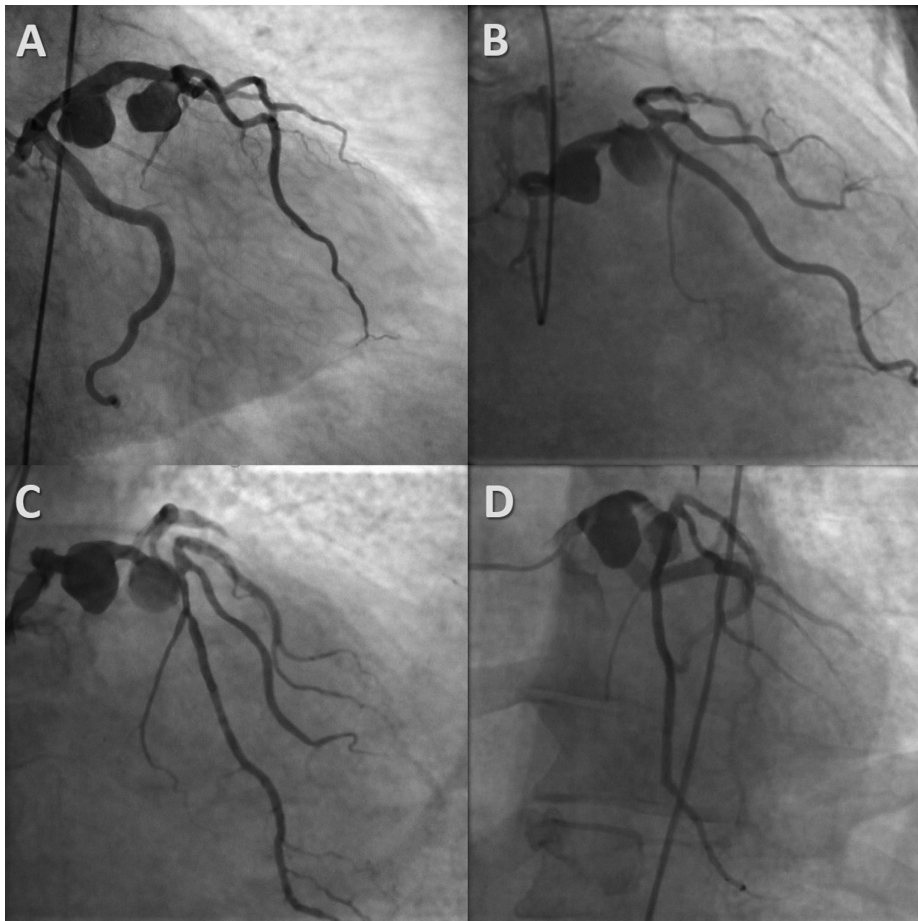


Figure 1. Dual LAD aneurysms on diagnostic angiography. (A) Anteroposterior caudal view showing proximal fusiform and saccular aneurysms. (B) Right anterior oblique cranial view demonstrating the aneurysm–diagonal branch relationship. (C) Anteroposterior cranial projection. (D) Left anterior oblique cranial projection.

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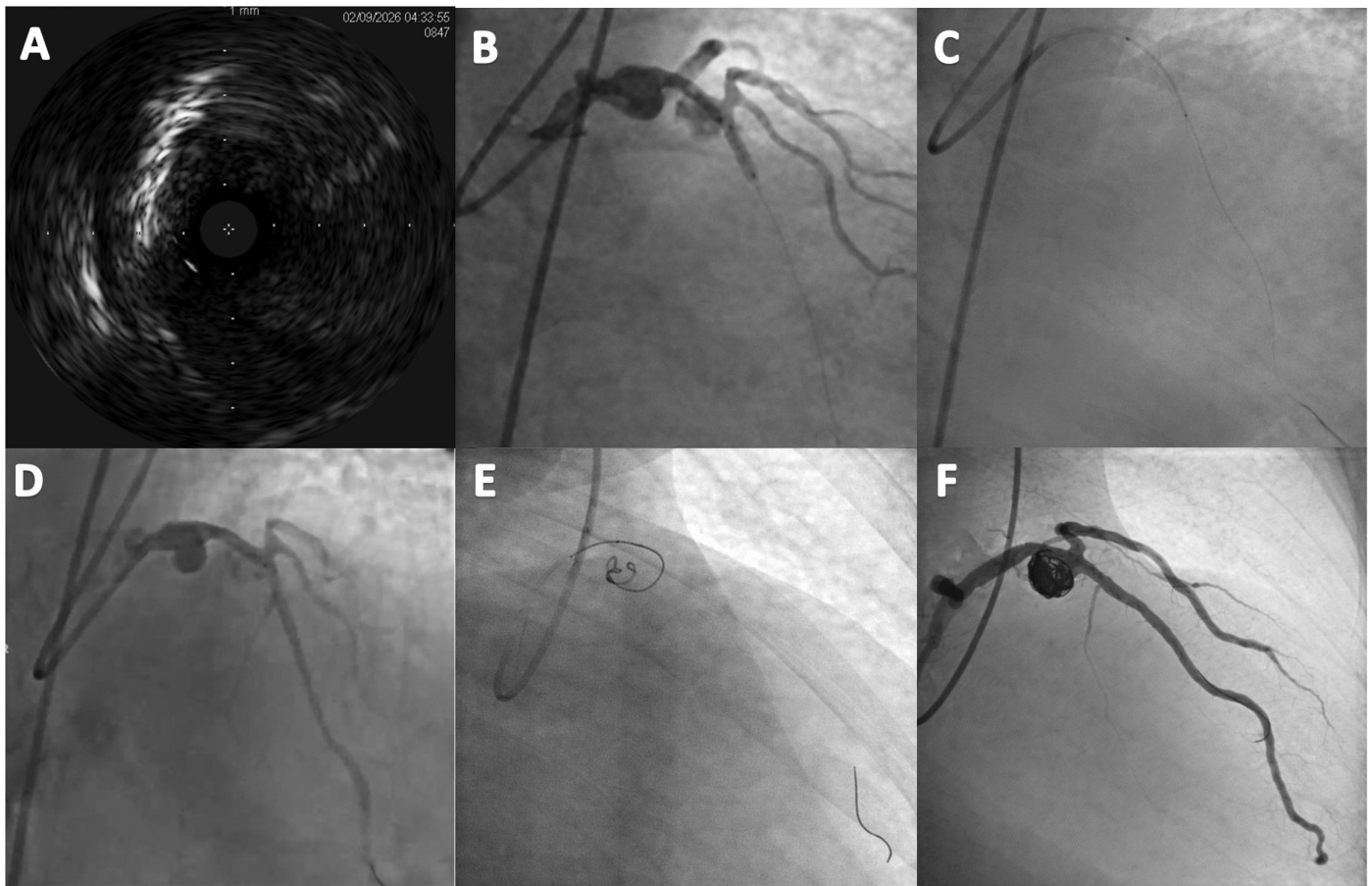


Figure 2. Stepwise hybrid percutaneous treatment. (A) IVUS image of distal aneurysm (B) Balloon inflation demonstrating aneurysm–diagonal branch relationship. (C) DES implantation. (D) Covered stent implantation. (E) Selective coil delivery into the aneurysm via microcatheter. (F) Final angiography demonstrating TIMI 3 distal flow after coil embolization and stent implantation.

relationship, and landing zones, and also showed significant plaque burden distal to the aneurysmal segment. Because complete exclusion with a covered stent alone would risk compromising diagonal branch flow, a stepwise hybrid percutaneous strategy was chosen. After balloon interrogation of the aneurysm–diagonal branch relationship, a drug-eluting stent was implanted from the distal half of the second aneurysm to the distal LAD to treat the stenotic segment while preserving side branch patency. Two overlapping covered stents were then deployed proximally. Persistent filling of the distal aneurysm was subsequently treated by coil embolization through the stent struts with a microcatheter. Final angiography demonstrated complete exclusion of the aneurysms with preserved diagonal branch flow and TIMI 3

distal flow (Figure 2). This case highlights that individualized hybrid treatment combining covered stents and coil embolization may be an effective option in selected complex coronary aneurysms with bifurcation anatomy.

Informed Consent: Written informed consent was obtained from the patient.

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