Multimodality Imaging of a Myocardial Infarction Culprit Lesion

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A 64-year-old man presented with non-ST segment elevation acute myocardial infarction. Diagnostic coronary angiography revealed occlusion of the proximal circumflex (Figure 1, panel A). After mechanical thrombectomy TIMI 2 flow was restored. Near-infrared spectroscopy with intravascular ultrasound imaging demonstrated a large lipid core plaque at the occlusion site (located 14 mm from the left main bifurcation) (Figure 1, panel B) and optical coherence tomography revealed plaque rupture with overlying thrombus (Figure 1, panel C). After stenting, TIMI 3 flow was restored (Figure 1, panel D). Near-infrared spectroscopy demonstrated resolution of the lipid core plaque (Figure 1, panel E), and optical coherence tomography showed good stent expansion with intrastent thrombus formation (Figure 1, panel F) that improved after intracoronary administration of eptifibatide and additional mechanical thrombectomy. Our case demonstrates that multimodality invasive coronary artery imaging can provide detailed mechanistic insights into the pathogenesis of acute coronary syndromes and supports the ongoing efforts for clinical validation of these novel imaging modalities.1-5

References
Figure 1. Occlusion of the proximal circumflex (panel A), associated with a large lipid core plaque by near-infrared spectroscopy (panel B) and plaque rupture by optical coherence tomography (panel C). Post-stenting restoration of antegrade flow in the circumflex artery (panel D), resolution of the lipid core plaque (panel E) and intra-stent thrombus formation (panel F).