

1156 **Successful Recanalization of Tandem LAD CTOs by Combining IVUS-Guided Tip Detection - Intraplaque Tracking With a Retrograde Approach via the Conus Branch**

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A 55-year-old man with non-ST-segment elevation myocardial infarction and congestive heart failure underwent PCI for the mid RCA and D1. After stabilization, myocardial perfusion scintigraphy confirmed preserved viability in the LAD territory, and staged PCI for the LAD CTO was planned.

Coronary CT angiography and coronary angiography revealed severe LAD stenosis distal to a large D1, followed by complete occlusion immediately distal to D2, with an ambiguous proximal cap. The first CTO segment was short, and its distal cap was located at the bifurcation with a septal branch. After a short patent segment, a second CTO approximately 10 mm in length extended from the mid LAD to the bifurcation with D3. No obvious calcification was present within either CTO segment. Contralateral angiography provided good visualization of the distal LAD through the conus branch and the apical RV branch, although no distinct septal collateral channel was identified.

Using an 8-Fr antegrade and a 7-Fr retrograde system, the first CTO was crossed with a Gaia Next 2 guidewire under IVUS guidance. During wiring of the second CTO, the guidewire entered the extraplaque space. IVUS-guided tip detection–intraplaque tracking (TD-IPT) was then performed using a Conquest Pro 12 ST, and the guidewire was successfully advanced into D3. An additional guidewire was redirected from D3 toward the distal LAD through a dual-lumen catheter; however, it entered the extraplaque space, suggesting that a tissue septum remained between the guidewire in D3 and the distal LAD true lumen.

Further IVUS-guided antegrade strategies, including repeat TD-IPT and TD-ADR into the distal LAD true lumen, were considered. However, the distal LAD immediately beyond the D3 bifurcation was small in caliber and unsuitable for re-entry. Because the conus branch provided a collateral connection to the distal LAD beyond the CTO, a retrograde approach through this channel was considered more reliable and procedurally efficient, and the strategy was switched accordingly.

Channel crossing was achieved using a SUOH 03 guidewire and a Zizai microcatheter, followed by reverse CART and externalization. Two DESs were implanted from the proximal to the distal LAD, resulting in successful revascularization without loss of D2 or D3.

This case demonstrates that combining IVUS-guided TD-IPT with a rescue retrograde approach via the conus branch can provide an effective strategy for tandem LAD CTOs.