

1037 **Successful Side Branch Preservation by Additional Antegrade IVUS-Guided TD-IPT After Retrograde Wire Externalization in an AWE-Failed CTO Lesion**

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Case description

Antegrade wire escalation (AWE) failed to cross the CTO lesion. After successful retrograde wire crossing and externalization, additional antegrade IVUS-guided TD-IPT was performed to preserve the side branch. This strategy enabled successful stent implantation without side branch occlusion.

Procedural Summary

PCI was performed for a proximal LAD CTO (segment #6) with a J-CTO score of 3 (calcification, lesion length, and prior failed attempt). The procedure was initiated using a bidirectional approach.

Because engagement of the RCA was difficult due to its anterior take-off, a primary retrograde strategy was selected. To improve backup support, a 6 Fr GuidePlus ST guide extension catheter was advanced into the RCA. A Sion Blue guidewire was advanced to the distal RCA and exchanged for a SUOH03 via a Zizai microcatheter. The septal collateral was successfully crossed with the SUOH03 guidewire.

The SUOH03 reached the distal CTO exit through the septal collateral. Using the retrograde guidewire as a landmark, antegrade wire escalation (AWE) was attempted with a Gladius, Gaia Next2, Miracle neo3, Conquest12, and Conquest12ST, but failed to cross the CTO. Therefore, a retrograde crossing strategy was performed using a Ultimate bros 3, and the retrograde guidewire successfully crossed the CTO lesion.

IVUS imaging from antegrade side confirmed that the retrograde guidewire was within the vessel. The retrograde guidewire was then exchanged for a Sion Black, this guidewire advanced directly into the LCX. Then a 3.0 × 10 mm balloon was inflated from the antegrade side within the previously implanted LCX stent to trap the retrograde guidewire. The retrograde Zizai was subsequently advanced into the left main coronary artery(LMCA).

A 7 Fr Guidezilla II guide extension catheter was deeply advanced into the LMCA, allowing the retrograde guidewire to enter the guide extension catheter. Wire externalization was successfully achieved using an RG3 guidewire. Predilation was then performed with a 2.0 × 15 mm balloon.

Subsequent IVUS demonstrated that the guidewire had partially entered the intraplaque false lumen, suggesting that stent implantation at this point would likely compromise the first diagonal branch. Therefore, antegrade IVUS-guided TD-IPT was performed using a Conquest12ST, followed by guidewire exchange to a Gladius. After IVUS confirmed true lumen entry, the externalized guidewire was released.

Additional predilation was performed using a 2.5 × 10 mm scoring balloon, followed by implantation of a 3.0 × 33 mm drug-eluting stent. Final angiography demonstrated TIMI grade 3 flow without side branch occlusion.