

1113 **A Hard Lesion, A Soft Solution : A Challenging Calcified Coronary Lesion in ACS Successfully Managed with Drug-Based Therapy**

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Patient History

A 76-year-old male presented with prolonged chest pain and was diagnosed with late-onset anterior STEMI. He had a history of ischemic stroke 1 year prior, with cardiovascular risk factors including hypertension, dyslipidemia, and active smoking. Electrocardiography showed sinus rhythm with anterior STEMI, while echocardiography revealed a left ventricular ejection fraction (LVEF) of 47%.

Coronary Angiography

Coronary angiography demonstrated severe focal stenosis in the distal left anterior descending artery (LAD), which was identified as the culprit lesion. Mild non-significant stenosis was also observed in the left circumflex artery, while the right coronary artery showed no significant obstructive disease with preserved distal flow. Overall, the patient had single-vessel coronary artery disease.

IVUS Findings

IVUS catheter was unable to cross the severely calcified segment. IVUS demonstrated severe concentric (circumferential) calcification involving the culprit lesion in the left anterior descending (LAD) artery. The calcium surrounded the entire vessel circumference, producing a characteristic “napkin-ring” appearance, indicating a heavily calcified and rigid lesion. Proximal pullback further demonstrated that the calcification extended continuously from the LAD toward the left main coronary artery, highlighting the extensive calcium burden and the need for adequate lesion preparation before definitive treatment.

Interventional Strategy

Lesion preparation was performed using a 2.75 × 10 mm Wolverine cutting balloon inflated to 12 atm for 5 inflations, plaque modification was performed carefully before definitive treatment. Repeat IVUS demonstrated multiple calcium cracks, confirming effective plaque modification and improved lesion compliance. Following confirmation of adequate lesion preparation, a 3.0 × 20 mm DCB was successfully delivered across the lesion and inflated at 14 atm for 60 seconds.

Final Results

Final coronary angiography in multiple projections demonstrated satisfactory luminal gain with a well-expanded LAD lumen and preserved distal TIMI 3 flow. There was no significant residual stenosis, flow-limiting dissection, or other procedural complications. No stent implantation was required, and the procedure was completed successfully.