

A 65-year-old man with hypertension, dyslipidemia, and end-stage renal disease on maintenance hemodialysis via a left arteriovenous fistula presented with a 3-hour history of chest pain. Electrocardiography showed sinus rhythm with T-wave inversion in leads V1–V3. Serial high-sensitivity cardiac troponin I increased from 70 to 289 ng/L. Transthoracic echocardiography demonstrated a left ventricular ejection fraction of 45% with anterior wall hypokinesia and no significant valvular heart disease. He was diagnosed with non-ST-segment elevation myocardial infarction (NSTEMI).

Coronary angiography revealed an intermediate stenosis from the proximal to mid LAD, while the remaining coronary arteries were angiographically patent. Physiological assessment showed a RFR of 0.54, confirming a functionally significant lesion. An IVUS-guided PCI was planned using right femoral artery access with a 6-Fr EBU 3.5 guiding catheter. A BMW guidewire was advanced into the LAD and a Whisper guidewire into the first diagonal branch.

IVUS demonstrated severe circumferential calcification of the proximal-to-mid LAD. During IVUS imaging, the IVUS catheter became entrapped within the heavily calcified lesion. The patient developed chest pain, and the IVUS catheter was carefully withdrawn together with the guidewire. Repeat angiography demonstrated preserved TIMI flow; however, fluoroscopy revealed fracture of the distal LAD guidewire with a retained fragment extending within the LAD.

Initial retrieval was attempted using the three-twisted-guidewire technique. Owing to the severe calcification and difficulty re-crossing the mid-to-distal LAD, only part of the fractured guidewire could be removed, leaving a long retained fragment. After careful assessment of the angiographic findings and consideration of the potential risk of wire ablation, rotational atherectomy was performed successfully. The lesion was subsequently prepared and treated with drug-eluting stent implantation extending from the mid LAD to the left main coronary artery under IVUS guidance.

Final IVUS demonstrated that the retained guidewire fragment was now accessible. A second retrieval attempt using the two-twisted-guidewire technique was performed successfully, resulting in complete removal of the remaining fractured guidewire without residual intravascular foreign material.