

When Atherosclerosis Arrives Too Early: NSTEMI and Diffuse Multivessel Coronary Disease in a 31-Year-Old Patient

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Introduction. Premature atherosclerotic cardiovascular disease in the third decade of life is uncommon and should prompt evaluation for severe atherogenic risk factors, including familial lipid disorders. To emphasize early recognition of severe lipid abnormalities and the need to combine acute coronary intervention with intensive lifelong secondary prevention.

Methods. We describe a 31-year-old patient with NSTEMI and severe dyslipidaemia-associated multivessel coronary artery disease.

Results. The patient presented with chest pain radiating to both arms; the final episode lasted 30 minutes with diaphoresis. ECG changes consistent with ACS were observed; troponin I was 324. Echocardiography before PCI showed anterior and anterolateral hypokinesia, EF 49%, and mild diastolic dysfunction. Coronary angiography revealed severe diffuse multivessel disease: CTOs of proximal RCA, first obtuse marginal and first diagonal branches with collateral circulation, 80% proximal circumflex stenosis, ramus stenoses, and left main plaque. The LAD was the culprit, with 99% proximal and mid-LAD stenoses. After extensive lesion preparation with semi-compliant and non-compliant balloons, stentless PCI with a drug-coated balloon (DCB) achieved TIMI 3 flow and no residual stenosis. This strategy was selected to preserve LVEF and avoid permanent stent implantation, while preserving future revascularization options, including CABG or multivessel PCI, pending Heart Team discussion. Before lipid-lowering therapy, total cholesterol was 12.7 mmol/L, LDL-C 9.1 mmol/L, Lp(a) 337 nmol/L, and ApoB 2.4 g/L. Markedly elevated untreated LDL-C, ApoB and Lp(a), together with premature coronary artery disease, raised suspicion of an underlying familial lipid disorder, particularly familial hypercholesterolaemia. Rosuvastatin 40 mg, inclisiran and dual antiplatelet therapy were initiated. At 1-month follow-up, the patient was symptom free and LDL-C decreased to 1.4 mmol/L; further multivessel revascularization was planned.

Discussion. This case highlights exceptionally premature diffuse multivessel atherosclerotic disease in a 31-year-old with NSTEMI. Markedly elevated LDL-C, Lp(a), and ApoB underscore early identification of familial lipid disorders. Successful revascularisation is the first step toward intensive lifelong secondary prevention.

Keywords: Coronary Artery Disease, NSTEMI, Dyslipidaemia, Multivessel Coronary Disease, Drug-Coated Balloon PCI, Secondary Prevention

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