

When Revascularisation Fails: Intracoronary Adrenaline for Refractory No-Reflow During PCI for Acute Stent Thrombosis

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Introduction. No-reflow is a feared complication of percutaneous coronary intervention (PCI), in which myocardial perfusion remains impaired despite restoration of epicardial patency. Distal embolisation, microvascular obstruction and vasoconstriction may coexist, making treatment difficult and the response to rescue therapy unpredictable.

Methods. A 78-year-old patient presented with 2 hours of chest pain and 3-mm ST-segment elevation in the inferior leads. Five days earlier, the patient had undergone right coronary artery (RCA) stenting but discontinued antiplatelet therapy prematurely, resulting in acute in-stent thrombosis, subtotal stent occlusion and Thrombolysis in Myocardial Infarction (TIMI) grade 2 flow in the RCA. Emergency PCI of the thrombosed RCA was undertaken.

Results. Sequential post-dilatation with semi-compliant and non-compliant balloons was followed by abrupt, severe impairment of distal coronary flow consistent with no-reflow. A glycoprotein IIb/IIIa inhibitor and thrombus aspiration failed to produce meaningful improvement over approximately 10 minutes. As bailout therapy, 200 µg of epinephrine diluted in 20 mL of saline was administered intracoronary through the guiding catheter. Coronary perfusion improved immediately, restoring TIMI grade 3 flow through the stent and throughout the distal RCA. The response was accompanied by transient polymorphic ventricular ectopy, including bigeminy and trigeminy, but this did not prevent a successful angiographic result.

Discussion. The temporal relationship between intracoronary adrenaline and immediate restoration of TIMI grade 3 flow after failure of antithrombotic and mechanical measures suggests that a reversible vasomotor component contributed to this otherwise refractory episode. Epinephrine may improve microvascular perfusion through β_2 -mediated vasodilatation while supporting coronary perfusion pressure; however, β_1 -mediated stimulation creates a clinically important pro-arrhythmic risk. Intracoronary adrenaline can be an effective bailout option for refractory no-reflow when conventional measures fail, but benefit may come at the cost of electrical instability. This case highlights the need for small, carefully titrated doses, continuous rhythm and haemodynamic monitoring, and readiness to treat ventricular arrhythmias.

Keywords: No-Reflow Phenomenon, Intracoronary Epinephrine, Coronary Microvascular Obstruction

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