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Background : Coronary artery perforation (CAP) is an uncommon but potentially life-threatening complication of percutaneous coronary intervention (PCI), with a reported mortality rate of 10–20%. Prompt recognition and immediate management are essential to prevent catastrophic outcomes.

Case Summary :

A 69-year-old gentleman with underlying hypertension and dyslipidemia presented with anginal symptoms and underwent an exercise stress test, which was positive for ischemia in the inferolateral leads. Echocardiography demonstrated preserved left ventricular systolic function with an ejection fraction of 58% and no regional wall motion abnormalities.

Coronary angiography revealed severe ostial left anterior descending artery (LAD) stenosis of 50% and an additional moderately calcified mid-LAD lesion with 80% stenosis. Following discussion of revascularization strategies, the patient opted for staged PCI instead of coronary artery bypass grafting.

Procedure :

PCI was performed via the right radial approach using an Extra Back-Up (EBU) 3.5/7 Fr guiding catheter. A Sion Blue wire was advanced into the distal left circumflex artery (LCX), while a Runthrough Floppy (RTF) wire was placed in the distal LAD. Intravascular ultrasound (IVUS) demonstrated a proximal LAD vessel diameter of 3.5 mm, mid-LAD of 3.0 mm and a minimal luminal area (MLA) of 7.8–8.0 mm² at the ostial LAD. Lesion preparation was performed using a Wolverine 3.0 × 10 mm cutting balloon inflated at 8 atm in the mid-LAD and 12 atm in the proximal LAD. Subsequent angiography demonstrated contrast extravasation consistent with an Ellis type III coronary artery perforation at the mid-LAD. A Papyrus 3.0 × 20 mm covered stent was immediately deployed to seal the perforation. The patient remained hemodynamically stable, and bedside echocardiography showed no evidence of pericardial effusion. PCI to the proximal LAD was subsequently completed with implantation of a Synergy 3.0 × 38 mm drug-eluting stent overlapping distally with the covered stent, followed by post-dilatation using a non-compliant Accuforce 3.5 × 15 mm balloon. Final angiographic and IVUS findings demonstrated satisfactory results with good stent apposition. The patient was monitored in the coronary care unit and discharged well after two days without further complications.

Conclusion :

Despite the absence of high-risk angiographic features, coronary artery perforation can still occur during complex PCI. This case highlights that early recognition and prompt covered stent deployment are critical for successful percutaneous management and avoidance of emergency surgery.