

Impella-rotator-shock percutaneous coronary intervention: Three weapons, one last remaining vessel

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A 59-year-old man was admitted with decompensated heart failure. Transthoracic echocardiogram revealed left ventricular ejection fraction (LVEF) of 22% and severe secondary mitral regurgitation. Coronary angiography showed 80%/95% stenosis on the proximal/mid segments of left anterior descendant (LAD) and chronic total occlusions (CTO) in circumflex (CXA) and right coronary (RCA) arteries. Cardiac scintigraphy confirmed myocardial viability. He was refused for myocardial revascularization surgery due to high surgical risk (EuroScore II: 6.8%, SYNTAX: 30). LAD percutaneous coronary intervention (PCI) was performed under short-term mechanical support with Impella CP[®] with SmartAssist System[™]. Contrast enhanced computed tomography was performed to assess vasculature. A dual femoral access was obtained: 14 and 8 French sheaths for device insertion and PCI, respectively. Throughout the procedure, the patient's cardiac output was supported by the device.

A rotational atherectomy was performed with a 1.25 mm burr followed by balloon dilatation (semi-compliant balloons 1.0 × 8 mm/2.0 × 15 mm, and noncompliant balloons 2.0 × 20 mm/2.5 × 30 mm). Further lesion preparation was needed, using lithotripsy balloon 2.5 × 12 mm (SHOCKWAVE Medical) and a super high-pressure balloon (2.5 × 20 mm), followed by pharmacological stent implantation (2.50 × 20 mm and 2.75 × 33 mm in mid/proximal LAD), with good result (Fig. 1, **Suppl. Video 1**). The access site was closed with Proglide perclose[™] technique and Angioseal[™] closure device. One year later, he was submitted to RCA and CXA CTO PCI, with significant improvement of LVEF (38%).

This case highlights the importance of “Rotor-Shock-Impella” strategy in patients who were refused surgery due to a high-risk profile. Although this strategy may be safe and life-changing, further studies are needed to prove the long-term benefit of this strategy.

Conflict of interest: None declared

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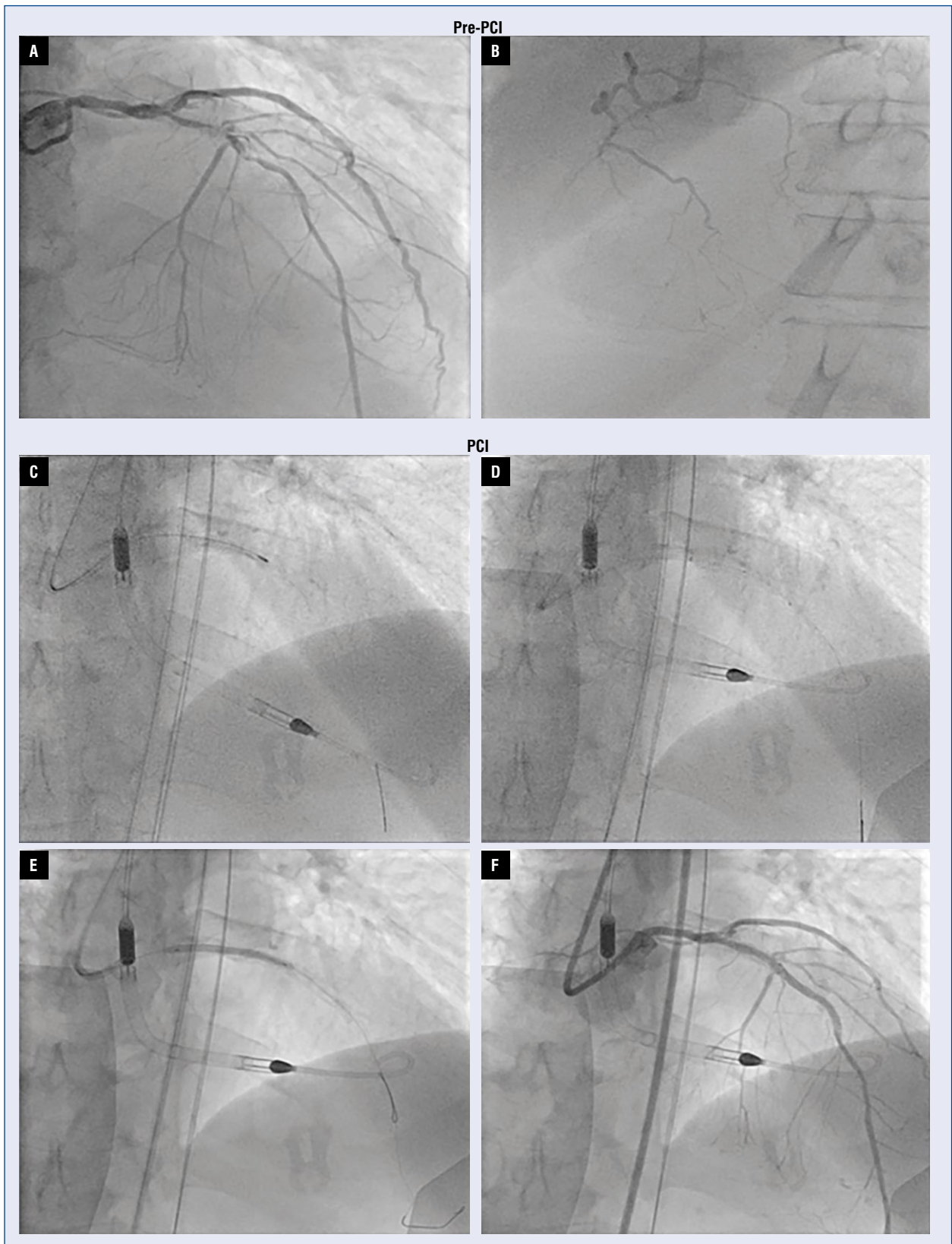


Figure 1. Coronary angiography images before percutaneous coronary intervention (PCI) showing: **A.** An 80% and 95% stenosis on the proximal and mid segment of left anterior descendant (LAD); **B.** A chronic occlusion of the right coronary artery; **C.** PCI of LAD under short-term mechanical support with Impella device™, starting with rotational atherectomy with a 1.25 mm burr; **D.** Further lesion preparation with intravascular lithotripsy; **E.** Drug-eluting stent implantation; **F.** Final result.