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A case of cardiogenic shock recovered from the acute phase by DCA to LMT under the support of Impella

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A 70-year-old woman with hypertension, dyslipidemia, diabetes was presented to our hospital with chest pain lasting for 12 hours. Electrocardiography showed ST-segment elevation in the 2, 3, aVF leads, and echocardiography revealed hypokinesis in all myocardial segments except the lateral wall, leading to a diagnosis of inferior wall ST-elevation myocardial infarction. Emergent coronary angiography revealed an occlusive lesion in the distal right coronary artery(RCA), severe stenosis of the left main trunk(LMT), chronic total occlusion in the mid left anterior descending artery, and severe stenosis of the mid left circumflex artery. Because she was in cardiogenic shock, we placed an Impella CP and performed percutaneous coronary intervention(PCI) to the RCA. We chose a drug-coated balloon because she had a metal allergy. We planned to perform coronary artery bypass grafting(CABG) in the chronic phase for the LMT and remaining two disease. After PCI, we tried to reduce Impella support, but it was difficult to reduce Impella support to P2 due to worsening pulmonary congestion, so we decided to perform PCI to the LMT before removing the Impella. A 6/7Fr Glide sheath was introduced via the left radial artery, and directional coronary atherectomy(DCA) for the LMT was successfully conducted to relieve the severe stenosis. She was subsequently able to wean herself off Impella and non-invasive positive pressure ventilation and progress in rehabilitation. This case highlights the complexity of managing multi-vessel coronary artery disease complicated by cardiogenic shock. We will discuss the timing and strategy of revascularization with reference to current literature.