

CASE REPORT

A Case of Complex, High-Risk, and Indicated PCI

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CASE INTRODUCTION

- A 75-year-old man with coronary calcification and comorbidities underwent a successful Protected percutaneous coronary intervention (PCI) with Impella CP® (Abiomed, Inc.) support
- The patient had preserved left ventricular ejection fraction, but had complex coronary anatomy and multiple comorbidities, including advanced lung disease

CLINICAL PRESENTATION

A 75-year-old man with multiple medical comorbidities (ie, atrial fibrillation, diabetes, advanced chronic obstructive pulmonary disease, diastolic heart failure, and muscular dystrophy) presented with acute pulmonary edema and approximately 1 week of chest pain and shortness of breath that had progressed over several weeks.

Coronary angiography showed extensive calcification in the coronary arteries. The angiogram also showed a large but heavily diseased and calcified left anterior descending (LAD) artery subtended in the mid-segment (Figures 1A and 1B). The disease extended into the distal left main coronary artery, and high-grade disease was present in the proximal obtuse marginal branch and also included a medium but dominant right coronary artery with a 70% to 80% lesion distally.

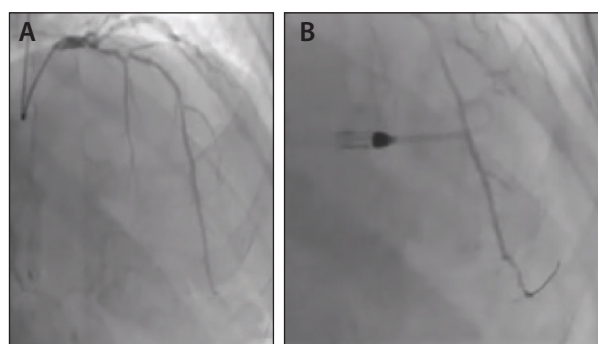


Figure 1. Diagnostic angiogram showing the extent of disease (A). Anteroposterior cranial projection depicting long segment of heavily calcified subtotally occluded mid LAD (B).

The INOVA Heart and Vascular Institute Protected PCI algorithm was used (Figure 2), and with the patient's preserved left ventricular function, a multidisciplinary

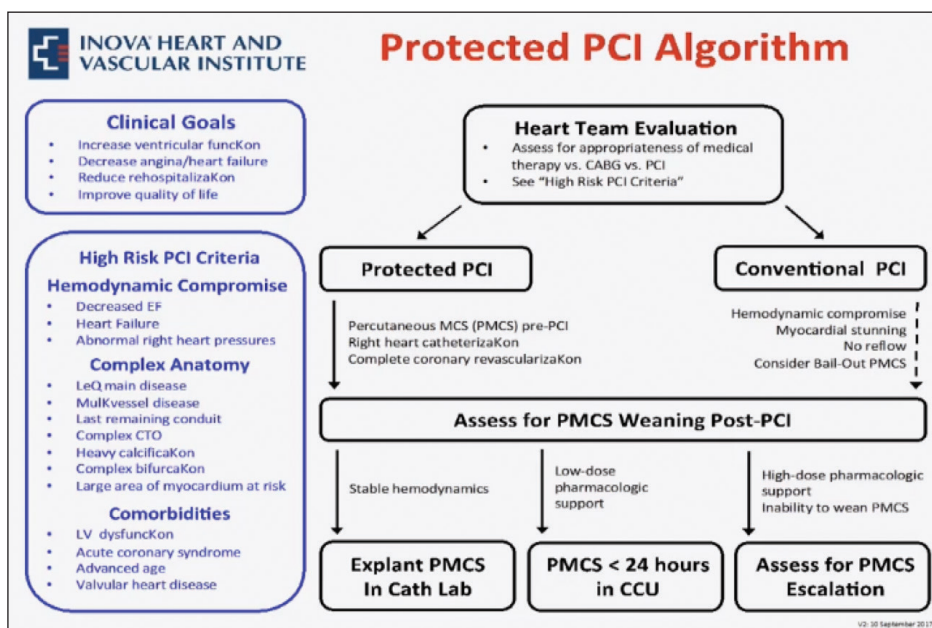


Figure 2. INOVA Heart and Vascular Institute Protected PCI algorithm.

heart team reviewed the case for consideration of the best revascularization option.

Anatomically, the patient had good targets for coronary artery bypass grafting, but due to comorbidities, particularly the patient's advanced lung disease, it was determined that the patient would be difficult to wean from the ventilator postoperatively. Given the large amount of myocardium at risk and the severe degree of calcification requiring rotational atherectomy of the left main, the heart team agreed that the patient was a candidate for Protected PCI with the Impella CP device.

PROCEDURE

Interventionalists proceeded with femoral access using ultrasound guidance and a micropuncture technique. Rotational atherectomy was used on the LAD with a satisfactory result. The patient's mean arterial pressure declined during the procedure, confirming that hemodynamic support was necessary.

A 3.0-mm stent was placed in the proximal and mid LAD, and a modified culotte technique was used to place a stent in the circumflex. Finally, the team stented into the left main coronary artery with a 4.0-mm stent and confirmed placement with intravascular ultrasound (Figure 3).

CASE SUMMARY

The patient was discharged home 24 hours after the procedure with optimization of guideline-directed

medical therapy and was seen at the office with no refractory angina.

In this case, a heart team approach was employed for decision-making, and because of the patient's severe disease and comorbidities, he was not referred for surgery. Protected PCI with percutaneous hemodynamic support was performed, and the patient was successfully revascularized. ■

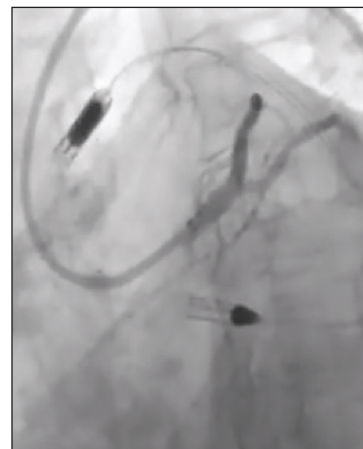


Figure 3. Final left anterior oblique caudal projection following Protected PCI of the left main, LAD, and circumflex.

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Disclosures: None.