Hybrid Percutaneous Transluminal Coronary Angioplasty (PTCA) To The Left Main Artery

Elie Elmann, Ahmed Abdel-Razek, Angel Mulkay, Leonard Lee, Julius Gardin
Cardiothoracic Surgery, Cardiology and Medicine, Hackensack University Medical Center, USA

Introduction:

The patient is a 76 y/o male, frail heavy smoker, with a history of hypertension, diabetes, severe lung disease and prior myocardial infarction (MI), presenting with unstable angina pectoris. Cardiac catheterization demonstrated 75 % ostial left main coronary artery stenosis, 75 % proximal left anterior descending stenosis, and nonobstructive disease in circumflex and RCA. The LV function was normal (Figures 1-3). Imaging (Figures 4-5) showed severe atherosclerosis and lung fibrosis. The patient was deemed inoperable and opted for percutaneous coronary intervention. The FEV1 was 29 % predicted, PCI to the LM and ostial LAD was planned with femoral cardiopulmonary bypass support. Aortic and peripheral vascular disease precluded the use of IMPELLA Abiomed support. The hybrid PCI-CPB procedure was performed in the hybrid laboratory. Vascular access: 7 Fr Femoral Cordis. Catheters: JL 4.0 SH, LBT 7 X B 3.0 and JL 3.5.

Guidewires:

190 cm Abbott Vasc Hydrocoat BMW .014". A 4.0 x 12 mm Abbott Vassc TREK RX NC balloon and 3.0 x 15 mm DES Abbott Xience V RX coronary stents were used. A Volcano Eagle Eye Gold intravascular ultrasound was used. Femoral cannulation: 18 Fr FemFlex arterial and 22 Fr Cardiovations venous. CPB support: TERUMO reduced prime circuit, warm perfusion.

Procedure:

IVUS confirmed severe LM and LAD lesions. LM was stented and IVUS confirmed a 4.0 vessel. The ostial LAD was then stented with TIMI 3 flow with 0 % stenosis confirmed by angiography (Figures 6-8). MYNX closure was performed after CPB was weaned. The patient was extubated within 2 hrs post procedure.

Conclusion:

High risk PCI to LM and LAD in an inoperable patient can be challenging. CPB support can be helpful where the anatomy is amenable to intervention in candidates with severe aortic and lung disease, we recommend full bypass support.