Stent Angioplasty for Coronary Compression Syndrome Related to Prosthetic Aortic Valve

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Case presentation:

A 76-year-old woman was admitted for surgical aortic valve replacement for severe aortic valve stenosis and left atrial appendage occlusion. The preoperative coronary angiography showed patent coronary arteries with anomalous origin of the left circumflex (LCX) arising as a side branch from the right coronary artery (Figure 1). The surgery was successfully performed without complications and a bioprosthetic Edwards Perimount aortic valve of 21 mm has been implanted. Four days after surgery, the patient developed an acute respiratory distress requiring 3 litres of oxygen with positive troponin level that rises from 1800 to 2100 ng/l (normal range <14 ng/l). The transthoracic echocardiography (TTE) showed new onset hypokinesia of the lateral myocardial wall and 12-leads EKG showed significantly depressed ST-segment on infero-lateral leads. She was diagnosed with NSTEMI and underwent emergent coronary angiography which revealed sub-occlusive stenosis of the LCX related to an extrinsic compression by the bioprosthetic aortic valve (Figure 2). View the clinical context and acute setting of NSTEMI, we decided to proceed with percutaneous coronary intervention (PCI) and stent implantation rather than re-do surgery. After crossing the obstructive lesion via a guidewire, we dilated a 2x15mm balloon and deployed a 3x22 mm drug-eluting stent. Then, a post-dilation via a 3x12 mm non-compliant balloon permits to alleviate the residual in-stent stenosis (Figure 2). We note instant improvement of the clinical condition, normalisation of EKG abnormalities, reduction in troponin level and a good outcome in completely asymptomatic patient with normal TTE at 6-months follow-up.

The risk of coronary compression is particularly reconsidered before transcatheter pulmonary valve implantation and represents the major contra-indication [1-2]. Data from literature have identified the anomalous course of coronary arteries as independant risk factor [2]. The appropriate management of coronary compression syndrome is not well defined but establishment of normal blood flow is the main purpose. Herein, we report on the feasibility of PCI despite the technical challenges and risk of restenosis (11%) [3], especially in high surgical risk patients.
Keywords: coronary artery anomaly; percutaneous coronary intervention; myocardial infarction; extrinsic coronary compression; case report.

Consent: The authors confirm that consent for submission and publication of this case report including images and associated text has been obtained from the patient in line with COPE guidelines.
References:


Figure legend:

Preoperative coronary angiograms showed patent left coronary arteries and right coronary artery with anomalous origin of left circumflex artery (A-B). Postoperative coronary angiograms showed a subocclusive stenosis of the left circumflex coronary (C-D) successfully treated by percutaneous stent angioplasty (E-F).