

Bilateral, progressive coronary ostial stenosis following valve sparing aortic root replacement

Obustronne, ostialne zwężenie tętnic wieńcowych po operacji Davida

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A 63-year-old man with ascending aorta aneurysms was scheduled for valve sparing aortic root replacement (David procedure). Preoperative angiography showed normal coronary arteries. The operation was carried out according to the standard procedure and aorto-coronary anastomoses were strengthened with surgical adhesive. The patient was discharged home on the 14th day after the procedure. There were no signs of ischaemia in the electrocardiography (ECG), and echocardiography showed a positive result of the operation with preserved left ventricular (LV) function. Three days later he was brought to the emergency department following a syncope episode preceded by prolonged chest pain. An ECG showed signs of anterior and lateral wall ischaemia and troponins were elevated. Echocardiography revealed severe depression of LV function with an ejection fraction (EF) of 25% and an atypical mass surrounding the aortic bulb (Fig. 1A, B). The patient was referred for coronary angiography in which borderline stenosis of the proximal right coronary artery (Fig. 1C) and critical lesion in the left main were found (Fig. 1D). The left main coronary artery was immediately stented (Fig. 1E) and the ECG, as well as EF, returned in subsequent days to baseline. Three months later, the patient was readmitted for a routine check-up. He complained of gradual symptom recurrence during the previous weeks, described mainly as shortness of breath during mild exertion. Echocardiography findings were comparable to those previously reported. Because of an elevated lesion recurrence risk, the patient was scheduled for invasive coronary angiography. The examination showed the sustained result of left main coronary artery stenting (Fig. 2A), but significant progression of right coronary artery ostial stenosis with slow epicardial flow was noted (Fig. 2B). The patient underwent subsequent percutaneous coronary intervention. The right coronary ostium was stented, and complete patency, as well as rapid artery flow, were restored (Fig. 2C). Significant stenosis of coronary artery ostium is a rare but a potentially life-threatening complication of aortic root and valve surgery. There are several possible causes of this phenomenon, such as surgical error or vessel injury caused by artery cannulation during the infusion of cardioplegic solution. Compression of the artery by the external mass, for example, through overuse of surgical adhesive or later in time, fibrotic tissue formation, seems to be another likely reason. Current literature provides numerous cases of coronary artery stenosis following aortic root and valve surgery. Most of them describe left main artery lesions. Bilateral coronary stenosis is less frequent, but this phenomenon might be under-reported due to the potential high risk of fatality.

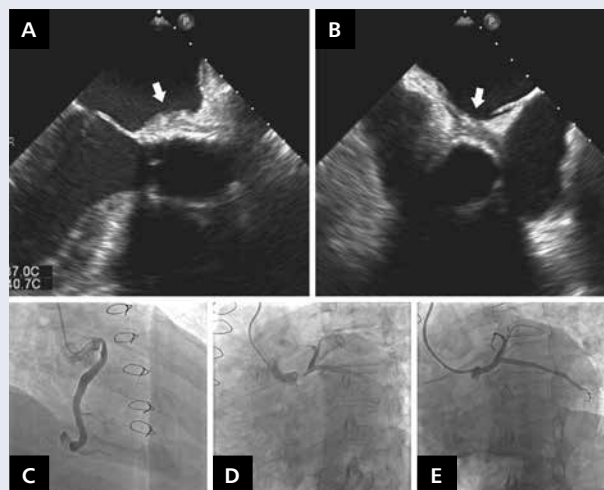


Figure 1. A, B. Atypical mass surrounding the aortic bulb in the area of left main coronary artery origin; C. Borderline stenosis of the proximal right coronary artery; D. Critical lesion in the left main coronary artery; E. Immediate result of the left main coronary artery stenting



Figure 2. A. Sustained result of the left main coronary artery stenting; B. Critical stenosis of the proximal right coronary artery; C. Result of the right coronary artery stenting

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