Aorto-right ventricular fistula presenting 10 years after aortic surgery as an acute coronary syndrome

Syndrome coronarien aigu révélant une fistule aorto-ventriculaire droite dix ans après chirurgie aortique

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An 82-year-old man with a history of aortic valve replacement with a Hancock bioprosthesis 10 years earlier was admitted for a suspicion of acute coronary syndrome (ACS). Initial physical examination revealed no persistent chest pain, normal haemodynamics, jugular venous distension and a precordial continuous murmur. An electrocardiogram displayed right bundle branch block and transient ST-depression in the inferolateral leads. Troponin Ic and C-reactive protein values were mildly elevated on blood test.

Trans thoracic echocardiography showed a normally functioning prosthesis, a normal left ventricle, a dilated right ventricle and a mild pulmonary hypertension. A fistula was found between the right sinus of Valsalva and the right ventricle, with a maximal flow velocity of 2.5 m/s, suggesting a chronic process. The Qp/Qs ratio was 1.7. Transoesophageal echocardiography (Fig. 1A and B) showed two pseudoaneurysms at the previous aortotomy suture line. A defect located in the right-sided pseudoaneurysm wall was responsible for the fistula. No vegetation was noticed.

Electrocardiogram-gated 64-slice computed tomography depicted the fistula surrounding the proximal portion of the right coronary artery (Fig. 1C and D), suggesting compression of this vessel, which might have accounted for the signs of an ACS. As the patient’s haemodynamics promptly deteriorated, he was urgently referred for cardiac surgery without undergoing coronary angiography, in agreement with the surgeons. Under cardiopulmonary bypass, the necrotic tissues were excised, a Dacron patch closed the fistula, and the ascending aorta was replaced. Despite postoperative care, the patient died of a multiple organ failure syndrome shortly after intervention. No evidence of endocarditis was found on subsequent bacteriological analysis.
Figure 1. A: longitudinal view of ascending aorta by transoesophageal echocardiography. B: aorto-right ventricular shunt (arrow) depicted by Doppler imaging coupled to transoesophageal echocardiography. C: sagittal computed tomography scan reconstruction of the heart, demonstrating the presence of pseudoaneurysms and aorto-right ventricular fistula. D: frontal computed tomography scan reconstruction of the heart, analysing relations between aorto-right ventricular fistula (black arrows) and the right coronary artery (white arrows).

Ao: aorta; Fi: fistula; LA: left atrium; LV: left ventricle; PA: pulmonary artery; Ps: pseudoaneurysm; RA: right atrium; RV: right ventricle.