

Mechanical prosthetic aortic valve dehiscence presenting as sudden cardiac death due to extrinsic compression of the left main coronary artery

Myocardial ischemia relevant to infective endocarditis is generally due to embolism of vegetation to coronary arteries or is secondary to underlying coronary artery disease. Myocardial ischemia owing to external compression of coronary arteries is extremely rare.

A 53-year-old male patient who had an aortic valve replacement 5 years ago applied to another hospital with high fever and exertional dyspnea. The patient was referred to our clinic on account of successful cardiopulmonary resuscitation after cardiopulmonary arrest in the emergency department while being examined for his symptoms. The patient had no risk factors for atherosclerosis. The patient was hospitalized, and vegetation on the aortic mechanical valve, severe aortic regurgitation, and dehiscence of the valve were demonstrated on echocardiography (Fig. 1, Video 1-2). Coronary angiography was performed before valve surgery, and diminished coronary flow of the LMCA, proximal LAD, and proximal Cx was detected, conceivably due to external compression, without any atherosclerotic lesion in other coronary artery segments. The RCA was completely normal (Fig. 2, 3). The metallic aortic prosthesis was very mobile. The patient was taken to an emergent operation after coronary angiography. However, the patient passed away intra-operatively. The pathophysiology of sudden cardiac death was supposed to be due to the destruction of surrounding valvular tissue, causing enlargement of the aortic Valsalva and dehiscence of the prosthesis as a result of infective endocarditis, all of which led to external compression of the LMCA.

Sinus of Valsalva aneurysms and metastatic masses are the most common causes of external compression of coronary arteries. However, this condition may be on account of infective endocarditis and dehiscence in patients with prosthetic heart valves. In these patients, external compression of coronary arteries should be kept in mind as a very rare cause of sudden cardiac death.

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Figure 1. Long-axis aortic TEE view: aortic valve dehiscence
LA - left atrium; LV - left ventricle; TEE - transesophageal echocardiography

Video 1. Short-axis aortic TEE view of vegetative mass and aortic valve dehiscence

Video 2. Long-axis aortic TEE view of vegetative mass and aortic valve dehiscence

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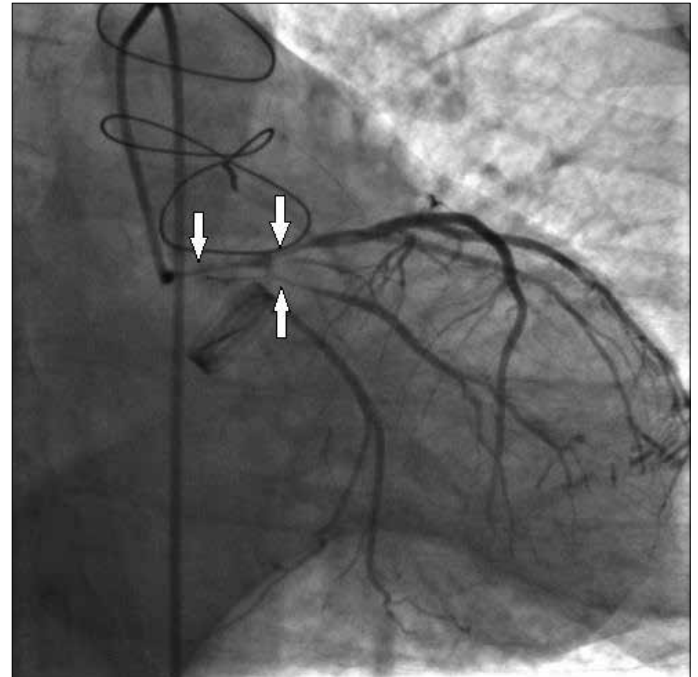


Figure 2. Smooth margined lesions in the LMCA, proximal LAD, and proximal Cx

Arrow- smooth lesions in the LMCA, LAD, and Cx



Figure 3. Normal angiography of the RCA