


CARDIOVASCULAR FLASHLIGHT

Left ventricular outflow tract pseudoaneurysm compromising blood flow through the left main coronary artery after mechanical aortic valve implantation

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A 73-year-old male with a history of mechanical aortic valve replacement and DDD pacemaker implantation was referred to our hospital with progressive anginal complaints. Invasive coronary angiography (CA) revealed systolic compression of the left main coronary artery (LMCA), suggesting an extra-cardiac mass compromising blood flow. Single photon emission computed tomography (SPECT) and multislice computed tomography-CA (MSCT-CA) were obtained which revealed a pseudoaneurysm originating from half the circumference of the left ventricular outflow tract (LVOT) extending over the aortic root. The main stem of the left coronary artery and its proximal circumflex and anterior descending branches were embedded in the aneurysm. Stress SPECT images did not reveal ischaemia. The extensive dehiscence of the aortic root, also depicted by the tilting of the mechanical aortic valve on the invasive angiogram, was the reason to perform a re-operation with implantation of a Bentall prosthesis. A Bio-Valsalva 25 mm prosthesis was implanted on the remaining LVOT at the level of the mitral valve annulus. Cultures obtained during the operation grew coagulase-negative staphylococci; the pseudoaneurysm might be caused by a low-grade infectious process. Post-operatively, antibiotics were continued for 6 weeks. Currently, 10 months after the operation, the patient is doing reasonably well; follow-up MSCT-CA revealed no paravalvular cavities or valvular abnormalities.

Left ventricular outflow tract pseudoaneurysm is a rare and serious complication after implantation of a mechanical aortic valve. It is associated with a history of endocarditis and the development of anginal complaints. Surgery is the first-line therapeutic option. Reports exist on successful stent implantation in the LMCA and percutaneous closure of the pseudoaneurysm.

Panel A. Invasive coronary angiogram right caudal view, showing systolic compression of the left main coronary artery.

Panel B. Multislice computed tomography image, showing a large pseudo aneurysm originating from the left ventricular outflow tract just below the mechanical aortic valve.

Panel C. Volume rendered multislice computed tomography coronary angiography image, showing the left main coronary artery and its proximal anterior descending and circumflex branches embedded in the pseudoaneurysm. The pseudoaneurysm extends over half the circumference of the aortic root.

Panel D. Multislice computed tomography image showing the post-operative situation with the Bentall prosthesis implanted at the level of the mitral valve annulus. No evidence of residual paravalvular aneurysm formation.

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