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IMAGES IN CARDIOLOGY

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Angioplasty and stenting to correct ostial right coronary artery obstruction by a prosthetic aortic valve

A 76-year-old woman underwent aortic valve replacement with a 23 mm Carpentier Edwards bioprosthesis for aortic stenosis. Preoperative coronary angiograms were normal. Within three months she developed exertional angina. A multislice computed tomographic (CT) angiogram indicated that part of the valve stent encroached upon the right coronary ostium (panel A, compared to left main stem (LMS), panel B).

At angiography the right coronary ostium was engaged around the stent strut, showing a slit-like lumen (panel C). This was crossed with a Pilot 50 guide wire and progressively predilated up to 2.5 mm. A 2.75 × 16 mm Taxus stent was deployed and postdilated to 3.5 mm (panel D). An aortogram confirmed normal prosthetic valve function. Her symptoms improved immediately and routine angiography after seven weeks showed no restenosis.

Iatrogenic ostial coronary stenosis is a rarely reported complication of aortic valve replacement, usually presenting after two to six months and resulting from fibrous intimal proliferation, thought to be caused by trauma to the ostia during cannulation of the coronaries for direct cardioplegia.

Very rarely the stenosis is caused by direct obstruction by the prosthetic stent, reported in less than 0.2% of aortic valve replacements. This may be due to oversizing of the aortic prosthesis or abnormally low ostia. Such obstruction will usually be noticed following the procedure, and the prosthetic valve will be resected or replaced, sometimes with enlargement of the aortic annulus and relocation of the coronary ostia. This is the first reported case of percutaneous intervention to non-atherosclerotic coronary ostial obstruction caused by a prosthetic aortic valve.

P Das

I Meredith

paul.das@med.monash.edu.au