

Images in cardiovascular medicine

Sirolimus-eluting stent implantation in a heart transplant recipient

Fabrizio Tomai, Giulia Gagliardi*, Igino Proietti

*Division of Cardiac Surgery, "Tor Vergata" University, *Department of Pediatric Cardiology, Bambino Gesù Pediatric Hospital, Rome, Italy*

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Address:

Dr. Fabrizio Tomai
Cattedra
di Cardiocirurgia
Università degli Studi
"Tor Vergata"
European Hospital
Via Portuense, 700
00149 Roma
E-mail: f.tomai@tiscali.it

Cardiac allograft vasculopathy is the leading cause of late death after heart transplantation. To date, there is no known treatment for graft vasculopathy. This 27-year-old heart transplant recipient was admitted for annual evaluation owing to the development of transplant coronary vasculopathy. Coronary angiography showed a normal left coronary artery and a 70% stenosis on the proximal tract of the right coronary artery (Fig. 1A). Intravascular ultrasound revealed diffuse intimal thickening but not severe stenosis of the left coronary artery and confirmed the presence of a focal stenosis with a mean lumen area of 2.3 mm² in the right coronary artery. Two days after aspirin (100 mg daily) and clopidogrel (300 mg as loading dose, followed by 75 mg daily) administration, the patient underwent coronary angioplasty with a sirolimus-eluting stent. After predilation, a 2.75/18 mm sirolimus-eluting stent was successfully implanted at 12 atm and a fur-

ther dilation was performed at 16 atm. The procedure was successful with an optimal angiographic result (Fig. 1B) and after 2 days the patient was discharged in good clinical conditions. At the 8-month follow-up visit, the patient was free of symptoms and coronary angiography and intravascular ultrasound study did not reveal any significant restenosis of the treated vessel (Fig. 1C).

This is the first case of coronary sirolimus-eluting stent implantation in a heart graft for epicardial focal stenosis. Due to the low rate of restenosis after sirolimus-eluting stent implantation in the native coronary arteries, we suggest that this approach may be efficacious even in cardiac transplant patients, in whom coronary angioplasty with uncoated stents has yielded disappointing results. The rationale of this approach is that myointimal hyperplasia caused by the migration, transformation, and proliferation of smooth muscle



Figure 1. Coronary angiograms show a 70% stenosis on the proximal tract of the right coronary artery (panel A) successfully treated with sirolimus-eluting stent implantation (panel B). Coronary angiography and intravascular ultrasound study do not show any significant restenosis of the treated vessel at the 8-month follow-up (panel C).

cells is responsible for transplant atherosclerosis as well as for in-stent restenosis. Thus, a local delivery of sirolimus, a macrolide antifungal agent which inhibits cytokine-mediated and growth factor-mediated proliferation of lymphocytes and smooth muscle cells, could be effective in heart transplant recipients with focal

coronary lesions even more than in patients with native coronary artery disease. This speculation is also supported by recent results showing that treatment with rapamycin is able to slow the progression of transplant coronary vasculopathy probably by its antiproliferative and antimigration effects.



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