

Paravalvular leak treatment with a transapical valve-in-valve implantation of a Sapien 3 ultra valve after transfemoral transcatheter aortic valve implantation of a Portico transcatheter valve

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Transcatheter aortic valve implantation (TAVI) is the standard care of treatment of severe symptomatic aortic stenosis of the trileaflet valve in high risk surgical patients. Over the past years, the rate of moderate or severe paravalvular leak has declined (1), and the 30-day paravalvular leak of > II degree with the Portico transcatheter valve (Abbot Structural Heart) is reported to be between 2.8% and 5.7% (2, 3). Postdilatation and transcatheter valve-in-valve procedures are effective methods of treatment (1, 4).

An 85-year-old male patient with a severe symptomatic aortic stenosis, severely calcified ascending aorta and EuroScore II 4.25%, initially underwent transfemoral aortic valve implantation of a 25 mm Portico transcatheter valve. He was discharged in stable clinical condition and moderate paravalvular leak. After 28 days he was re-hospitalized with signs of cardiac decompensation, and transthoracic echocardiography showed severe paravalvular leak at the site of the right coronary and non-coronary cusps (**Figure 1**).

He was considered by the cardiologists to be a high risk patient for Portico valve postdilatation, or for transfemoral transcatheter valve-in-valve implantation of a Sapien 3 ultra valve (Edwards Lifesciences) because of the presence of severe aortic annular calcifications (**Figure 2**). He was then referred to the clinic of cardiac surgery, where he underwent a successful transapical transaortic valve-in-valve implantation with a 26 mm Sapien 3 ultra valve (**Figure 3**).

On postoperative day 10 he was discharged in stable hemodynamic condition with trivial paravalvular leak and mean aortic valve gradient of 10 mmHg.

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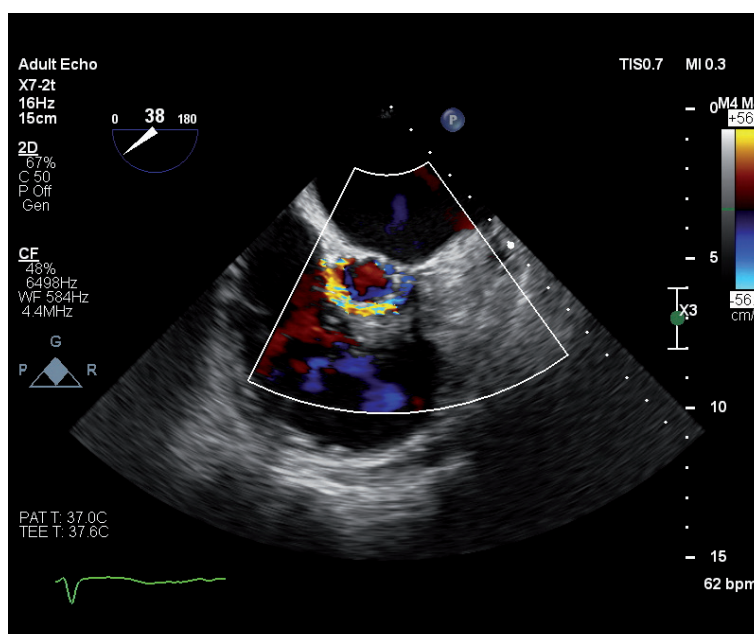


Figure 1 Transthoracic echocardiography showing the severe paravalvular aortic leak at the site of the right coronary and non-coronary cusps

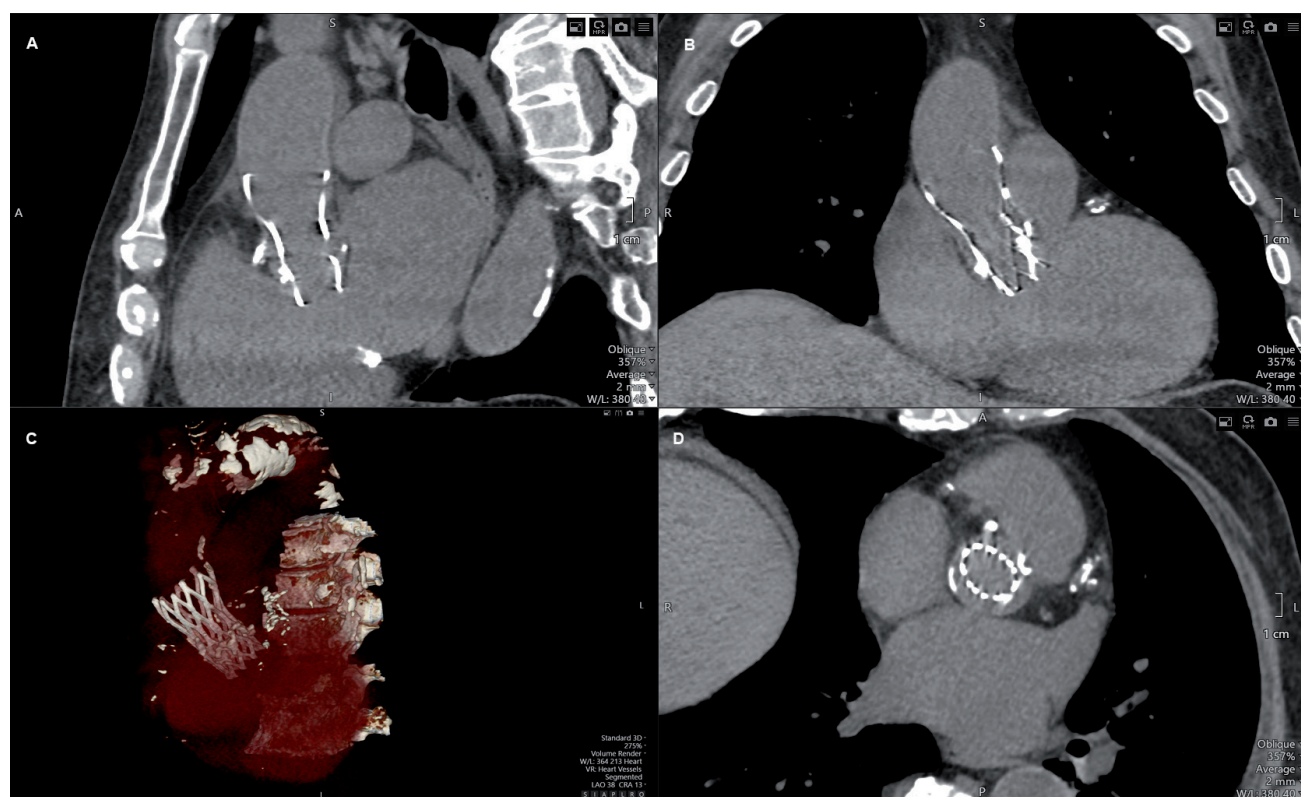


Figure 2 Cardiac computed tomography showing the transcatheter Portico valve frame deformation due to the presence of severe aortic annular calcifications in A: sagittal projection, B: coronal projection, C: 3D projection and D: axial projection

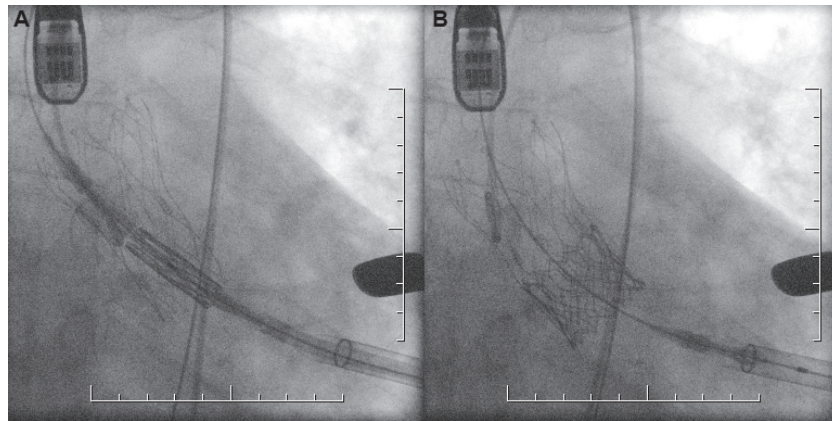


Figure 3 A: Perioperative fluoroscopy showing the successful valve-in-valve implantation of the Sapien 3 ultra valve, B: Perioperative fluoroscopy showing the final valve-in-valve position of the Sapien 3 ultra valve

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