

# CoreValve Evolut R implantation as valve-in-valve in an Edwards SAPIEN 3 to treat paravalvular regurgitation

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A 75-year-old male underwent transfemoral transcatheter aortic valve implantation (TAVI) with a 23 mm SAPIEN 3 (Edwards Lifesciences Inc., Irvine, CA, USA). One year after, he was admitted to our department for pulmonary oedema. Echocardiographic evaluation evidenced low placement of the SAPIEN 3 and 3-(4)+/4+ aortic regurgitation. ECG-gated multislice computed tomography (MSCT) was performed which confirmed low placement (**Moving image 1**) and underexpansion of the SAPIEN 3 with a perimeter of 62 mm and diameter of 20 mm (**Figure 1A-Figure 1C**). After Heart Team evaluation, a new TAVI procedure was preferred with the implantation of a 26 mm CoreValve® Evolut R™ (Medtronic, Minneapolis, MN, USA). Basal aortography evidenced significant paravalvular regurgitation (**Moving image 2**). Haemodynamic evaluation revealed a mean aortic gradient of 25 mmHg and an aortic regurgitation index of 22. After 26 mm Evolut R implantation, post-dilatation was performed. Final aortography showed trivial paravalvular regurgitation (**Moving image 3**). Haemodynamic assessment evidenced a mean transaortic gradient of 4 mmHg and an aortic regurgitation index of 44. Pre-discharge ECG-gated

MSCT evidenced good Evolut R expansion inside the SAPIEN 3 (**Figure 1D**) and echocardiography showed trivial paravalvular regurgitation.

Implantation of a CoreValve Evolut R prosthesis for the treatment of a dysfunctional Edwards SAPIEN 3 prosthesis is feasible and is associated with a good functional result.

## Conflict of interest statement

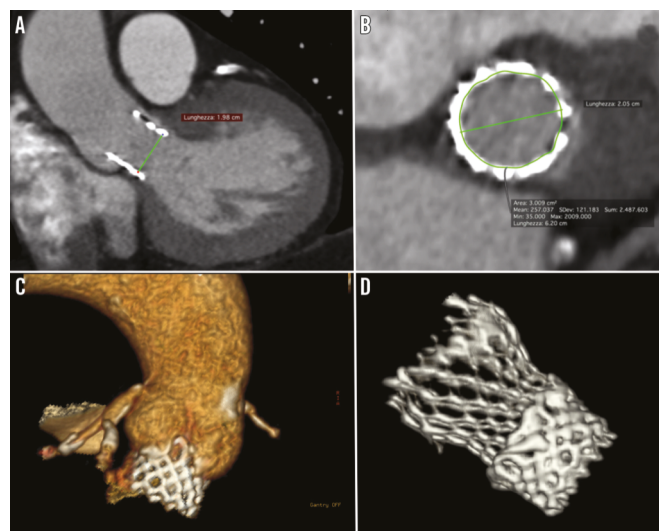
G. Bruschi is a consultant for Medtronic and Direct Flow Medical. The other authors have no conflicts of interest to declare.

## Online data supplement

**Moving image 1.** 3D reconstruction of multislice computed tomography that evidenced low placement of the SAPIEN 3 valve.

**Moving image 2.** Basal aortography evidenced significant paravalvular regurgitation of the SAPIEN 3 valve.

**Moving image 3.** Final aortography showed trivial paravalvular regurgitation with good Evolut R expansion inside the SAPIEN 3 valve.



**Figure 1.** SAPIEN 3 ECG-gated multislice computed tomography evaluation and final results after valve-in-valve with CoreValve Evolut R. A) MSCT oblique coronal view that evidenced low SAPIEN 3 implantation and underexpansion with a valve diameter of 19.8 mm. B) Double oblique transverse reformatting of the annulus on MSCT with SAPIEN 3 area of 300 mm<sup>2</sup> and perimeter of 62 mm. C) 3D MSCT evidenced low placement of the 23 mm SAPIEN 3 valve. D) 3D MSCT evidenced full Evolut R expansion inside the SAPIEN 3 valve.

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