

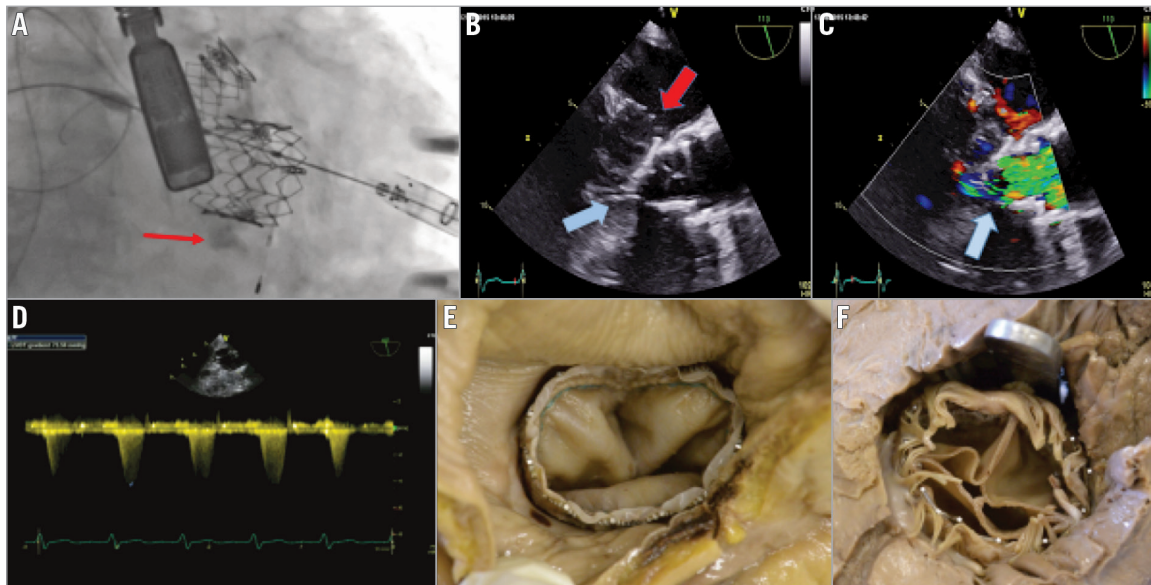
# First case of transcatheter native mitral and aortic valve replacement



Hellmuth Weich<sup>1\*</sup>, MBChB; Jacques Janson<sup>2</sup>, MBChB; Alfonso Pecoraro<sup>1</sup>, MBChB; Jacques van Wyk<sup>3</sup>, MBChB; Andre Rocher<sup>4</sup>, MBChB; Johan Dempers<sup>5</sup>, MBChB; Anton Doubell<sup>1</sup>, MBChB, PhD

1. Division of Cardiology, Tygerberg Hospital and Stellenbosch University, Cape Town, South Africa; 2. Division of Cardiothoracic Surgery, Tygerberg Hospital and Stellenbosch University, Cape Town, South Africa; 3. Mediclinic Panorama, Cape Town, South Africa; 4. Department of Anaesthesiology, Tygerberg Hospital and Stellenbosch University, Cape Town, South Africa; 5. Department of Forensic Pathology, Tygerberg Hospital and Stellenbosch University, Cape Town, South Africa

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We describe the first case of transcatheter replacement of both aortic and mitral native valves in a 91-year-old female patient with severe symptomatic aortic stenosis and severe mitral stenosis. A CT scan confirmed circumferential mitral annular calcification (MAC). Via a transapical approach, a 23 mm SAPIEN XT valve (Edwards Lifesciences, Irvine, CA, USA) was successfully placed (**Moving image 1**). The mitral annulus measured 19×26 mm and a 29 mm SAPIEN XT valve was deployed within the MAC (arrow in **Panel A**, **Moving image 2**). Transoesophageal echo (TEE) confirmed good function of both valves, but the prosthetic mitral valve (red arrow) caused obstruction of the aortic valve inflow (blue arrow in **Panel B**, **Moving image 3**). The same view with colour shows turbulent flow in the left ventricular outflow tract (LVOT) due to the protrusion of the crown of the mitral prosthesis (**Panel C**, **Moving image 4**). A gradient of 73.59 mmHg was noted over the LVOT in the TEE transgastric long-axis view (**Panel D**). The patient was extubated on the table but her blood pressures remained extremely labile and she died 12 hours later. Post-mortem evaluation confirmed good placement of both valves. The mitral valve was compressed by

cardiopulmonary resuscitation (CPR) when viewed from the atrial side (**Panel E**), and in **Panel F** (from the ventricular side) there is a scalpel handle protruding through the aortic valve into the ventricle showing obstruction of the LVOT.

## Conflict of interest statement

The authors have no conflicts of interest to declare.

## Supplementary data

**Moving image 1.** Deployment of the transcatheter aortic valve via a transapical approach.

**Moving image 2.** Deployment of a reverse-mounted 29 mm SAPIEN XT valve in the clearly visible ring of mitral annular calcification.

**Moving image 3.** 2D transoesophageal echo (TEE) long-axis view showing the mitral prosthesis functioning well but causing obstruction to the aortic outflow tract.

**Moving image 4.** The same view as Moving image 3 but with colour flow indicating the acceleration of flow where the crown of the mitral valve obstructs the left ventricular outflow tract.

\*Corresponding author: Division of Cardiology, 8th Floor, Tygerberg Hospital, Private bag, Parow, 7505, South Africa.  
E-mail: [hweich@sun.ac.za](mailto:hweich@sun.ac.za)

