What went wrong and how it got right: heart team provides value in transcatheter aortic valve replacement

Maria Chiara Todaro1, Lilia Oreto1, Tanvir Bajwa2, Daniel O’Hair3, and Bijoy K. Khandheria2*

1Clinical and Experimental Department of Medicine and Pharmacology, University of Messina, Via Consolare Valeria N 1, Messina 98100, Italy; 2Aurora Cardiovascular Services, Aurora Sinai/Aurora St. Luke’s Medical Centers, University of Wisconsin School of Medicine and Public Health, 2801 W. Kinnickinnic River Parkway, #845, Milwaukee, WI 53215, USA; and 3Cardiovascular and Thoracic Surgery, Aurora St. Luke’s Medical Center, 2901 W. Kinnickinnic River Parkway, #511, Milwaukee, WI 53215, USA

* Corresponding author. Aurora Cardiovascular Services, 2801 W. Kinnickinnic River Parkway, #845, Milwaukee, WI 53215, USA. Tel: +1 414 649 3909; Fax: +1 414 649 3278, e-mail: publishing22@aurora.org

Image description
An 89-year-old woman deemed at extreme surgical risk underwent aortic CoreValve® (Medtronic Inc., Minneapolis, MN, USA) implantation. Her history was significant for hypertension and chronic lung disease. Work-up at admission revealed: blood pressure 96/43 mmHg, heart rate 80 bpm, soft second heart sound, and late-peaking systolic murmur (grade 3/6) in the precordium with radiation to the neck.

Transoesophageal echocardiography (TEE) immediately after implantation showed the CoreValve in situ and an echodense mobile structure adherent to the posterior surface of the valve (arrow) (Panel A, Supplemental online data, Video S1). Aortic root angiography showed a radiopaque mobile structure at the proximal edge of the valve (Supplemental online data, Video S2). Colour-flow TEE showed severe aortic regurgitation across a flail leaflet of the CoreValve (Panel B, Supplemental online data, Video S3). This was confirmed by haemodynamics, as blood pressure dropped to 52/26 mmHg and left ventricular end-diastolic pressure increased to 40 mmHg.

The decision to implant a CoreValve within the previous one was promptly made, with resultant deployment in <5 min. The patient became stable; TEE and aortic root angiography confirmed mild para-valvular regurgitation. Follow-up TEE on day 30 showed stable valve position and normal haemodynamics.

So far, reported mechanisms of intra-procedural severe aortic regurgitation are malpositioning, undersizing, or underexpansion of the valve. This case highlights the pivotal role of echocardiographic guidance during transcatheter aortic valve implantation in identifying unexpected but potentially life-threatening complications. It also highlights the need for a ‘heart team’ of experienced cardiologists, cardiac surgeons, and anaesthesiologists.

Supplementary material is available at EJCTS online.

Conflict of interest: none declared.