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MyVal and mini-chimney stenting to prevent coronary obstruction during full root stent-less aortic valve-in-valve procedure

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A 73-year-old woman with a history of cerebral stroke with permanent left hemiplegia and rheumatic polymyalgia, presented to our Unit for exertional dyspnea. In 1995, the patient underwent surgical replacement with 23-mm stent-less Toronto SPV aortic root bioprosthesis (St.

Jude Medical, St. Paul, MN) (Fig. 1A.1–2) for root dilatation and valve insufficiency. Echocardiographic assessment revealed prosthetic leaflets degeneration (valve area 0.7 cm²; mean gradient 49 mmHg). Multi-slice computed tomography (MSCT) and tridimensional reconstruction

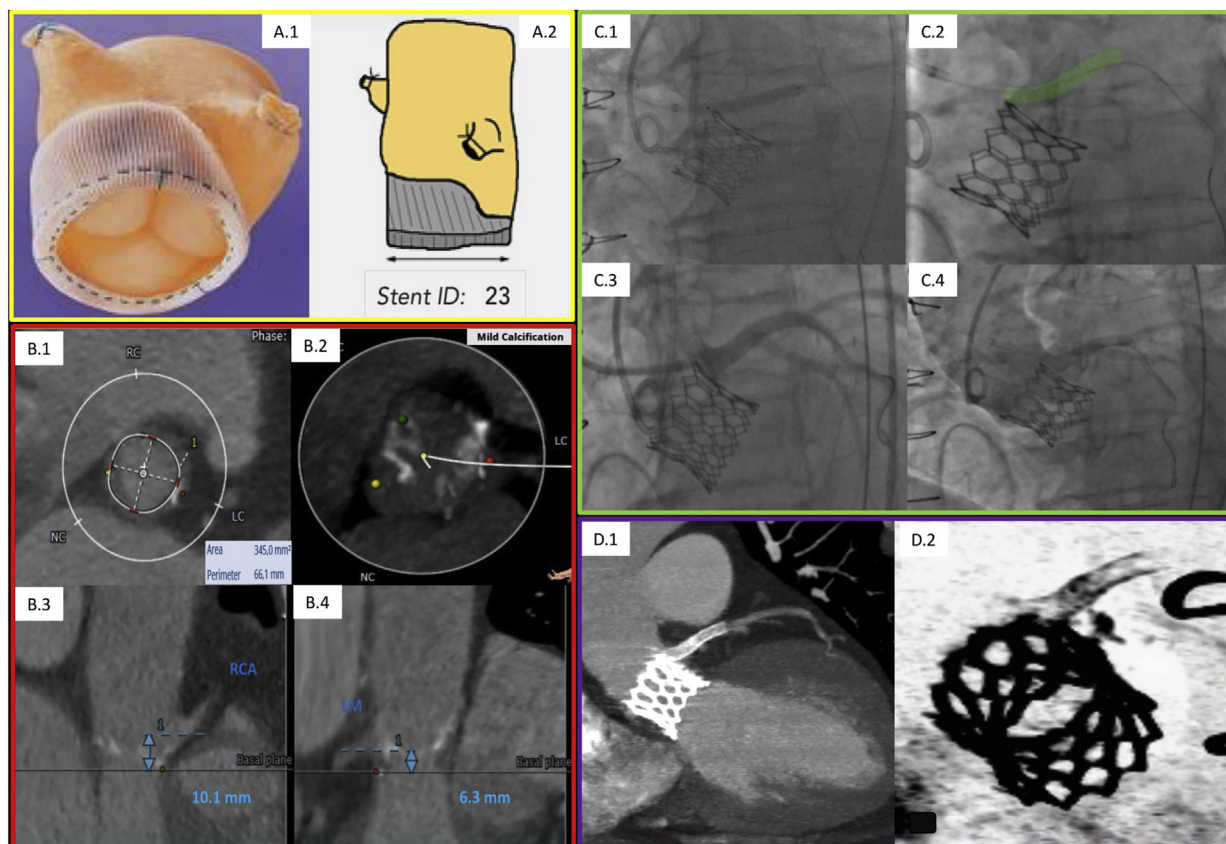


Fig. 1. (A) Stent-less Toronto SPV aortic root bioprosthesis. (B) Degenerated stentless bioprosthesis (1–2) and the low (6.3 mm) left main-to-Dacron/annulus height (3–4) at pre-procedural MSCT. (C) Left main stent implantation with protrusion in the aortic root lumen over the transcatheter heart valve upper edge (1–2). Immediate final angiographic result (3–4) and (D) 6-month MSCT follow-up. MSCT: multi-slice computed tomography.

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(3mensio Structural Heart, Esaote, Genova Italy) demonstrated transcatheter valve-in-valve (ViV) feasibility (Fig. 1B.1–2), even if a low height of the re-implanted unprotected left main (ULM) from the Dacron/annulus (Fig. 1B.3–4) was shown. A novel balloon-expandable (BE) trans-catheter heart valve (THV) (Myval 23 mm, Meril Life Sciences Pvt. Ltd., India) [1] was selected (frame height: 17.8 mm) for trans-femoral ViV. To prevent coronary obstruction, a 6F EBU 3.5 (Medtronic, CA, USA) guiding catheter was used to selectively engage the left coronary, a BMW guidewire (Abbott Vascular, Santa Clara, CA) was placed in the left anterior descending artery and a 4.0x28mm drug-eluting stent (Xience Sierra, Abbott Vascular, Santa Clara, CA) was positioned in the ULM before ViV. After THV deployment, DES was preventively implanted with a minimal protrusion in the aortic root lumen (“mini-chimney” technique) (Fig. 1C.1–4). No periprocedural complications were recorded. At 6-month follow-up patient was asymptomatic and MSCT showed adequate THV position with DES patency (Fig. 1D.1–2). ViV in a stent-less full root bioprosthesis is a risk factor for early (ECO) and delayed coronary obstruction (DCO) [2]. Recent evidences demonstrate that ViV procedure with a BE-THV,

compared to self-expanding ones, is associated with a lower DCO risk when coronary protection is managed by stent implantation compared to “wire-only” strategy [3]. This case highlights the performance of a novel BE-THV plus stent implantation to prevent ECO or DCO during ViV procedure involving a degenerated full root stent-less bioprosthesis with a low ULM height.

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