

Endovascular management of heavily calcified abdominal aorta dissection during transcatheter aortic valve implantation

Panagiotis Antiochos¹, Pierre Monney¹, Stephane Fournier¹, Christan Roguelov¹,
 Salah D. Qanadli², Eric Eeckhout¹, Olivier Muller¹

¹Department of Internal Medicine, Division of Cardiology, University Hospital of Lausanne, Switzerland

²Department of Radiology, University Hospital of Lausanne, Switzerland

An 82-year-old woman known for diabetes mellitus, chronic kidney disease, porcelain aorta, and previous mitral valve replacement was admitted for transcatheter aortic valve implantation

(TAVI). The first aortic prosthesis (Corevalve[®] 29 mm, Medtronic, MN, USA) was implanted too high above the native aortic annulus, resulting in severe paravalvular regurgitation. TAV-in-TAV

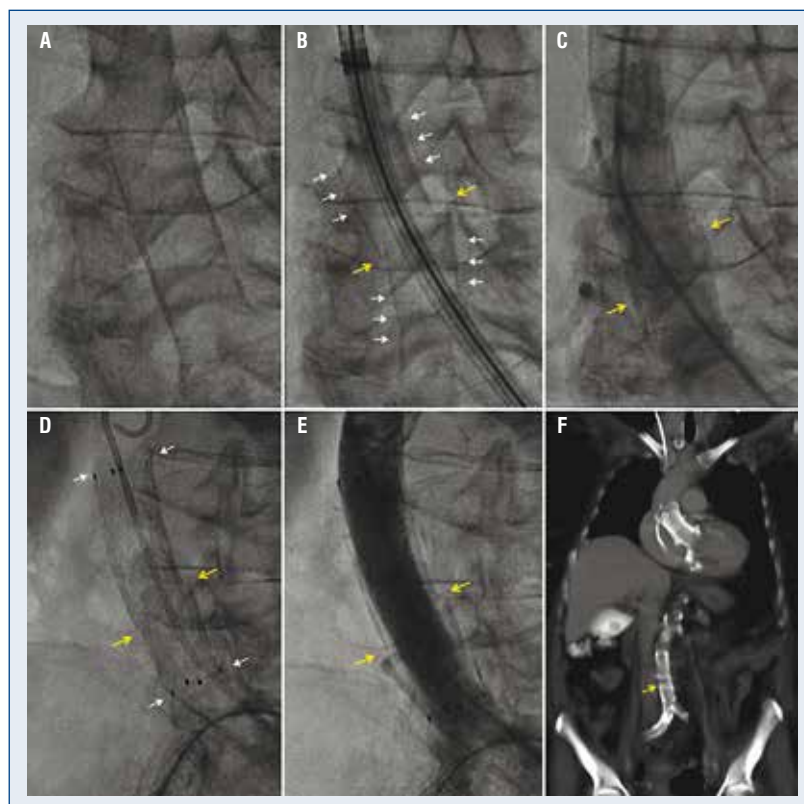


Figure 1. **A.** Before transcatheter aortic valve implantation (TAVI): abdominal aorta with extensive circumferential calcifications; **B, C.** After TAVI: fracture and vertical displacement of abdominal aorta wall with bilateral dissection traces; **D, E.** Transfemoral implantation of a covered metal stent across the fracture site and successful restoration of the aortic trajectory, without signs of residual dissection; **F.** Post-procedural computed tomography showing TAV-in-TAV implantation, transjugular temporary pacemaker lead and stent into the abdominal aorta.

Address for correspondence: Panagiotis Antiochos, MD, Division of Cardiology, University Hospital of Lausanne, Rue du Bugnon 46, CH-1011 Lausanne, Switzerland, e-mail: panagiotis.antiochos@chuv.ch

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implantation (Corevalve[®] 29 mm) was successfully performed as a rescue strategy to restore hemodynamics and secure the first valve, with an excellent final result without residual regurgitation. Multiple passages and manipulation of the valve delivery systems within tortuous peripheral axes resulted in a fluoroscopically visible vertical displacement of the heavily calcified abdominal aorta (Fig. 1A, B). Contrast aortography ruled out active bleeding and showed traces of bilateral dissection in the abdominal aorta wall (Fig. 1C; [Supplementary Video 1 — see journal website](#)). Using the same transfemoral access, a 13.5 × 60 mm covered stent graft (Fluency[®] Plus Endovascular Stent Graft, Bard, AZ, USA) was successfully implanted across the dissection site (Fig. 1D), sealing dissection

traces and restoring alignment of the abdominal aorta (Fig. E, F; [Supplementary Video 2 — see journal website](#)). The patient had an uneventful recovery and was eventually discharged to cardiac rehabilitation.

This is — to the best of our knowledge — the first case of endovascular treatment of abdominal aorta dissection during TAVI. Patients at high surgical risk, but eligible for TAVI, often present with poor vascular anatomy, such as the presence of extensive calcifications of the ascending, thoracic or abdominal aorta. Such patients are at higher risk for peripheral vascular complications that can be managed percutaneously during the same procedure, in collaboration with interventional radiologists.

Conflict of interest: None declared