

# Transcatheter Aortic Valve Implantation through the Ascending Aorta: An Alternative Option for No-Access Patients

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## ABSTRACT

Retrograde transcatheter aortic valve implantation (TAVI) was successfully performed in an 80-year-old woman who had critical aortic stenosis but had no conventional access available because of severe calcifications of the femoral, iliac, and subclavian arteries. The TAVI procedure was performed with the CoreValve ReValving System. The currently available results obtained with TAVI show that such approaches provide significant clinical improvement in patients with severe aortic stenosis and unacceptable risk or contraindications for surgery. The ascending aorta approach might help to expand the implantation possibilities for those patients for whom the typical access sites are not available.

## INTRODUCTION

Transcatheter aortic valve implantation (TAVI) is rapidly becoming the treatment of choice in high-risk patients [Webb 2007; Walther 2008]. Currently, only 2 devices are CE approved and commercially available. The Edwards-SAPIEN THV valve (Edwards Lifesciences, Irvine, CA, USA) is available in 23- and 26-mm sizes and can be implanted either antegradely (via the apex of the left ventricle) or retrogradely (femoral vessels and subclavian artery). At present, the CoreValve ReValving System (CoreValve, Irvine, CA, USA), which is available in 26- and 29-mm sizes, is approved only for retrograde implantation.

We successfully performed a retrograde TAVI with the CoreValve ReValving System in a patient who had no conventional access available.

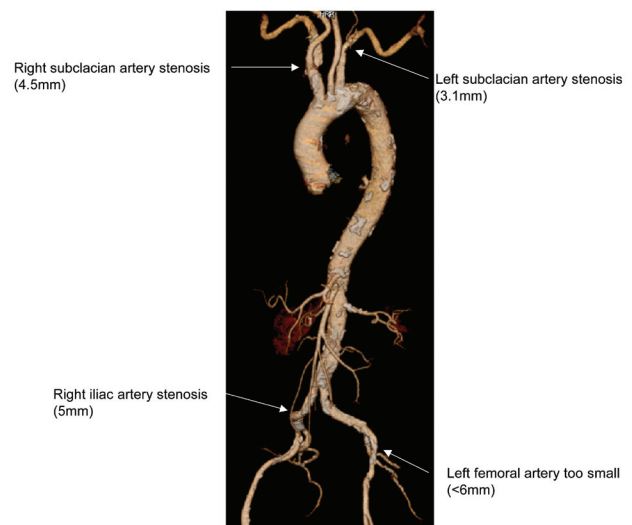
## CASE REPORT AND DISCUSSION

An 80-year-old woman with critical aortic stenosis was admitted to undergo TAVI. The valvular orifice area was 0.45

cm<sup>2</sup>, with a mean gradient of 48 mm Hg (maximum gradient, 79 mm Hg). The patient's logistic EuroSCORE was 29.2%. A transesophageal echocardiographic examination revealed an aortic annulus of 26 mm, which prohibited transapical implantation of an Edwards-Sapien THV valve (largest acceptable annular diameter, 25 mm). On the other hand, a computed tomography scan showed severe calcifications of the femoral, iliac, and subclavian arteries (Figure) that impeded the typical retrograde approach for implantation of a large CoreValve device.

We therefore opted for this bailout approach, similar to the approaches described for endoaortic stent procedures [Usui 1999; Vendramin 2007]. A noncalcified area of the ascending aorta was identified via an upper mini-sternotomy. The area was punctured, and a balloon valvuloplasty was performed. A 29-mm CoreValve was then implanted with the aid of fluoroscopy. Intraoperative aortography and echocardiographic assessments showed only a trace of aortic insufficiency, with no stenosis.

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contraindications for surgery [Vahanian 2008].

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#### DATA SUPPLEMENT

An online Video presents periprocedural footage of ascending aorta cannulation, balloon dilatation of the aortic valve, and subsequent implantation of the transcatheter valve.

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