

## Transcatheter aortic valve implantation in a 54-year-old patient with aggressive HIV

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### Abstract

We report a case of a 54-year-old patient who was denied surgical replacement for severe aortic stenosis because of complicated acquired immunodeficiency syndrome and who successfully underwent transcatheter aortic valve implantation at our institution.

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**Key words:** Severe aortic stenosis; Acquired immunodeficiency syndrome; Transcatheter aortic valve implantation; Heart team; Periprocedural complications

**Core tip:** The present case report describes the feasibility and safety of transcatheter aortic valve implantation for patients with acquired immunodeficiency syndrome, evaluated after the heart team decision.

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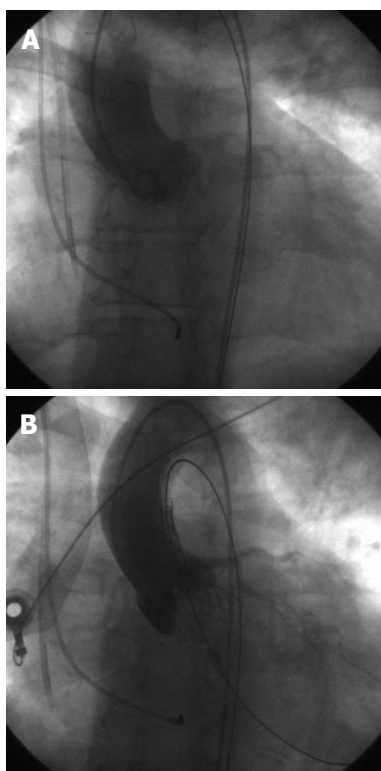
Salizzoni S, D'Ascenzo F, Moretti C, Bonora S, Calcagno A, Omedè P, Montrucchio C, Cerrato E, Colaci C, Sheiban I, Marra S, Rinaldi M, Gaita F. Transcatheter aortic valve implantation in a 54-year-old patient with aggressive HIV. *World J Clin Cases* 2014; 2(4): 97-99 Available from: URL: <http://www.wjgnet.com/2307-8960/full/v2/i4/97.htm> DOI: <http://dx.doi.org/10.12998/wjcc.v2.i4.97>

### INTRODUCTION

The transcatheter aortic valve implantation (TAVI) procedure is currently considered a valid alternative to surgery in patients with severe aortic stenosis not eligible for valve replacement or with high operative risk, as demonstrated by the recent PARTNER<sup>1</sup> trial, which showed similar results between surgery and TAVI. For this reason, it may represent an attractive option for patients whose surgical risk is difficult to assess, like immunocompromised ones.

### CASE REPORT

We report the case of a 54-year-old male (82 kg, 178 cm) with a diagnosis of post-transfusion HIV infection in 1990, who had taken six different antiretroviral drugs because of a virus with several resistances. In October 2009, the patient was hospitalized for *Listeria* meningitis and he suffered from several episodes of acute heart failure, after which severe aortic stenosis was diagnosed by transthoracic echocardiography (TTE), with a mean gradient of 55 mmHg and an ejection fraction of 50% without coronary disease at the angiography. The patient was



**Figure 1 Positioning image.** A: Pig tail positioning before transcatheter aortic valve implantation; B: Valve after positioning.

consequently referred to cardiac surgeons who refused to do the procedure due to a high operative risk, with a Cd4 cell count of 400 cell/cc and low count of platelets. Nevertheless, from December 2010 he became symptomatic (NYHA III) and had several syncopal episodes, the last of which led to a leg fracture.

The patient was referred again to our surgeons who considered him for TAVI, despite his age and low risk detected by common scores (Logistic EuroSCORE 1.51%, STS 3%). Multidisciplinary discussion, including the infectious diseases specialist who foresaw at least a 2-year survival and a high risk of potential life threatening peri-intervention infections at the same time, led to the decision of a percutaneous transfemoral approach to minimize all potential sites of infection, both for the patient and the operators. He was successfully treated with a 29 mm CoreValve and discharged uneventfully on post-operative day nine (Figure 1). His TTE showed a mean gradient of 12 mmHg and mild paraprothestic aortic insufficiency. His cardiovascular therapy consisted of aspirin, clopidogrel and furosemide 25 mg.

Two weeks after discharge, he presented to the emergency department because of angina (CCS II) and repeated episodes of gingival bleeding and melena. ECG was unchanged but important anemia (Hb 8 g/dL) was detected, so clopidogrel was stopped.

At the 12 mo follow-up, he was in NYHA I and had no further syncope or angina. Ejection fraction was 51%, with a mean transprothestic gradient of 12 mmHg and still mild paraprothestic aortic insufficiency on echocardiography.

## DISCUSSION

The numbers of immunocompromised patients with aortic stenosis will increase because of longer survival for HIV patients<sup>[2-4]</sup>.

Despite some encouraging reports from patients with uncomplicated HIV<sup>[5]</sup>, their management can be really tricky: for patients, because of a high infective risk, high prevalence of renal disease and consequently a risk of bleeding or thrombosis<sup>[4-6]</sup>, and for surgeons, due to contamination risk<sup>[7]</sup>. Moreover, accurate tools to correctly assess risk in immunocompromised patients (not appraised by EuroSCORE and only partially by the STS score<sup>[8,9]</sup>) are lacking and no data are reported about in-hospital and midterm follow up complications. This medical issue will become more and more relevant due to the increase in survival of patients with immunodeficiency (both HIV or after transplant). It must be remembered that in some countries, such as the United States, the TAVI procedure is still considered to be in an initial phase and this can affect the lack of data regarding this population. To the best of our knowledge, this is the first HIV patient with severe aortic stenosis treated by TAVI, which was chosen mainly due to the infective risk. TAVI, with an accurate treatment of in-hospital complications, may represent a feasible choice for those with HIV/AIDS.

## COMMENTS

### Case characteristics

Aggressive acquired immunodeficiency syndrome (AIDS) in a patient referred for invasive cardiac surgery to improve his life expectancy.

### Clinical diagnosis

NYHA III: reduced second heart sound with systolic murmur heard. Electrocardiogram (ECG) with left ventricle hypertrophy and echocardiogram confirming severe stenosis.

### Differential diagnosis

After syncope, ECG monitoring did not show any atrioventricular block.

### Laboratory diagnosis

The lymphocyte typing detected a significant reduction in the lymphocyte subpopulation of CD3<sup>+</sup>, CD4<sup>+</sup> and CD19<sup>+</sup>.

### Imaging diagnosis

Transthoracic echocardiography showed the left ventricle with concentric hypertrophy and FE of 55%; severe aortic stenosis with AVA 0.8 cm<sup>2</sup> and mean transvalvular gradient of 55 mmHg without coronary disease at angiography.

### Pathological diagnosis

HIV-positive patient treated with anti-retroviral therapy, suffering from symptomatic severe aortic stenosis.

### Treatment

Transfemoral transcatheter aortic valve implantation (TAVI).

### Term explanation

Core Valve is a valve prosthesis, comprised of 3 porcine pericardial tissue leaflets mounted in a self-expanding nitinol frame. This valve has only been used in a retrograde approach, either *via* transfemoral, subclavian or direct aortic access.

### Experiences and lessons

TAVI can be considered a therapeutic option for severe aortic stenosis in a severe immunosuppressed status, as for patients with AIDS treated with antiretroviral therapy.

### Peer review

The argument could be considered a strong point because in the literature, this is not treated; in fact, this was the first TAVI procedure on a patient affected by

AIDS at high risk for valve surgical replacement. So, this case report represents an example for an alternative therapeutic option, giving an opportunity for these patients to be cured despite their important comorbidity.

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