

INFECTIVE ENDOCARDITIS AFTER TRANSCATHETER AORTIC VALVE IMPLANTATION

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Abstract

Introduction: Transcatheter aortic valve implantation has emerged as an effective alternative to the traditional method of surgical aortic valve replacement in high risk or inoperable patients.

Infective endocarditis after transcatheter aortic valve implantation is a post-operative complication with a high rate of mortality, and thus far, very few cases of successful surgery have been reported.

Case presentation: The authors report the case of a patient that underwent transcatheter aortic valve implantation and developed an infective endocarditis following the procedure. Corrective surgery for transcatheter aortic valve's removal and aortic valve replacement was successfully performed.

Conclusions: Given the increasing use of transcatheter aortic valve implantation, endocarditis will become increasingly relevant in the near future. As in conventional aortic prosthesis, for some cases, medical therapy alone is not enough. Under optimal conditions, surgery is a safe option and should be considered and discussed in a Heart Team, patient by patient.

INTRODUCTION

Transcatheter aortic valve implantation (TAVI) has emerged as an effective alternative to the traditional method of surgical aortic valve replacement (SAVR) in high risk or inoperable patients.¹

Infective Endocarditis (IE) is a life-threatening complication which carries a 40% risk of mortality in cases involving prosthetic valve surgery.² The rates of mortality in patients after TAVI are among the highest reported in the literature.³

Previous research has reported that TAVI-IE complications occur with an incidence of 0.1%-3.103%, and has in general been treated conservatively; due to the inherent high operative risk but with high rates of mobility and mortality.⁴ Surgical approaches provide better outcomes even in patients who surgery would generally be considered high-risk.⁵

Few cases of successful SAVR after TAVI-IE were reported.

CASE REPORT

A 71-year-old man with arterial hypertension, chronic obstructive pulmonary disease and alcoholic liver

cirrhosis underwent transfemoral implantation of Edwards SAPIEN 3 valve in France, 3 years ago.

Clinical presentation was persistent fever with a month of evolution, associated with lower back pain. The transesophageal echocardiogram (TEE) showed a large 18mm vegetation in the prosthesis causing slight obstruction of the ventricular outflow tract, however with no regurgitation present. Left ventricle ejection fraction was preserved (Fig. 1A). Full body computed-tomography scan revealed embolic splenic infarct in addition to infarct of the left kidney. Empirical antibiotic therapy was initiated and adjusted after isolation of a *Streptococcus viridans* on blood cultures. Despite the absence of cardiac decompensation signs, control TEE was performed after 6 weeks of antibiotic therapy. The TEE showed maintenance of the the previously described mass located on the ventricular face, in addition to a smaller 11mm vegetation (Fig. 1B). The patient was presented to our department and was accepted to surgery.

Surgical treatment with replacement of the transcatheter aortic prosthesis was performed. Extracorporeal circulation was started and the heart was stopped during the procedure. The vegetations revealed by the TEE were identified (Fig. 2A). The prosthesis was separated first from

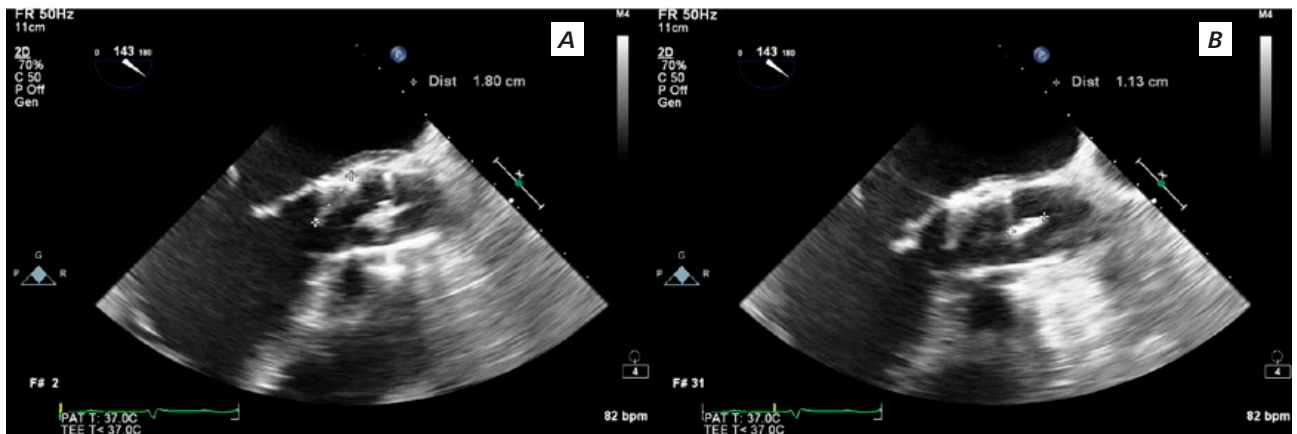


Figure 1

Transesophageal echocardiogram before the surgery. A - Mass of 18mm adherent to the prosthesis (cross). B - Smaller mass of 11mm adherent to the prosthesis (cross).

the aortic annulus and wall with a dissector, after which the stent was secured and folded for safe removal. The native valve was removed and the annulus was decalcified. We implanted a bioprosthesis (Edwards Perimount Magna Ease 23mm). The total time of cardiopulmonary bypass was 57 minutes with 45 minutes of aortic clamping. The removed transcatheter aortic prosthesis was sent for microbiologic analysis (Fig. 2B) and there was no bacterial DNA detected. During the post-operative care there were no major complications and the patient was discharged following 2 weeks of antibiotic therapy.

At the routine 1-month follow-up, the patient was clinically well and TEE demonstrated well-positioned aortic valve prosthesis without leakage and normal left ventricular systolic function.

CONCLUSION

Given the increasing use of transcatheter aortic valve implantation (TAVI), infective endocarditis (IE) will become increasingly relevant in the near future. It is of

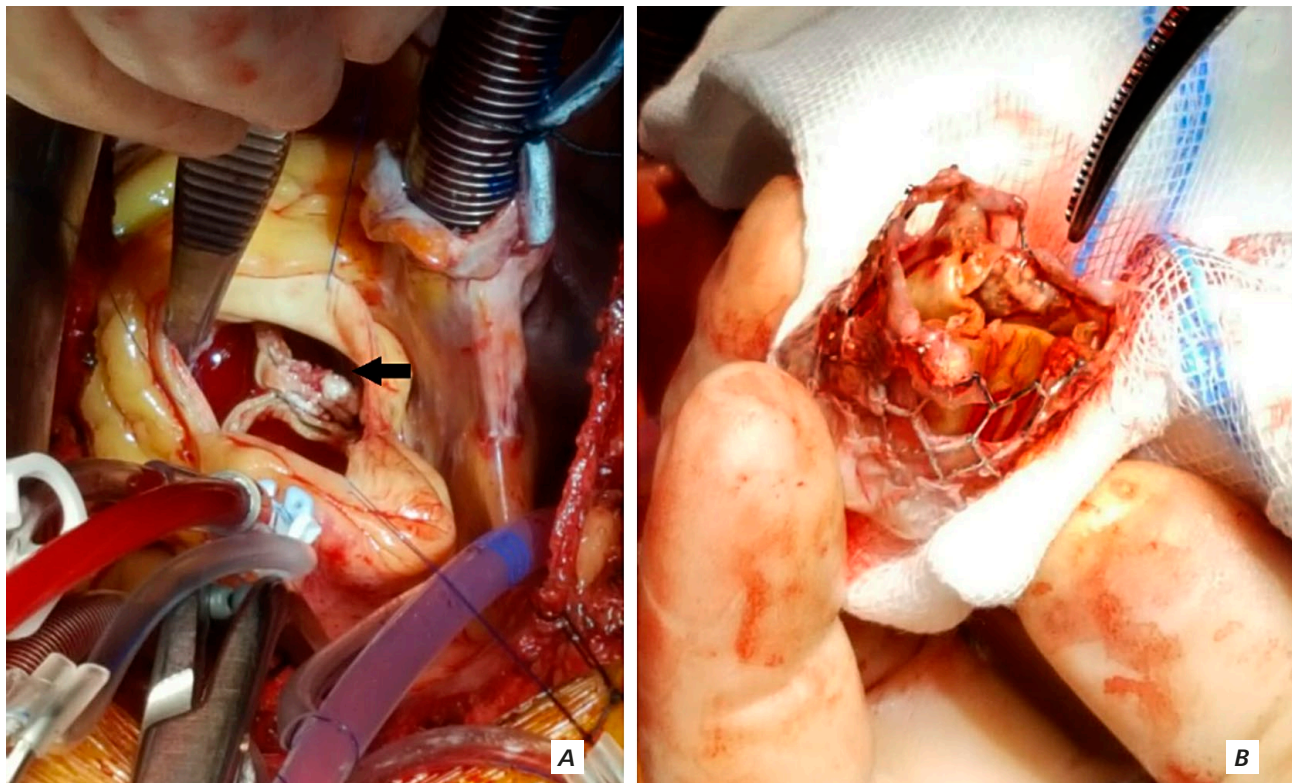


Figure 2

A - Vegetations in the prosthesis. B - Transcatheter aortic valve implantation after been removed from the heart.

great importance to distinguish patients submitted to TAVI because of a high surgical risk from those considered inoperable (i.e. porcelain aorta). In the first group, the surgical approach should be strongly considered when the medical therapeutic for IE fails, because in these patients, the decision to do nothing carries an unacceptable mortality rate.

Further, it's important to consider that "reoperation" after TAVI is not a true reoperation since the sternum has never been opened nor the heart manipulated. The most challenge aspect is transcatheter aortic prosthesis removal. But, as we have observed in this case, this can be done in a manner which ensures that the stent prosthesis folds properly, reducing the prosthesis area, facilitating its exit.

Very few cases of successful surgery of IE-TAVI have been reported. We think that under optimal conditions, surgery is a safe option but new directives should be developed in order to help chose the appropriate candidates for this type of surgeries, especially because the patients usually have a very high surgical risk and some of them are considered inoperable. It's important to take a decision in a Heart Team, patient by patient.

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