Endocarditis after transfemoral aortic valve implantation in a patient with Osler-Weber-Rendu syndrome

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Abstract

Transcatheter aortic valve implantation (TAVI) was introduced five years ago (2007) as an alternative treatment for patients with severe aortic stenosis, who are considered at too high a risk for surgical replacement. Few cases of postoperative infection by TAVI device are reported in the literature. We report the case of a patient with Osler-Weber-Rendu (OWR) syndrome, in which the TAVI procedure was preferred at the outset to avoid the risk of bleeding. He was diagnosed with endocarditis on the TAVI device one year later; he then underwent an uneventful surgical aortic valve replacement. In these complex clinical cases it is difficult to determine a ‘gold standard’ treatment and the possibility of offering patients both the percutaneous treatment and the surgical replacement appears to be desirable. Correction of the valve disease improves the outcome, reducing the episodes of haemorrhage and the need for blood transfusions.

Keywords: Osler-Weber-Rendu syndrome • TAVI • Endocarditis • Aortic valve replacement • Transfemoral aortic valve implantation • Transoesophageal echocardiogram

CASE REPORT

We report the case of a 73-year old man with a medical history of Osler-Weber-Rendu (OWR) syndrome and severe aortic stenosis (AS).

OWR syndrome is a rare systemic fibrovascular dysplasia which carries, as basic defect, an alteration in the elastic and muscular layers of vessel walls, making them more vulnerable to spontaneous rupture and injury. Recurrent bleeding is the most frequent clinical sign. Blood vessels from other regions may also be involved, especially those from the lungs, brain, skin and gastrointestinal tract. Our patient needed four blood transfusions per week before treatment and developed HBV infection. In 2009, he had a transient ischaemic attack, causing temporary left-sided hemiparesis.

In 2010, he was evaluated by our heart valve team in response to the progressive worsening of heart failure symptoms. A trans-thoracic echocardiogram (TTE) showed severe AS (peak/mean gradients: 118/78 mmHg; AVE: 0.9 cm²); mild aortic and mitral regurgitation with an ejection fraction (EF) of 60% were also noted.

At that time, according to the supposed high risk of bleeding related to the syndrome (logistic EuroSCORE: 6.58%), the patient underwent successful transfemoral TAVI with an Edwards-Sapien XT 26 mm valve.

The patient was discharged three days after the procedure with a mild paravalvular aortic regurgitation and preserved ejection fraction.

Six months later, the patient developed complete atrio-ventricular block, requiring permanent implantation of a pacemaker. At that time, the clinical symptoms were significantly improved, while a conventional TTE showed proper implantation of the aortic device, with no paravalvular aortic leak and preserved EF.

At one-year follow-up, the control TTE showed severe aortic regurgitation, left ventricular remodelling and EF reduced to 30%. Images suggested periaortic abscess (the patient had reported an odontoiatric treatment two months before, without antibiotic prophylaxis). A transoesophageal echocardiogram revealed a dehiscence of the aortic device and severe paravalvular leakage (Fig. 1 and 2A); non-active vegetations were discovered.

Figure 1: The transoesophageal short-axis view shows the pocket-like false lumen with severe paravalvular leak (white arrows) of the Edwards-Sapien XT 26 mm valve. Ao: aorta; LA: left atrium; RA: right atrium; RV: right ventricle.
A concomitant drained abscess was present between the right coronary and the posterior non-coronary cusps, confirmed by chest computed tomography (CT). Blood cultures were negative for any causative micro-organisms (broad spectrum antibiotics treatment had been given before admission) and the chest and abdomen CT showed no inflammatory focus or further abnormalities.

The patient was accordingly scheduled for surgery to remove and replace the Sapien XT device. During operation, after the aortotomy, the device appeared to be correctly positioned with respect to the annulus and the coronary sinuses. The aortic leak and cavity of the drained abscess (Fig. 2B) were clearly identified between the right- and non-coronary cusps. Starting from there, the metal stent, covered by a membraneous neo-intima formation, was gradually detached and removed. No valvular vegetations were found, so the native valve was removed and the annulus decalcified before implanting a Carpentier-Edwards Perimount 27 bioprosthesis.

The pathologic analysis performed on the removed device demonstrated its sterility at the time of surgery. The patient recovered without complications in 10 days and was transferred to the Infectious Disease Unit. Six months after operation, the patient is doing well, with significant reduction of the episodes of haemorrhage and of the need for transfusions.

Few cases of post-infective TAVI device are reported in the literature [1–3]. The patient tolerated surgery well, without significant complications, confirming the reported improved outcome in patients with OWR syndrome after correction of aortic disease [4]. However, in the clinical setting of high-risk patients, there is not a ‘gold standard’ treatment. The possibility of offering both the percutaneous treatment and the surgical replacement of the aortic valve appears fundamental.

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REFERENCES