Case report - Cardiopulmonary bypass

Mitroaortic valve replacement after aortic transapical approach failure in a patient with essential thrombocytosis

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Abstract

There is a lack of published information about intraoperative and postoperative course of cardiac surgery in patients with essential thrombocytosis using cardiopulmonary bypass. Both risks of intraoperative thrombosis of extracorporeal conduits or uncontrolled postoperative bleeding are present, but its incidence and treatment are not well known. Here, we present a rare case of a patient with essential thrombocytosis, moderate mitral regurgitation and severe aortic stenosis who had a transapical aortic valve implantation with short-term severe periprosthetic regurgitation, who needed a mitroaortic replacement on cardiopulmonary bypass with no complications.

Keywords: Cardiopulmonary bypass; Essential thrombocytosis; Valve replacement

1. Introduction

Thrombocytosis associated with aortic stenosis is a rare situation described in the literature that may produce thrombosis during cardiopulmonary bypass or postoperative bleeding.

In this case report, we present a rare situation of a patient with essential thrombocytosis, moderate mitral regurgitation and severe aortic stenosis, who had a transapical aortic valve implantation because of his high comorbidities and to minimize the possible adverse effects of cardiopulmonary bypass.

Due to the development of a short-term severe periprosthetic regurgitation, he finally needed a mitroaortic valve replacement on cardiopulmonary bypass with no complications.

2. Case report

A 64-year-old man was referred to our cardiovascular department for aortic valve replacement. He had hypertension, diabetes mellitus, obesity, chronic obstructive pulmonary disease, hyperuricemia, hepatic steatosis, chronic atrial fibrillation and a chronic myeloproliferative syndrome with essential thrombocytosis.

The echocardiography showed a severe aortic stenosis with a mean gradient of 52 mmHg and a moderate mitral stenosis with a mean gradient of 8 mmHg; the estimated pulmonary arterial pressure was of 56 mmHg and an ejection fraction of 63%.

He had a logistic Euroscore of 14.27% and a Parsonnet predicted of 59.8%, so we determined to avoid the use of extracorporeal circulation and used the transapical approach for aortic valve replacement. The aortic annulus had a diameter of 22 mm, so we decided to implant a 26 mm Edwards–Sapien valve, with an optimal result. The postoperative course was characterized by haemodynamic stability, and he left the hospital 23 days after surgery.

Two weeks after his hospital discharge he suffered a new event of congestive heart failure, and the echocardiography gave the diagnosis of severe paravalvular aortic valve regurgitation (Fig. 1). This situation led us to decide to replace both the mitral and aortic valves on cardiopulmonary bypass. Two weeks before surgery the platelet count was $800 \times 10^3/\text{l}$, which was reduced to $300 \times 10^3/\text{l}$ after a treatment with hydroxyurea.

Finally, he underwent an uncomplicated mitroaortic valve replacement under cardiopulmonary bypass. The intraoperative exploration showed the prosthesis was in place and no obvious paravalvular gaps could be visualized. The Edwards–Sapien prosthesis seemed competent with intact valve cusps, and we observed a lack of endothelization in the noncoronary cusp area which may explain the paravalvular leak there (Fig. 2, Video 1). His postoperative course has been favourable with an intensive care unit stay of six days.

3. Discussion

Essential thrombocytosis is an uncommon type of myeloproliferative disorder, characterized by both thrombotic and haemorrhagic diathesis. No clear guidelines exist for the pre and postoperative management of patients undergoing cardiac surgery in the haematological and surgical literature. This condition has profound implications in patients undergoing cardiac surgery with the use of...

cardiopulmonary bypass, where heparin is used for anti-coagulation.

We have only found one published case of a young patient with essential thrombocytosis who had an aortic valve replacement on cardiopulmonary bypass, with no complications [1]. The authors suggested employing drugs like hydroxycarbamide, anagrelide, interferon-α to reduce the platelet count to the reference level before surgery; in our case we used hydroxiurea with a satisfactory result.

Transcatheter aortic valve implantation is a new and rapidly evolving treatment option for high-risk surgical patients with degenerative aortic valve stenosis. Long-term results with these new valve prostheses are lacking, and potential valve dysfunction and failure would require valve replacement. Thyregod et al. [2] reported the first surgical replacement of a transcatheter-implanted aortic valve prosthesis Core valve four months after implantation.

Finally, the last consideration is about making a decision with very high-risk patients who are candidates for the transcatheter aortic approach. This patient was considered unsuitable for conservative cardiac surgery; but the results show that there can be nearly always another opportunity for very high-risk patients when minimally-invasive procedures fail.

References
