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a reoperation for thrombosed mitral mechanical prosthesis**

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Case report - Valves

Amplatzer occlusion of paravalvular leak of mitral mechanical prosthesis following a reoperation for thrombosed mitral mechanical prosthesis

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Abstract

We describe a case of a 46-year-old woman with dehiscence and paravalvular leak of a second-time replaced mitral mechanical prosthesis, successfully treated with Amplatzer occlusion of the paravalvular leak, thus avoiding a second reoperation and improving the patient's symptoms.

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Keywords: Thrombosed mitral prosthetic valve; Prosthetic valve endocarditis; Reoperation; Paravalvular leak; Amplatzer occlusion

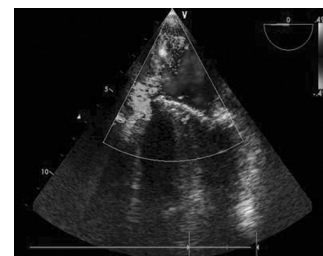
1. Introduction

Paravalvular leaks following prosthetic valve replacement are one of the most challenging complications for treatment, often requiring hospitalization and second operation. Even more, paravalvular leak of a second-time implanted prosthesis can be a frustrating complication. Percutaneous treatment of paravalvular leaks is an alternative treatment option, avoiding reoperation and improving the overall condition of the patients [1, 2].

2. Material and methods

We describe a case of a 46-year-old woman, with insulin dependent diabetes and hypothyreosis, chronic obstructive pulmonary disease, obese, treated in our hospital for severe mitral stenosis, with mitral valve replacement using the mechanical prosthesis Mira [Edwards Lifesciences, Irvine, USA] size 29, combined with tricuspid valve suture annuloplasty, modified De Vega stitch [3]. She presented two years later with acute thrombosis of her mitral prosthesis, with severe heart failure and pulmonary oedema. On admission she was afebrile, without laboratory signs of ongoing infection. Her family informed us that she was not following the anticoagulation treatment as instructed. She was subjected to urgent operative treatment. Intraoperatively, we found thrombosed mitral mechanical prosthesis with signs of prosthetic valve endocarditis affecting the sewing ring and native annulus of the mitral valve. The old valve was removed, the annulus was debrided, and the new mechanical mitral prosthesis Mira Edwards, size 29 was implanted.

Antibiotic regimen was immediately started using vancomycin and gentamicin. Her immediate postoperative period was uneventful. The microbiological testing of the explanted valve returned as negative, and since there were no clinical and laboratory signs for infection, we reassessed her condition and adjusted the antibiotics. Following recovery in the intensive care and intermediate ward, her overall condition suddenly deteriorated, with signs of congestive heart failure, requiring readmission to the intensive care unit. Transoesophageal echocardiography showed newly developed severe mitral regurgitation due to dehiscence and paravalvular leak of the newly implanted mitral mechanical valve (Video 1). Blood cultures were immediately drawn, and antibiotic regimen was started using vancomycin and gentamicin. Again, three series of blood cultures returned as negative. Following stabilization of her clinical condition and six weeks treatment using only vancomycin, and due to high risk of another reoperation, our interventional cardiologists successfully treated her paravalvular leak using muscular ventricular septal defect occluder, Amplatzer 8 mm (Video 2).

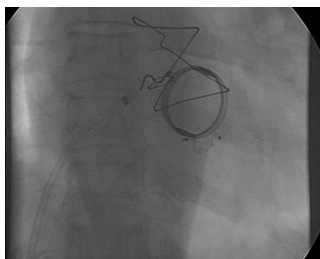


Video 1. Pretreatment echocardiographic assessment.

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Video 2. Amplatzer occlusion of the paravalvular leak.

3. Results

Following the Amplatzer occlusion of the paravalvular leak, her mitral regurgitation was downgraded to mild, and her overall condition improved. We were able to discharge her home one week later with minimal diuretics and augmentin (amoxicillin/clavulonate) for two more weeks. Three and six months follow-up showed echocardiographic stable mild mitral regurgitation, good overall condition of the patient, and minimal diuretics.

4. Discussion

This interesting case had several pitfalls:

1. Reoperation was undertaken due to thrombosed mitral mechanical prosthesis and along with the information from the patient and her family that she was not conforming to the anticoagulation treatment, we believed that this was going to be a simple valve replacement.
2. Intraoperative signs of prosthetic valve endocarditis surprised us, thus we modified the operative procedure with debridement of native annulus, switching to pledgeted sutures, adjusting also the antibiotics regimen.
3. Since the microbiological results returned negative, along with improvement of the overall condition of the patient, we assumed that this was not a case of prosthetic valve endocarditis, although we continued with the same antibiotics.
4. Sudden deterioration of the patient's condition several days later, along with a newly developed severe mitral regurgitation, made us think again on prosthetic valve endocarditis caused by resistant pathogen, and yet three blood cultures were negative.
5. After careful consideration of her medical history, clinical condition and laboratory parameters, and due to the high risk of second reoperation, our team of cardiac surgeons and interventional cardiologists decided to try to occlude this paravalvular leak using Amplatzer occlusion device.

Finally we can conclude that Amplatzer occlusion of paravalvular leaks of the implanted prosthetic valves can be a safe gateway in a high-risk case, avoiding difficult reoperations and improving symptoms. We can conclude that this is a minimal invasive solution to a major surgical problem.

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