REC Interv Cardiol. 2021;3(1):73-77

Clinical case

Percutaneous management of recurrent prosthetic valve thrombosis

Tratamiento percutáneo de trombosis valvular protésica recurrente

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CASE PRESENTATION

Prosthetic valve thrombosis (PVT) is a complication associated with a high morbimortality rate. Yet despite anticoagulation, the rate of PVT is between 0.5% and 8%.[1] The management of this disease depends on various factors like the size and location of the thrombus, the degree of valvular obstruction or dysfunction, the symptoms at presentation, and the patient's hemodynamic status. Therapeutic options include surgery and fibrinolysis. Both have given good results, but they are not always effective and are associated with a high risk of complications.

This is the case of a 55-year-old woman with rheumatic myocardiopathy treated with aortic and mitral valve replacement using the bidisco ATS 27 mechanical heart valve (Medtronic ATS Medical, Inc, Plymouth, Minnesota, United States) and Sorin Overline 29 device (Sorin Biomedica Cardio SpA, Saluggia, Italy), respectively. The patient granted consent to publish her case, respecting her right to privacy and the protection of personal data. Two months after surgery the patient was showing signs of dyspnea (New York Heart Association functional class III) and she was diagnosed with obstructive thrombosis of the prosthetic mitral valve. The transesophageal echocardiography (TEE) performed revealed the presence of a mass compatible with a thrombus attached to the atrial side of the valve. Both discs were blocked in an intermediate position causing severe stenosis and mitral regurgitation. The patient was treated with surgery with extraction of the thrombotic material and left atrial appendage occlusion. The transthoracic echocardiography performed after the surgery confirmed the normal movement of the valve. The patient was discharged without symptoms on oral anticoagulation and acetylsalicylic acid (100 mg/day).

Although anticoagulation was kept within the recommended range (INR, 3-3.5), 3 months later the patient was re-admitted with signs of dyspnea (New York Heart Association functional class III). The TEE revealed the presence of an increased mean mitral gradient (18 mmHg). The anterior disc was blocked in the closed position, but the other one moved normal and with no signs of significant mitral regurgitation. The TEE also revealed the presence of a highly mobile, linear, thin mass (< 1 mm) compatible with a Lambl's excrescence attached to the atrial side of the valve. Also, there were slightly mobile, echo-dense, and sessile masses (maximum diameter, 4 mm; area, 0.29 cm^2) compatible with thrombi and attached to the atrial side of the valve.

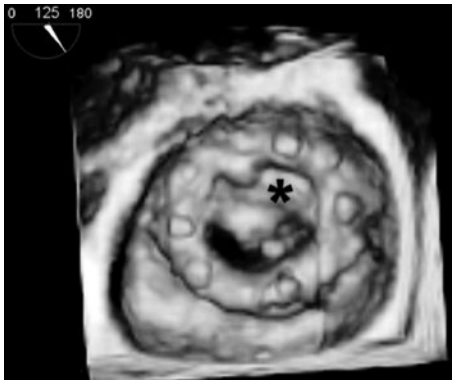

Figure 1. Mitral valve prior to the intervention with a blocked anterior disc in the close position (asterisk).

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Received 19 April 2020. Accepted 6 May 2020. Online: 22-09-2020.
https://doi.org/10.24875/RECICE.M20000132

The patient was treated with IV thrombolysis with alteplase followed by 48 hours of IV infusion of unfractionated heparin. The new TEE performed after fibrinolysis revealed the presence of small residual thrombi (maximum diameter, 3 mm; area, 0.17 cm^2) and persistent fixation of the anterior disc in the closed position (figure 1).

After the failed fibrinolysis attempt and given the high risk for a new surgery, the percutaneous manipulation of the valve was decided as the therapeutic option.

FUNDING

No funding was received for this work.

CONFLICTS OF INTEREST

None declared.

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Percutaneous management of recurrent prosthetic valve thrombosis. How would I approach it?

Tratamiento percutáneo de trombosis valvular protésica recurrente. ¿Cómo lo haría?

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HOW WOULD I APPROACH IT?

Currently, the management of thrombosis refractory to IV anticoagulant therapy of heart valves is limited: reintervention or fibrinolysis. Both procedures bring acceptable immediate results, but logically reintervention has a greater impact on the patient's recovery. Also, the treatment of choice will be influenced by a series of parameters including hemorrhagic risk, the patient's clinical status, the size of the thrombus, other concomitant findings in the imaging study, etc.

The female patient of this case is young with a mechanical prosthesis in the mitral and aortic position and a second episode of mitral valve thrombosis with serious clinical repercussions. Also, it is a case refractory to pharmacological treatment after reintervention due a first thrombosis of acute presentation (< 3 months after the intervention). This makes us have to consider 2 important details before moving on with the possible percutaneous treatment: could this be a case of endocarditis with an added thrombus? and also, is this the case of a patient with some sort of refractoriness to antithrombotic treatment? I am exposing this because, in both cases, the percutaneous therapeutic strategy did not seem like the optimal strategy to me. Since thrombotic content was not massive here, the first step in the percutaneous strategy should have been to regain the mobility of the prosthetic valve hemidiscs. It is somehow logical to think of regaining their movement: the best fibrinolytic agent is flow and the movement of the valve. Also, it is the cause of symptom onset. Percutaneous treatment has the limitation of the potential embolization of the attached thrombotic material. The idea of the percutaneous manipulation of the prosthetic valve discs was already described by Jabbour et al.[1] back in 1996 as bridging therapy to reintervention. However, the greater experienced ever reported in the current medical literature is Hariram's[2] who described 5 cases of immobile prosthetic discs that were manipulated or limited in their atrial side using a Judkins Right guide catheter through a Mullins transseptal introducer sheath. The consensus achieved at the congress held by the American College of Cardiology in 2018 introduced the first case of a young female patient in whom transseptal access was also used to insert a deflectable Agilis introducer sheath (Abbott Cardiovascular, Sta. Clara, United States) by contacting an Amplatz Super Stiff guidewire (Boston Scientific, Marlborough, MA, United States) directly into the prosthetic valve. None of the cases reported developed embolic complications and all of them regained the disc movement in the mitral position. We have no further information on these patients' clinical progression.

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Received 9 June 2020. Accepted 12 June 2020. Online: 22-09-2020.
https://doi.org/10.24875/RECICE.M20000148