Abstract: P584

Cardiogenic shock due to late mitral prosthetic disc blockage by a paravalvular leak closure device, successfully retrieved with a percutaneous approach.

Authors:
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Topic(s):
Acute Cardiac Care – Cardiogenic Shock

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A 70 year old man attended the emergency room (ER) with signs and symptoms of cardiogenic shock. The patient’s past medical history consisted of permanent atrial fibrillation and rheumatic aortic and mitral valvular heart disease, for which he had undergone aortic and mitral valve replacement with mechanical prosthesis in 1979. Two subsequent interventions were performed because of prosthesis dysfunction (1988) and infective endocarditis (2003). On June 2018 he underwent transcatheter mitral paravalvular leak (PVL) closure. A 14-mm Amplatzer muscular ventricular septal defect occlude was implanted, achieving a partial closure of the defect (Figure 1A). The patient was discharged in good clinical condition, with a residual moderate leak. Three weeks later, the patient consulted the ER with worsening dyspnoea and progressive fatigue. Physical examination revealed hypotension, congestive heart failure with anuria, and a pansystolic mitral murmur at cardiac auscultation. Laboratory tests showed severe haemolytic anaemia requiring blood transfusion, and acute renal failure. After starting treatment for cardiogenic shock in the acute cardiac care unit (ACCU), a 3D-transesophageal echocardiography was performed showing severe mitral valve regurgitation due to prosthetic disc blockage by the PVL closure device (Figure 1B). Because of patient’s critical condition, our local Heart Team decided to perform an urgent percutaneous intervention. Through an anterograde transeptal approach, the first device was successfully retrieved with a loop and two smaller rectangular Amplatzer Vascular Plug III devices (AVP III) were implanted, achieving a partial closure of the defect (Figure 1C-D). After a few days in the ACCU, the patient was discharged asymptomatic and hemodynamically stable with a residual mild to moderate mitral regurgitation. No late cardiac complications were reported at two months follow up. PVL is a serious complication after surgical valve replacement. Percutaneous PVL closure has emerged as a new and less invasive treatment strategy. However, late device displacement causing interference with valvular discs is one of the most severe complications related to this intervention. Device movement and interference with the prosthetic disc functioning is facilitated by shape mismatch between PVL (crescentic in most cases) and currently used devices which are circular in shape. When displacement occurs, the occluder device must be readjusted or switched for a smaller/different shape device. Sometimes, open surgery is needed to replace the device in a high risk surgical patient. As far as we know, our case reports the first successful transcatheter retrieval of a late displaced device used for percutaneous PVL closure causing valvular interference in a prohibitive surgical risk patient. This case highlights the need for development of specific PVL closure devices and suggests an alternative to open surgery for patients with this severe complication.
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A, B, D: 3D transesophageal view of the prosthetic mitral valve (arrows). A. Paravalvular leak closure using an Amplatzer muscular device (asterisk), with no device interference B. Late device displacement (asterisk) with mitral prosthetic disc blockage during systolic phase (arrow). C. Transcatheter retrieval of the Amplatzer muscular device using an anterograde transeptal approach D. Paravalvular leak closure using two Amplatzer Vascular Plug III devices (asterisks) with no device interference.