Intermittent Blockade of a Mechanical Mitral Valve Prosthesis

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A 65-year-old man was referred with refractory heart failure. A 27-mm Carbomedics bileaflet valve for mitral valve stenosis had been implanted 20 years earlier. The electrocardiogram showed atrial fibrillation with severe bradycardia (30-50/min). Transthoracic echocardiography demonstrated both prosthetic leaflets opening in late diastole (Picture A, arrows), and the anterolateral leaflet intermittently remained open in early systole (Picture B, arrow; Movie I). The same finding was confirmed by cineradiography (Picture C, arrow; Movie II). Right heart catheterization demonstrated...
markedly elevated v waves on measurement of the pulmonary capillary wedge pressure (PCWP), which started to rise atypically in early systole (Picture D), confirming that there was significant regurgitation due to delayed leaflet closure. To improve his cardiac function, a pacemaker was implanted. Postoperative cineradiography showed that valve function was almost normal (Movie III). Catheterization revealed normal v wave elevation during diastole and reduction of the peak pressure (Picture D).

Blockage of a prosthetic heart valve is a relatively rare but serious complication (1), with thrombus and pannus formation being reported as the major causes (2). The present patient was assumed to have a physical obstruction that was minimal and not clinically harmful alone, but which was exacerbated by occasionally elevated LV end-diastolic pressure during his extremely slow and irregular heart rhythm.

LV left ventricle; LA left atrium; RA right atrium; RV right ventricle.

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References