

Extreme mechanical aortic valve dehiscence: “Rocking motion” clearly assessed with echocardiography and fluoroscopy 🎬

A 19-year-old man was admitted due to sudden onset and progressively increasing shortness of breath, cough, nausea, and vomiting. The patient had undergone aortic and mitral valve replacement with mechanical prosthesis for the treatment of infective endocarditis 4 years ago.

The patient had poor general condition with a body temperature of 37.4°C, blood pressure of 120/40 mm Hg, heart rate of 120 bpm, and respiratory rate of 32/min. Cardiac auscultation showed a grade 3/6 early diastolic murmur along the left sternal border. Breath sounds were reduced, and rales could be heard

all over the right and left lungs. There was no stigma of endocarditis. Electrocardiogram revealed sinus tachycardia and inferolateral ST segment depressions (Fig. 1a). Because the arterial blood gas analysis and chest X-ray (Fig. 1b) showed respiratory acidosis and pulmonary expansive volume load, respectively, the patient was intubated.

An emergency transthoracic echocardiogram revealed a heart rate-dependent pendular “rocking motion” of the aortic valve prosthesis, consistent with dehiscence. The aortic valve was moving to the aorta in systole, whereas it was prolapsing to the left ventricle in diastole, resulting in severe paravalvular jet of aortic insufficiency (Fig. 2, Videos 1 and 2). Transesophageal echocardiography showed no vegetations on the mitral valve, but aortic valve was difficult to assess due to acoustic shadowing and artifacts. The systolic–diastolic “rocking motion” of the prosthesis was also clearly demonstrated by fluoroscopy (Fig. 3, Videos 3 and 4).

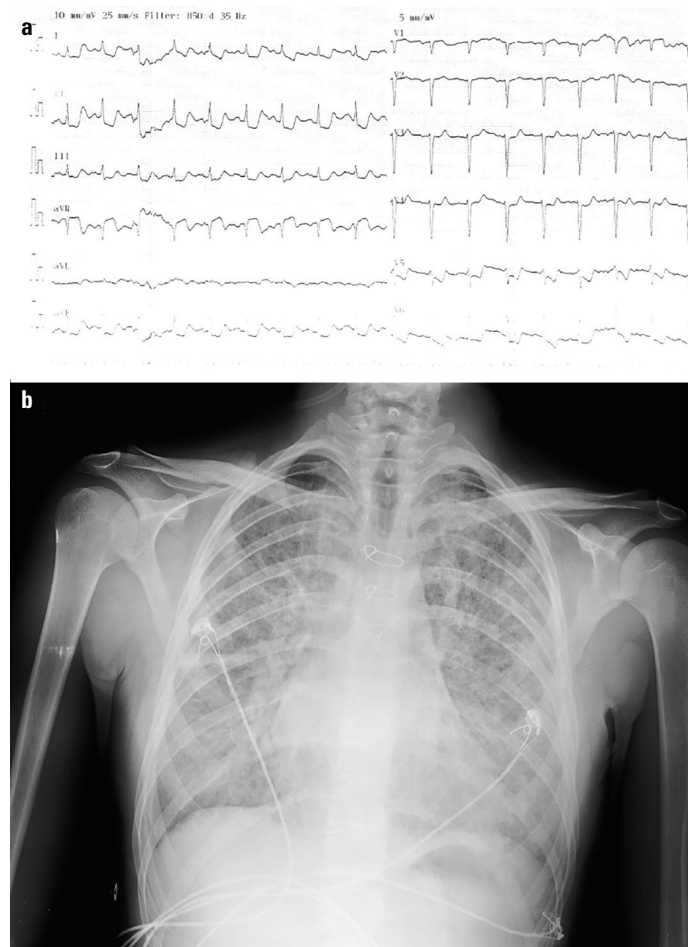


Figure 1. (a) Electrocardiogram showing sinus tachycardia and inferolateral ST segment depressions. (b) Chest X-ray showing pulmonary expansive volume load

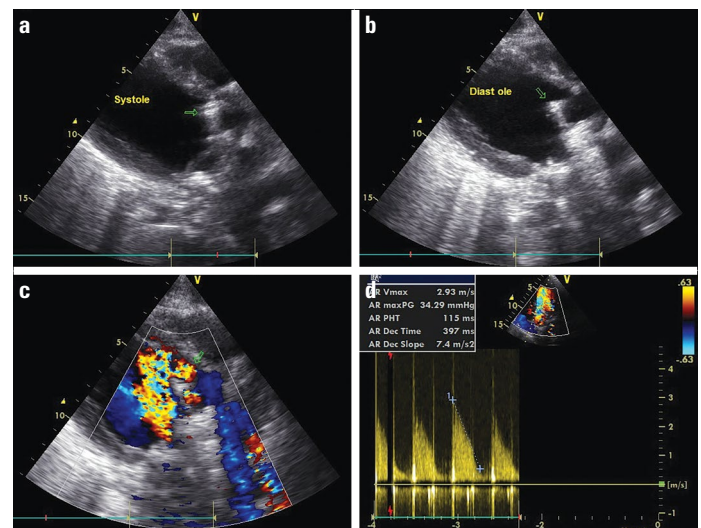


Figure 2. Echocardiography showing the prosthetic aortic valve moving to the aorta in systole (a), whereas it was prolapsing to the left ventricle in diastole (b), resulting in severe paravalvular jet of aortic insufficiency (c) with measurement of the regurgitant jet pressure half time 115 ms (d)

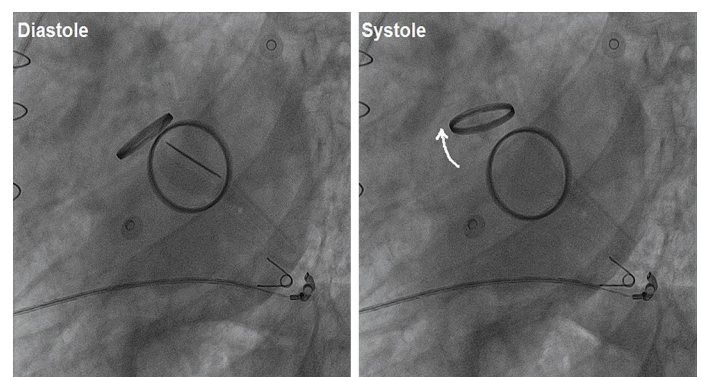


Figure 3. Fluoroscopy showing “rocking motion” of the bileaflet mechanical aortic prosthesis during diastole and systole

Inotropic treatment was initiated because the patient developed shock. While awaiting an emergency surgical repair, he collapsed and could not be resuscitated successfully.

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Video 1. Echocardiography in the parasternal view showing the prosthetic aortic valve moving to the aorta in systole, whereas it was prolapsing to the left ventricle in diastole.

Video 2. Echocardiography in the apical four-chamber view showing the prosthetic aortic valve moving to the aorta in systole, whereas it was prolapsing to the left ventricle in diastole.

Video 3. Fluoroscopy in the 12° left anterior oblique and 27° caudal projection showing “rocking motion” of the bileaflet mechanical aortic prosthesis.

Video 4. Fluoroscopy in the 38° left anterior oblique and 32° caudal projection showing “rocking motion” of the bileaflet mechanical aortic prosthesis.

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DOI:10.14744/AnatolJCardiol.2019.01336