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Mitral valve prosthesis abruption

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A 63-year-old woman underwent an operation for replacement of the mitral valve owing to its hemodynamically significant regurgitation. The mechanical prosthesis (SJM 27) was implanted three years ago. Furthermore, this patient had a history of continuous atrial fibrillation and permanent cardiac pacing (VVI) due to bradyarrhythmia, ischemic brain stroke, pulmonary embolism and hyperthyroidism. The patient had been being under regular echocardiographic control and hitherto mitral valve prosthesis function had been evaluated as normal.

The patient was admitted due to increasing (within the past three days) dyspnoea, palpitation and chest pain. Massive pulmonary venostasis and tachyarrhythmia (160/min) were demonstrated in a physical examination. Laboratory examinations revealed an increased level of cardiac troponin (Tn I 3.02 ng/mL) and negative coronarography. Spiral CT angiography of pulmonary arteries was normal.

The transthoracic echocardiogram demonstrated an abnormal position of the mitral valve prosthesis. It was relocated towards the left atrium. In the apical views, the prosthesis echogram was registered about 10–15 mm above the level of the native mitral annulus (Figs. 1, 2). Mobility of the mitral prosthesis was abnormally large in the vertical direction. Around the posterior pole of the prosthesis annulus, a lack of contact between the prosthesis and cardiac wall was observed (Fig. 3). In this place, a perivalvular shunt could be detectable (Fig. 4). In colour Doppler mapping, a left atrio-ventricular flow seemed, in some places, a bit "deluging" (Fig. 4).

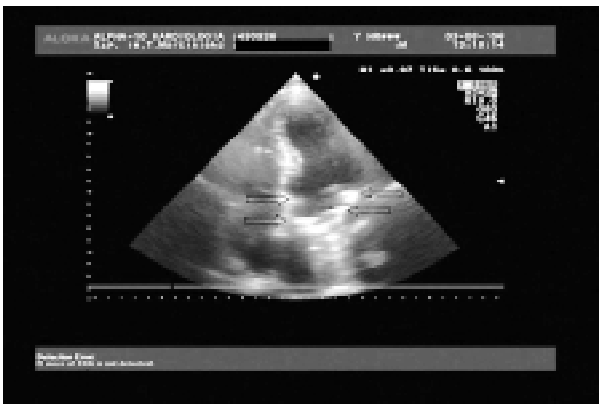

Figure 1. Apical 4-chamber view (A4C) showing the prosthesis echogram (arrows) 15 mm above the level of native mitral annulus (arrows).

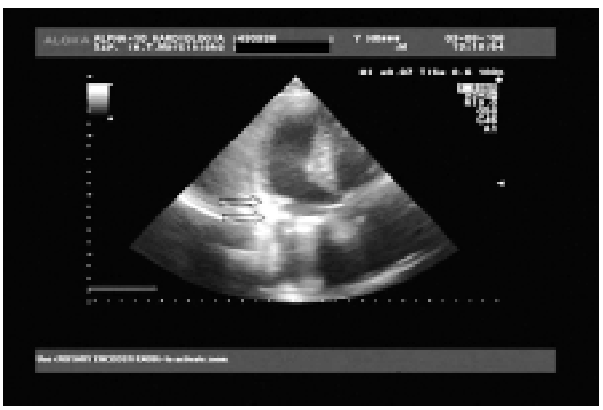

Figure 2. Apical 3-chamber view (A3C) showing the prosthesis echogram 10–15 mm (arrow) above the level of the native mitral annulus (arrow).

This feature also suggested a perivalvular shunt. The pressure gradient of the mitral prosthesis was slightly increased (22 mm Hg). Evident features of infective endocarditis were not noted in the transthoracic echocardiogram.

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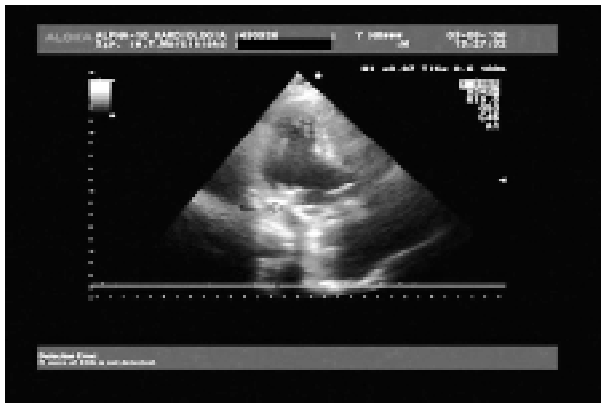

Figure 3. Apical 3-chamber view showing lack of contact between the prosthesis and cardiac wall (arrow).

Figure 4. Colour-Doppler in A3C showing the perivalvular shunt (behind the posterior pole of the prosthesis) and "deluging" tranmitral flow (arrows).

Because of the suspicion of prosthesis abruption, the patient was qualified for an urgent reoperation. An uncomplicated replacement of the mitral valve prosthesis was performed. The mitral valve prosthesis abruption along a large segment of its circumference was affirmed. Evidence of prosthesis infection was not present.