Paroxysmal mechanical aortic valve prosthesis dysfunction: capturing the right moment

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Published online: 27 May 2011

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A 62-year-old female presented to the emergency room under suspicion of acute myocardial infarction. While shopping she suddenly experienced severe chest pain and nearly collapsed. Her medical history revealed aortic valve replacement (Medtronic Hall 22 mm) 8 years before and since 5 years repeated presentations to the emergency room because of intermittent chest pain. An initial electrocardiogram (ECG) showed sinus tachycardia with transient ST elevation in leads aVR and V1 and ST depression in leads I, II, III, aVF and V3–V6 (Fig. 1), which resolved within 5 min. Physical examination, laboratory results and transthoracic echocardiography were unremarkable.

Under suspicion of an acute coronary syndrome, coronary angiography was performed and showed a 70% stenosis in the second diagonal branch of the left descending artery. Because of the discrepancy between the ECG at presentation and the coronary angiography,

it was decided not to perform a percutaneous coronary intervention. Immediately after the coronary angiography the patient had recurrent chest pain with remarkable ST depression. A second coronary angiography was performed which revealed non-closure of the mechanical aortic valve, causing severe aortic regurgitation (Movies 1 and 2). The patient was scheduled for valve revision. At operation dysfunction of the mechanical disk became apparent. When the disk was opened a pannus overgrowth beneath the valve was clearly visible. This was causing a block of the disk in opening position with temporarily massive aortic regurgitation (Fig. 2). After removing the mechanical prosthesis, the circular pannus overgrowth was most evident (Fig. 3). The pannus was removed and a bioprosthesis (Edwards Life Sciences Perimount Magna 23 mm) was implanted. The patient made an uncomplicated recovery. She has had no recurrent chest pain 5 months after the valve replacement.

Intermittent severe aortic regurgitation due to pannus overgrowth of a mechanical prosthetic aortic valve is a serious complication and has been reported before [1–4].

The clinical presentation is varied and due to the intermittent appearance of the malfunctioning valve, the diagnosis is often difficult and can be easily overlooked. In this specific patient it was possible to diagnose this clinical problem due to the findings on angiography. However, simple cinefluoroscopy of the mechanical valve during symptoms would have diagnosed mechanical valve immobility earlier.

Electronic supplementary material The online version of this article (doi:10.1007/s12471-011-0159-4) contains supplementary material, which is available to authorized users.

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Fig. 1 ECG at presentation during chest pain, showing sinus tachycardia with ST elevation in leads aVR and V1 and ST depression in leads I, II, III, aVF and V3-V6

Fig. 2 The mechanical prosthesis is opened. A pannus overgrowth is visible behind the prosthesis (indicated by arrows). AO: ascending aorta

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Fig. 3 After removing the mechanical prosthesis, the circular pannus is entirely visible (indicated by arrows)

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