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Giant right ventricular mural vegetation mimicking a cardiac tumour

Olbrzymia wegetacja przyścienna w prawej komorze serca naśladująca guz

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Abstract

Mural vegetations in the course of infective endocarditis are very rare. We report the case of a patient with an extremely large right ventricular free wall vegetation. Establishing diagnosis in the presence of only mural vegetations on echocardiography scan without valve involvement in the inflammatory process was difficult. In a differential diagnosis, benign and malignant tumours, metastases and thrombi were taken into account. The patient was operated upon and the tumour was removed successfully. A histopathological examination revealed an inflammatory character of the tumour. The patient was treated according to antibiogram and discharged home in stable condition.

Key words: right ventricular mural vegetation, infective endocarditis

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INTRODUCTION

Mural vegetations in the course of infective endocarditis (IE) are extremely rare. Establishing diagnosis in the presence of only mural vegetations on echocardiography scan without valve involvement in the inflammatory process might be difficult. In a differential diagnosis, benign and malignant tumours, metastases and thrombi must be taken into account.

CASE REPORT

A 20 year-old student without any medical history of alcohol or drug abuse was admitted to the Department of Infectious Diseases due to a three-week history of weakness, fever of up to 40°C, headache, muscle pain and vomiting. After borreliosis and meningitis had been excluded, the patient was transferred to the Cardiology Department with a suspicion of IE. He was admitted in poor general condition but was haemodynamically stable.

On physical examination, his temperature was 39°C, a 4/6 pansystolic murmur was heard in the precordial area. Chest X-ray and electrocardiogram were normal. The two-dimensional transthoracic echocardiographic examination (TTE) revealed a huge longitudinal intracardiac mass (50 mm × × 15 mm) in the right ventricular (RV) outflow tract. The abnormal structure was attached to the RV free wall and protruded into the pulmonary artery (Fig. 1) without significant obstruction of either the outflow tract or the pulmonary artery. Indirect features of pulmonary embolism were absent.

Nevertheless, the initial diagnosis was RV thrombus-in-transit. Emergency surgical embolectomy or thrombolytic treatment were considered. Angio-computed tomography of the thorax did not reveal a pulmonary thromboembolism, but disseminated inflammatory changes in both lungs. Taking into account the lack of signs of pulmonary embolisation, haemodynamic stability and a septic picture of the disease, surgical intervention was postponed.

Over the following few days, the patient developed symptoms of pleuropneumonia and remained febrile. Methicillin-sensitive S. aureus was cultured from the blood and the

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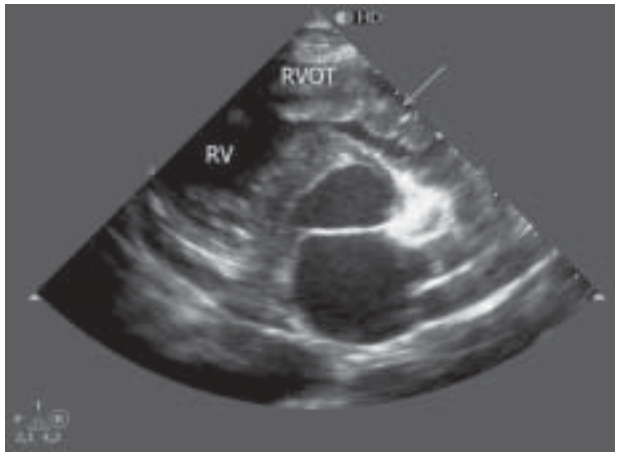

Figure 1. Pathologic echo in the right ventricle (RV) seen on echocardiography scan in the parasternal short axis view: the arrow points to a large RV free wall vegetation; RVOT — RV outflow tract

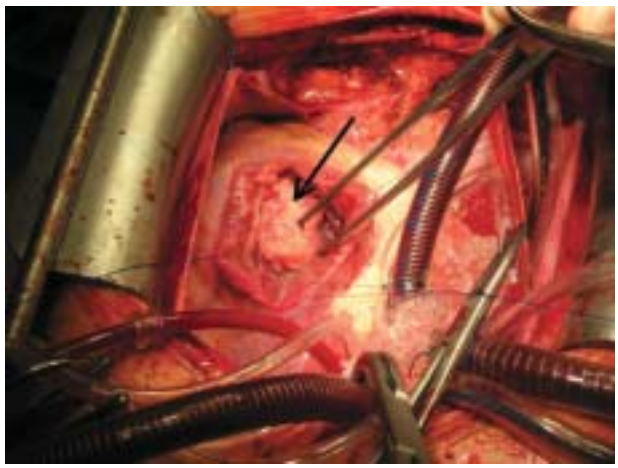

Figure 2. Inflammatory formation (bacterial vegetation) (arrow) seen through right ventriculotomy on the right ventricular free wall

patient was treated according to antibiogram. But an improvement in his general condition was not obtained. In the meantime, increasing values of sedimentation rate and C-reactive protein and anaemia were observed. Because of persistent fever (up to 41°C) despite antibiotic treatment, fluorochinolon was replaced by vancomycin. Urgent surgical treatment was chosen because of the clinical deterioration. When the interventricular septum was exposed, a 4 cm long, whitish tumour loosely attached to the septum was found, clearly different from the adjacent muscle (Fig. 2). The tumour was carefully excised, avoiding entering the left ventricular (LV) cavity (Fig. 3).

Figure 3. Vegetations removed from the right ventricle

After surgery, a significantly improved general condition was observed. A histopathological examination revealed an inflammatory character of the tumour. The patient was treated according to antibiogram and discharged in stable condition. At one year follow-up, the patient remains asymptomatic without any pathologic echoes in the RV.

DISCUSSION

The European Guidelines on Infective Endocarditis [1] indicate that patients with large vegetations on mitral or aortic valve > 10 mm after at least one embolism despite proper antibiotic treatment should be operated upon (I, B). Also, patients with any vegetation > 15 mm should receive surgical treatment (IIB, C). The Guidelines do not contain any information on mural vegetations.

Mural vegetations are commonly supposed to be associated with patients with congenital heart diseases (CHD). Itoh et al. [2] and Zijstra et al. [3] have reported cases of IE combined with ventricular septal defect. These cases confirm the concept that the jet stream causes endocarditis at its point of impact. In our patient, CHD was excluded.

We faced a difficult diagnostic problem when we found a giant mass in the RV outflow tract. Thrombus-in-transit was our initial diagnosis. This is why we were thinking of fibrinolytic treatment or emergency surgery. Only after computed tomography with contrast agent found no evidence of pulmonary embolism and a septic clinical picture, did we reject urgent fibrinolytic treatment. The timing of the operation was also a matter of discussion. On the one hand, an urgent operation might cause uncontrolled sepsis, but on the other hand, it might help us avoid septic embolisms and significantly shorten hospitalisation.

According to the literature, surgical treatment and conservative therapy have to be taken into account while tre-

ating IE with mural vegetations. Yu et al. [4] reported the case of a woman admitted with septic shock who had a giant mass attached to the free wall of the right atrium. Bierbrier et al. [5] presented a case of endocarditis confined to the mural left atrium. Another case with vegetation, attached this time to the LV outflow tract endocardium, in a patient with chronic severe aortic regurgitation, has been described [6]. These cases, similarly to the case of our patient, highlight not only an atypical presentation, but also successful surgical treatment, which helps us avoid embolic complications.

Hypertrophic cardiomyopathy (HCM) is infrequently complicated by IE. The case of a woman with HCM developing IE with a vegetation attached to the septal endocardium at the site of contact between the mitral valve leaflet and the septum has been reported [7]. The patient recovered after surgical treatment. Thus, chronic endocardial injury of the septum, a common finding in HCM, may provide a fertile nidus for the development of vegetation.

Conservative therapy also has a role in the treatment of IE with mural vegetations. Zoroufian et al. [8] presented a man with unusual staphylococcal endocarditis with giant vegetation on the LV lateral wall after aortic valve replacement and coarctoplasty. Another individual who had sustained 43% burns and developed vegetations in the RV, recovered uneventfully following antibiotic therapy [9]. Joseph et al. [10] also reported a case where intravenous antibiotics caused the final disappearance of the vegetation. Conservative treatment resulted in successful management of all the above cases of IE. In cases of right-sided vegetations without risk of systemic embolisation, surgical decision-making might be postponed. We chose surgery because of the clinical deterioration of the patient.

CONCLUSIONS

Mural vegetation is a very unusual presentation of infective endocarditis. Nevertheless, it should be taken into account when diagnosing a pathologic echo inside the heart. The clinical picture, cardiac imaging, and laboratory findings contribute to therapeutic decision-making in the management of such cases.

Conflict of interest: *none declared*

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