

Images in cardiovascular medicine

Fatal infective endocarditis involving the mitral, aortic, and tricuspid valves

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A 58-year-old woman, with a history of type 2 diabetes mellitus and end-stage renal disease on thrice-weekly hemodialysis, was admitted to our hospital because of chest pain unresponsive to nitroglycerin. Her body temperature was 36.6°C, the pulse was 78 b/min, and the systolic blood pressure was 170 mmHg. The cardiac rhythm was regular, and a grade 2 precordial systolic murmur was heard. On admission, hematologic laboratory analysis revealed a mild anemia, moderate thrombocytopenia and a high erythrocyte sedimentation rate. Electrocardiography was suggestive of left ventricular hypertrophy. Transthoracic echocardiography showed a mild pericardial effusion, left ventricular hypertrophy, and no valvular abnormalities.

On the fourth hospital day, a high-grade fever (39.2°C) with chills developed and she became increasingly confused. Her

pulse rose to 95 b/min, the systolic blood pressure was 90 mmHg, and laboratory analysis confirmed leukocytosis. Electrocardiography did not show atrioventricular or bundle branch block. The preexisting heart murmur remained unchanged. The patient did not have petechiae on the skin and conjunctivae and there was no splenomegaly or any other peripheral manifestations. Repeat transthoracic echocardiography revealed the presence of a large vegetation on the mitral valve. Transesophageal echocardiography confirmed a large, pedunculated vegetation attached to the posterior hemiannulus (40 mm in length; Fig. 1). This mobile mass was not homogeneous and several areas of microcavitation could be identified. During diastole it occupied the mitral valve orifice without causing any significant atrioventricular obstruction. Furthermore, another two stalked vegetations on the right coro-

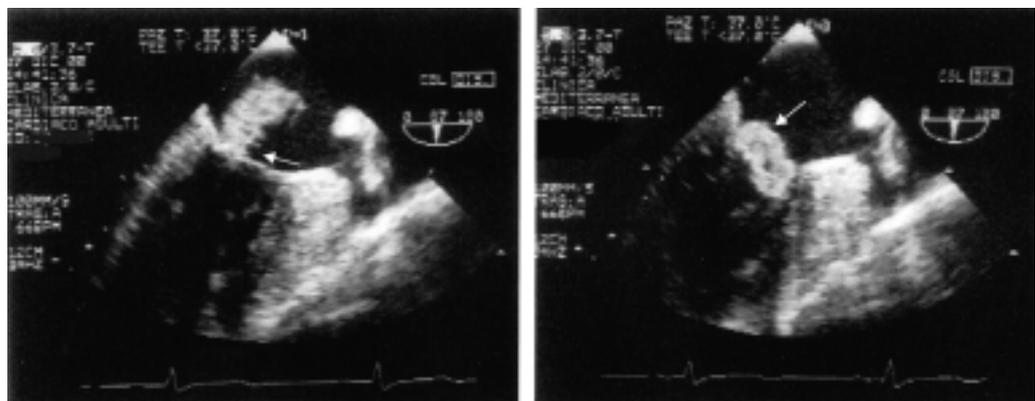


Figure 1. Transesophageal echocardiographic 2-chamber views showing a large vegetation attached to the posterior hemiannulus of the mitral valve during systole (left panel) and during diastole (right panel) when it occupies the atrioventricular orifice.

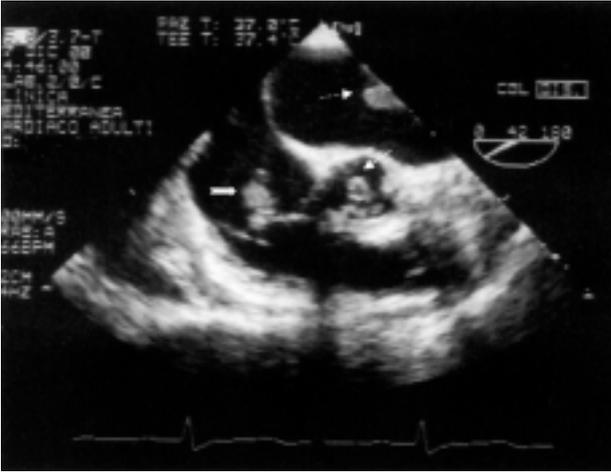


Figure 2. Transesophageal echocardiographic short-axis view of the aortic valve showing a vegetation on the ventricular face of the right coronary cusp (thin arrow), another vegetation on the atrial face of the anterolateral leaflet of the tricuspid valve (large arrow) and the mitral vegetation swinging in the left atrium (dashed arrow).

nary cusp of the aortic valve (11 mm in length) and on the anterolateral leaflet of the tricuspid valve (16 mm in length) were apparent (Fig. 2). The mitral valve vegetation was so impressive in size and mottled in appearance (due to areas of echolucency) that it mimicked an atrial myxoma. Cultures of three blood specimens yielded *Staphylococcus aureus*. Antibiotic treatment (with ceftazidime and vancomicine) was started. Dopamine was administered intravenously, with tran-

sient hemodynamic improvement. Two days later, the patient became unresponsive except to noxious stimuli. Since the white cell count increased further, teicoplanin was added to the therapeutic regimen. The cardiac surgeon discussed emergency surgery with the patient's family. The family declined cardiac surgery and, 3 days later, the patient died.

In view of potential bacteremia, hemodialysis patients are at risk for infective endocarditis^{1,2}. However, in this setting, almost all episodes occur in patients with known or suspected valvular heart disease². Interestingly, admission echocardiography ruled out typical predisposing lesions (i.e. rheumatic heart disease, and mitral valve prolapse). Nevertheless, on the basis of the subsequent extent of valvular involvement one may not exclude that, at that time, vegetations were already present but not large enough to be detected at the transthoracic approach. Our patient's high-risk profile may account for the unfavorable outcome since she had right-sided infective endocarditis, a large vegetation, diabetes mellitus, and a high leukocyte count².

References

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