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Double Site Left Heart Endocarditis With Ventricular Outflow Tract Mural Vegetation

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IBN ELHADJ ET AL.: Double Site Left Heart Endocarditis With Ventricular Outflow Tract Mural Vegetation. A 39-year-old man was admitted for a febrile congestive heart failure. Echocardiography revealed large vegetations on the mitral and aortic valves associated to a large mobile vegetation attached to the left ventricular outflow wall. Three days after the initiation of an intensive medical and antibiotic therapy, he underwent a double prosthetic valve replacement because of massive mitral regurgitation with cardiac heart failure. Culture of the vegetations identified a streptococcus. Long term outcome was uneventful. Bacterial inoculation of the parietal endocardium in valvular endocarditis is extremely rare and was probably due to lesions caused by previous regurgitation in our patient. (J HK Coll Cardiol 2014;22:1-4)

Multivalvular endocarditis, Mural vegetation

Introduction

Despite great improvements in general health care and antibiotic therapy, the incidence of infective endocarditis (IE) has not changed during the past decades.\(^1\) The involvement of two valves occurs much less frequently, and triple or quadruple valve involvement is extremely uncommon.\(^2\) Rarely, it may also develop on mural endocardium or manifest as endarteritis with a higher risk of embolic complications.

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Case Report

A 39-year-old man with a blurred history of rheumatic heart disease was admitted to our department for a febrile congestive heart failure. He reported fever, night sweating and edema since two weeks. His body temperature was 38.5°C. On physical examination, heart rate was 115 beats/minute, blood pressure was 110/50 mmHg and respiratory rate was 30 breaths/minute. On cardiac auscultation, a hard holosystolic murmur was heard at the apex, and a hard diastolic murmur was best heard along the left sternal border. Crackles were noticed on pulmonary auscultation. Hepatomegaly associated with hepatojugular reflux, splenomegaly and bilateral leg edema were also found. Electrocardiogram showed a sinus tachycardia with left atrial and diastolic ventricular hypertrophy.
Cardiomegaly with right atrial enlargement, double density of left atrial enlargement and hilar overload were found in on chest X-ray. Laboratory analysis showed a white blood cells count of 11700/mm³, a C-reactive protein of 50 mg/l, hemoglobin was 12.6 g/dl and a renal function was normal. Trans-thoracic echocardiography revealed large vegetations on the mitral and aortic valves (Figures 1 and 2) with a large defect on the anterior leaflet of the mitral valve (Figures 3a and 3b), severe mitral and aortic regurgitations. A voluminous mobile vegetation measuring 15 mm attached to the left ventricular outflow wall (Figures 4 and 5) was also noticed. Left ventricle was dilated with left ventricular ejection fraction of 53%. Trans-esophageal echocardiography confirmed these data.

The diagnosis of multivalvular infective endocarditis (MVE) with mural involvement was made. HIV serology tests were negative. A silent left parieto-occipital mycotic aneurysm was found on computed tomography scan.

The patient underwent, after 3 days of intensive medical and antibiotic therapy (Ampicillin and gentamicin), a double mitral and aortic valve prosthetic replacement associated with the resection of the mural vegetation. On intervention both mitral and aortic valves showed diffuse fibrous thickening. Multiple vegetations were found on the mitral and aortic valves associated with a large perforation of the anterior mitral leaflet. Jet lesions were found on the left outflow ventricular tract with a long friable vegetation attached to the septal wall. Histological study of the resected valves confirmed the diagnosis of acute IE complicating rheumatic valve disease. Culture of the vegetations identified a methicillin sensitive streptococcus oralis requiring 40 days of adapted antibiotic therapy. Three years later he is still doing well without any pathologic echoes in the left ventricle.

Discussion

Among patients with infective endocarditis, the prevalence of MVE is 15%. Mortality rate is higher in patients with multi-foci infection that may require early surgical treatment to prevent complications. Mural vegetations in the course of IE are extremely rare. They are commonly supposed to be associated to congenital heart diseases with vegetations around septal defects and in the area of jet stream impact. Itoh et al reported a right-sided IE combined with mitral involvement in a patient with ventricular septal defect.

Hypertrophic cardiomyopathy can also be responsible of mural involvement. Pachirat et al

Figure 1. Para-sternal left axis view: large vegetations on the mitral and aortic valves.

Figure 2. Voluminous mobile vegetation of 15 mm attached to the mitral valve.
reported the case of a woman with hypertrophic cardiomyopathy developing IE with vegetation attached to the septal endocardium at the site of contact with the mitral valve leaflet.

In our patient, mitro-aortic valvular lesions were due to rheumatic fever. The bacterial inoculation of the parietal endocardium of the left ventricular outflow tract may be secondary to chronic aortic regurgitation with endocardial trauma.

This location is associated with a higher risk of systemic embolic complications such as stroke, acute limb ischemia and myocardial infarction. In our case, an asymptomatic cerebral mycotic aneurysm was detected.

Surgical treatment of native valve endocarditis involving a single valve is well documented, with

**Figure 3.** (a) Severe mitral regurgitation due to a large defect on the anterior leaflet of the mitral valve. (b) Pulsed-Wave Doppler: pulmonary vein flow reversal.

**Figure 4.** Voluminous mobile vegetation of 15 mm attached to the left ventricular outflow tract.

**Figure 5.** Para-sternal left axis M-mode echocardiography, the arrow points to the mural vegetation in the left ventricular outflow tract.
excellent results reported with both valve repair and replacement. Data concerning patients with MVE are limited. In Yao's\textsuperscript{7} and Mihaljevic's\textsuperscript{8} series operative mortalities were respectively 12.5\% and 16\%.

Despite the double valves involvement associated with mural vegetation, that is rather uncommon, the outcome was good in our patient. This is probably due to the early intervention with an intensive medical treatment and the absence of associated comorbidities.

**Conclusion**

Mural endocarditis is rare and mostly located around parietal defects. The left ventricular outflow tract involvement may be caused by endocardial trauma secondary to chronic aortic regurgitation. Associated to a MVE, it can be responsible for higher rate of mortality and embolic complications. A combined medical and surgical approach remains the best attitude.

**References**