

Trivalvular Endocarditis: A Rare Multivalvular Condition

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Introduction

Infective endocarditis (IE) is a serious disease, in which the endocardial surface is compromised, and can affect valve structures, chordae tendineae or mural endocardium. Its main mechanism is the endothelial injury generated by turbulence of the blood flow caused by a defective valve or congenital anomaly. Its main manifestation occurs in the univalvular form or in two valves in the same cardiac chamber on the left. Multivalvular disorder, especially of the pulmonary valve, is considered rare. The report describes a case of IE with trivalvular injury (mitral, aortic and pulmonary valve).

Case Report

A 52-year-old male patient visited the hospital for asthenia, hyporexia and weight loss of 22 kg in 4 months. On physical examination, he was pale, with stable blood pressure levels and cardiac auscultation revealing audible diastolic murmur in the aorta and pulmonary valve +++/6 with mitral irradiation. Laboratory tests of admission showed normal leukogram, high inflammatory activity (PCR 77.5 mg/dL; erythrocyte sedimentation rate — ESR 106 mm/h). Transthoracic echocardiography revealed complete aortic valve dysfunction and presence of echogenic structure adhered to the ventricular face of the aortic valve, measuring 12 × 6 mm and 10 × 5 mm, compatible with vegetation (Figure 1), and an image suggestive of discrete adjacent abscess; thickened mitral valve, with presence of echogenic structure adhered to the ventricular face of the anterior leaflet, measuring 8 × 5 mm, compatible with vegetation (Figure 2); moderate pulmonary valve failure with an elongated echogenic structure adhering to the ventricular face of the pulmonary valve, measuring 18 × 4 mm and 15 × 4 mm in diameter, compatible with vegetation (Figure 3); and tricuspid valve failure without vegetation image. The patient underwent to surgery for

aortic and mitral valve replacement with bioprosthesis and pulmonary and tricuspid valvuloplasty. Blood cultures were negative. Bacterioscopy of the pulmonary valve with presence of *Gram*-positive cocci, with negative culture.

Discussion

This case reports subacute IE polymorphism caused by *Gram*-positive cocci, which, after investigation, showed a trivalvular condition. Multivalvular endocarditis presents an incidence of 17 to 18% of all cases. The mitral and aortic valves are more frequently affected, whereas involvement of three or four valves is extremely rare. The incidence of endocarditis in right chambers ranges from 5 to 10%, with predominant involvement of the tricuspid valve.^{1,2} Pulmonary valve endocarditis is rare. It is assumed that its rarity is due to the low-pressure gradients within the right heart,^{3,4} low prevalence of congenital malformations, lower oxygen content of the venous blood, and the differences in coverage and vascularization of the right heart endothelium. *Staphylococcus* sp. is responsible for most cases, followed by *Streptococcus* sp. The main risk factors include valvular or congenital heart disease, intravenous drug use, dialysis, alcoholism, liver cirrhosis.^{1,2,5} Patients with multivalvular involvement are more subject to complications such as perivalvular infection and heart failure, requiring more frequent surgeries and greater morbidity and mortality.⁶⁻¹⁰ In this case, the patient presented significant clinical improvement after valve replacement and appropriate antimicrobial treatment.

Authors' contributions

Research creation and design: Della Giustina R; Data acquisition: Della Giustina R; Manuscript writing: Della Giustina R, Marchi MFS, Fiamoncini MM, Mazon EZ, Bussoletto MP, Fiamoncini A; Critical revision of the manuscript as for important intellectual content: Della Giustina R, Marchi MFS, Fiamoncini MM, Mazon EZ, Bussoletto MP, Fiamoncini A.

Keywords

Endocarditis; Heart Valve Diseases/surgery; Heart Valve Diseases/complications; Echocardiography/methods; Heart Failure.

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Potential Conflicts of Interest

There are no relevant conflicts of interest.

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Academic Association

This study is not associated with any graduate programs.

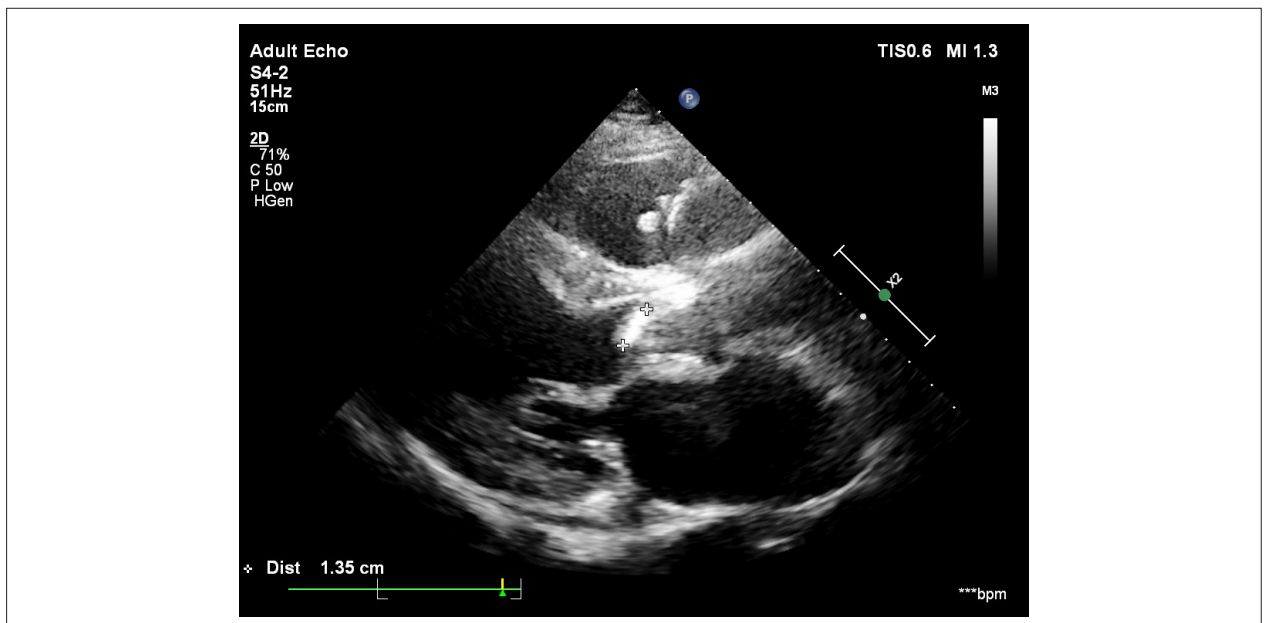


Figure 1 – Aortic valve with presence of echogenic structure adhered to the ventricular face compatible with vegetation.

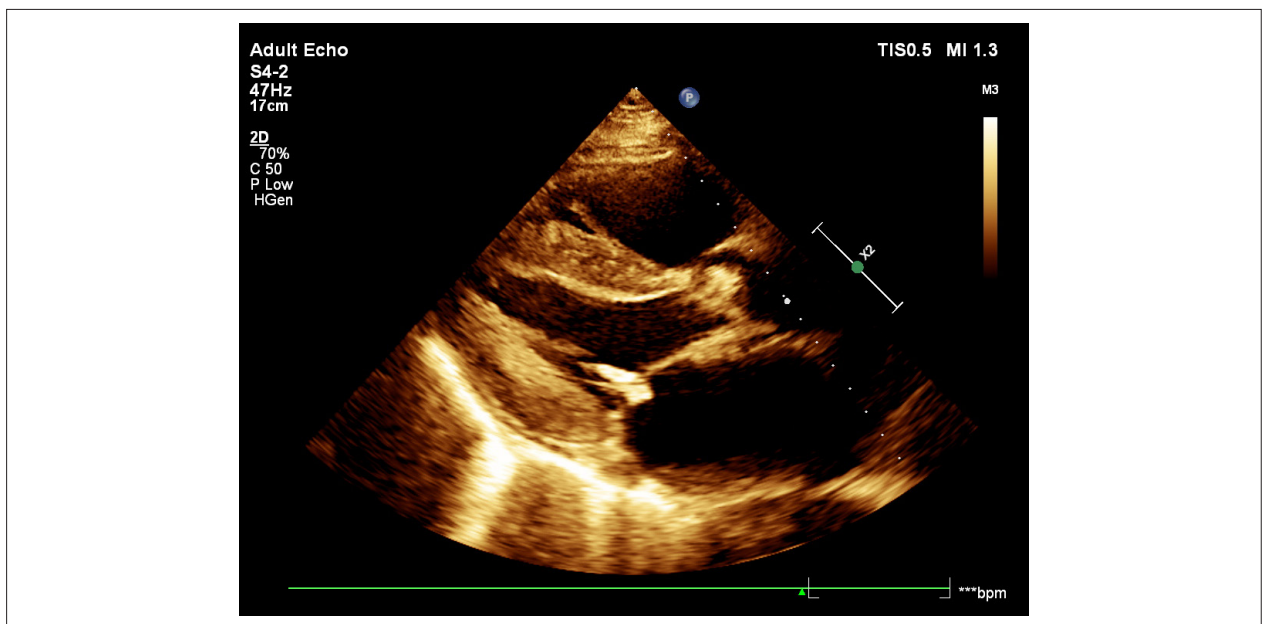


Figure 2 – Mitral valve with presence of echogenic structure adhered to the atrial face of the anterior leaflet, compatible with vegetation.

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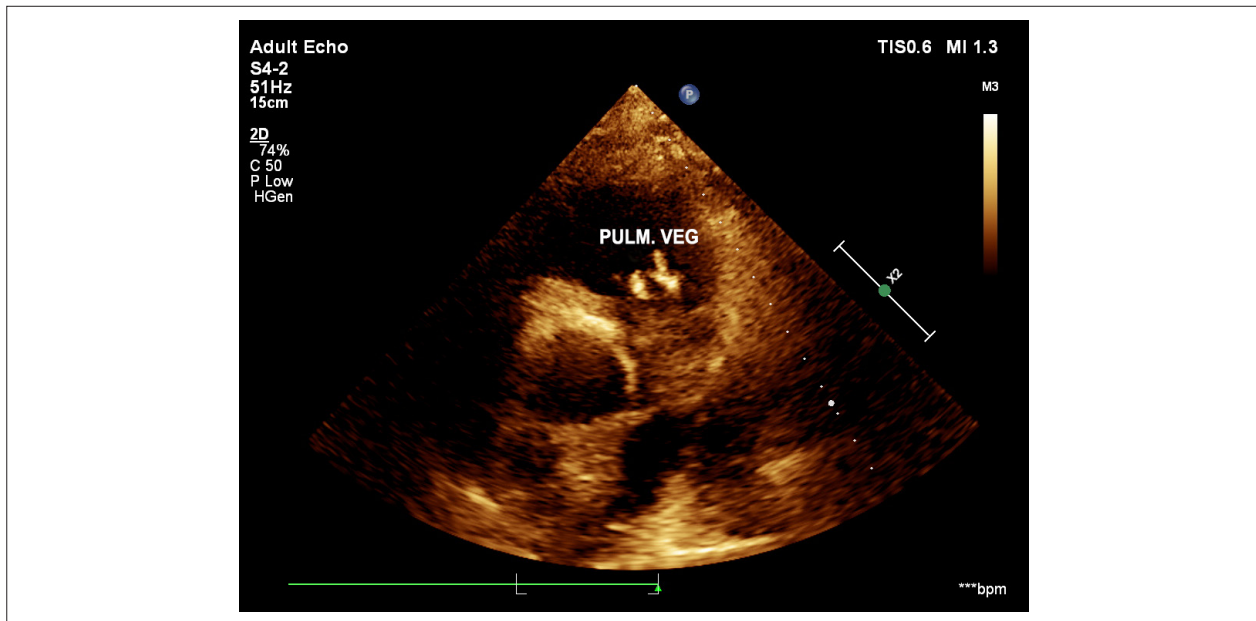


Figure 3 – Pulmonary valve with presence of echogenic structure adhered to the valve compatible with vegetation.

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