

Right-sided Infective Endocarditis with Multiple Large Vegetations in a Case of Ventricular Septal Defect: A Case Report

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ABSTRACT

Herein, we present the case of a 10-year-old child suffering from right-sided infective endocarditis with ventricular septal defect. Echocardiography revealed multiple rare large vegetations on the pulmonary valve extending into pulmonary artery along with a large vegetation over the septal leaflet of tricuspid valve.

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Introduction

The right-sided endocarditis is a relatively rare disease, which mainly affects the tricuspid valve. However, the pulmonary valve endocarditis is even rarer. Although there are several case reports on the tricuspid and pulmonary valve endocarditis, such large multiple hypermobile vegetations, as in our patient, are not common.

Case Presentation

A 10-year-old girl was brought with the complaints of having fever for one month with dyspnea New York Heart Association class III. There were no joint pains, hematuria, blurred vision, convulsions, or bleeding manifestations. In the general physical examination, she was pale and febrile and diagnosed with tachycardia and tachypnea. Additionally, a pansystolic murmur was heard at the left parasternal region with a pulmonary ejection sound at the cardiovascular system examination. Other systems were normal, except for a mild splenomegaly.

Blood test results were as follows: Hb=8 gm/dL, WBC=16 x 10⁹/L, platelets=1.5 lacs/mm³, ESR=86 mm/hr, RBS=96 mg%, urea=23 mg%, serum creatinine=0.8 mg%, CRP=48 mg/L. Blood cultures grew streptococcus viridans. Chest X-ray showed left ventricular enlargement with pulmonary artery dilatation and increased pulmonary blood flow. Sinus tachycardia was seen on the 12-lead electrocardiogram along with features suggestive of left atrial enlargement with left ventricular hypertrophy.

A 2D transthoracic echocardiogram revealed a moderate (5 mm) perimembranous ventricular septal defect (VSD) in the subaortic area with left-to-right shunt (gradient=53 mmHg), partially closed by septal leaflet of the tricuspid valve extending up to inlet. Multiple hypermobile vegetations (largest: 18×10 mm) were observed over the pulmonary valve prolapsing into the pulmonary artery (Figure 1). A large (12 mm×5 mm) mobile vegetation was also detected over

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Figure 1. 2D transthoracic echocardiography, modified parasternal short axis view at the level of aortic valve shows vegetations (with the largest size of 18×10 mm) over the pulmonary valve prolapsing into the pulmonary artery (Ao: aortic valve, PA: pulmonary artery)

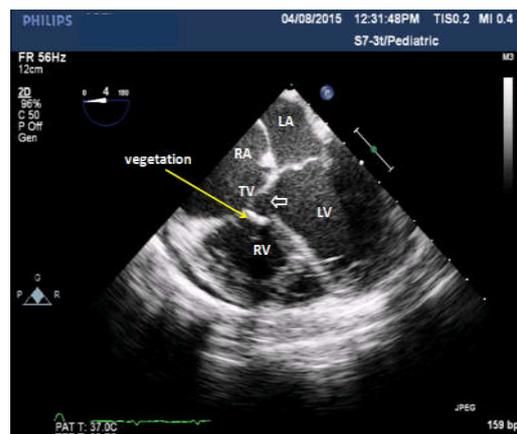


Figure 2. 2D transesophageal echocardiography, midesophageal 4-chamber view shows a large (12 mm×5 mm) mobile vegetation over the septal leaflet of tricuspid valve, perimembranous ventricular septal defect extends into inlet (open white arrow) (LA: left atrium, LV: left ventricle, RA: right atrium, RV: right ventricle, TV: tricuspid valve)

the septal leaflet of the tricuspid valve, which was further delineated with transesophageal echocardiography (Figure 2).

The patient was diagnosed with having infective endocarditis, which was treated with intravenous ceftriaxone and gentamicin. Fever resolved after seven days of therapy; moreover, after receiving antibiotics for two weeks, the parameters of inflammation normalized and the blood culture was sterile. Additionally, she was managed with intravenous antibiotics for four weeks, and then underwent a surgery for the treatment of VSD.

Discussion

Right-sided infective endocarditis (RSIE) has lower incidence, accounting for only 5-10% of infective endocarditis (IE). Its lower incidence in comparison to left side of the heart could be attributed to the low occurrence of the congenital heart disease on the right side of the heart, lack of strain on the tricuspid and pulmonary valves due to low hemodynamic pressure, and low oxygen saturation (1, 2). RSIE mostly involves the tricuspid valve and occurs especially among the intravenous drug users or where intravenous lines and wires (e.g., pacemakers) are used (1, 3-5). *Staphylococcus aureus* is the most common causative organism in both injecting drug users and non-addicts (3, 6).

Definite vegetations over tricuspid valve is observed in 12% of the endocarditis cases with very infrequent involvement of pulmonary valve in only 1% of the cases (7). In our case, the right-sided endocarditis may have been initiated by the jet or turbulent flow created by VSD, which then spread to the pulmonary and tricuspid valves.

Respiratory symptoms predominate the clinical picture and a high index of suspicion is required for diagnosis. Echocardiography plays a

vital role in establishing the diagnosis. A thorough echocardiographic evaluation of all cardiac valves, including right-sided valves is required in all the patients with suspected infective endocarditis.

Isolated RSIE is regarded to have a relatively benign prognosis with low in-hospital mortality rate. It resolves conservatively in 70–85% of cases. Surgery is required in only a small population (8, 9). In the absence of the left-sided infective endocarditis coexistence, the surgery should be considered in the presence of diuretic resistance in the right-sided heart failure associated with severe tricuspid regurgitation, infection with fastidious organisms resistant to antimicrobial treatment, and vegetations with diameter of >20 mm along with multiple pulmonary emboli and possible right-sided heart failure (10-12). The surgical treatment of the infective endocarditis with VSD involves closure of the defect, valve replacement, and simple valve excision without valve replacement or resection of the vegetation (vegetectomy) (13-15). The prognosis of the patients after VSD closure and vegetectomy is good.

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Conflict of Interest

The authors declare no conflict of interest.

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