

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

Kumari Priti<sup>1</sup>, Bhanwar Ranwa<sup>2</sup>

<sup>1</sup> Senior Resident, Department Of Cardiology, JLN Hospital, Ajmer, Rajasthan, India

<sup>2</sup> Cardiologist, Department Of Cardiology, JLN Hospital, Ajmer, Rajasthan, India

---

### ARTICLE INFO

*Article type:*  
Case report

---

*Article history:*  
Received: 04 Nov 2015  
Revised: 24 Dec 2016  
Accepted: 24 Apr 2017

---

*Keywords:*  
Large Vegetations  
Right-Sided Endocarditis  
Ventricular Septal Defect

---

### 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.

---

*Please cite this paper as:*

Priti K, Ranwa B. Right-sided Infective Endocarditis with Multiple Large Vegetations in a Case of Ventricular Septal Defect: A Case Report. J Cardiothorac Med. 2017; 5(3): 201-203.

---

### 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 10<sup>9</sup>/L, platelets=1.5 lacs/mm<sup>3</sup>, 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

---

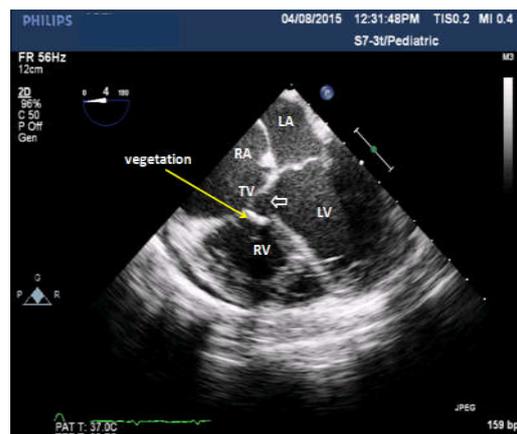
\*Corresponding author: Bhanwar Ranwa, Department of Cardiology, J.L.N. hospital, Ajmer, Rajasthan, India. Tel: +91-9783318278; Email: bhanwar.ranwa@gmail.com

© 2017 mums.ac.ir All rights reserved.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



**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.

## Acknowledgments

This study was financially supported by Department Of Cardiology, JLN Hospital, Ajmer, Rajasthan, India.

## Conflict of Interest

The authors declare no conflict of interest.

## References

1. Chan P, Ogilby JD, Segal B. Tricuspid valve endocarditis. *Am Heart J.* 1989; 117:1140-6.
2. Morokuma H, Minato N, Kamohara K, Minematsu N. Three surgical cases of isolated tricuspid valve

- infective endocarditis. *Ann Thorac Cardiovasc Surg.* 2010; 16:134-8.
3. Frontera JA, Graddon JD. Right-side endocarditis in injection drug users: review of proposed mechanisms of pathogenesis. *Clin Infect Dis.* 2000; 30:374-9.
  4. Sohail MR, Uslan DZ, Khan AH, Friedman PA, Hayes DL, Wilson WR, et al. Management and outcome of permanent pacemaker and implantable cardioverter-defibrillator infections. *J Am Coll Cardiol.* 2007; 49:1851-9.
  5. Del Rio A, Anguera I, Miro JM, Mont L, Fowler VG Jr, Azqueta M, et al. Surgical treatment of pacemaker and defibrillator lead endocarditis: the impact of electrode lead extraction on outcome. *Chest.* 2003; 124:1451-9.
  6. Musci M, Siniawski H, Pasic M, Grauhan O, Weng Y, Meyer R, et al. Surgical treatment of right-sided active infective endocarditis with or without involvement of the left heart: 20-year single center experience. *Eur J Cardiothorac Surg.* 2007; 32:118-25.
  7. Murdoch DR, Corey GR, Hoen B, Miró JM, Fowler VG Jr, Bayer AS, et al. Clinical presentation, etiology and outcome of infective endocarditis in the 21<sup>st</sup> century: The International Collaboration on Endocarditis Prospective Cohort Study. *Arch Intern Med.* 2009; 169:463-73.
  8. Sohail MR, Uslan DZ, Khan AH, Friedman PA, Hayes DL, Wilson WR, et al. Infective endocarditis complicating permanent pacemaker and implantable cardioverter-defibrillator infection. *Mayo Clin Proc.* 2008; 83:46-53.
  9. Chrissoheris MP, Libertin C, Ali RG, Ghantous A, Bekui A, Donohue T. Endocarditis complicating central venous catheter bloodstream infections: a unique form of health care associated endocarditis. *Clin Cardiol.* 2009; 32:E48-54.
  10. Hecht SR, Berger M. Right-sided endocarditis in intravenous drug users. Prognostic features in 102 episodes. *Ann Intern Med.* 1992; 117:560-6.
  11. Martin-Davila P, Navas E, Fortun J, Moya JL, Cobo J, Pintado V, et al. Analysis of mortality and risk factors associated with native valve endocarditis in drug users: the importance of vegetation size. *Am Heart J.* 2005; 150:1099-106.
  12. Horstkotte D, Follath F, Gutschik E, Lengyel M, Oto A, Pavié A, et al. Guidelines on prevention, diagnosis and treatment of infective endocarditis executive summary: the task force on infective endocarditis of the European society of cardiology. *Eur Heart J.* 2004; 25:267-76.
  13. Carrel T, Schaffner A, Vogt P, Laske A, Niederhauser U, Schneider J, et al. Endocarditis in intravenous drug addicts and HIV infected patients: possibilities and limitations of surgical treatment. *J Heart Valve Dis.* 1993; 2:140-7.
  14. Renzulli A, De Feo M, Carozza A, Della Corte A, Gregorio R, Ismeno G, et al. Surgery for tricuspid valve endocarditis: a selective approach. *Heart Vessels.* 1999; 14:163-9.
  15. Di Filippo S, Semiond B, Celard M, Sassolas F, Vandenesch F, Ninet J, et al. Characteristics of infectious endocarditis in ventricular septal defects in children and adults. *Arch Mal Coeur Vaiss.* 2004; 97:507-14.