

LATE MANIFESTATION OF CONGENITAL HEART DISEASE : RIGHT-SIDE INFECTIVE ENDOCARDITIS AND THE MYSTERY OF THE UNSEEN VENTRICULAR SEPTAL DEFECT – A CASE REPORT

ABSTRACT :

Infective endocarditis (IE) is a severe complication in patients with congenital heart disease. However, CHD-associated mortality has decreased to 10% because of improvement in the diagnosis of infective endocarditis, antibiotic therapy, cardiac surgery, and interventional procedure.¹ Herein, we aimed to describe a case of right-side infective endocarditis with unknown ventricular septal defect complicated with septic pulmonary emboli as a rare form of late presentation of congenital heart disease. The observed high incidence of Infective Endocarditis warrants further studies about the current use, need and efficacy of antibiotic prophylaxis in CHD patients.

Keywords : Ventricular septal defect ; right side infective endocarditis; pulmonary embolism;

1. INTRODUCTION

Infective endocarditis (IE) is one of the common causes of life-threatening infections. Compared to left-sided endocarditis, right-sided infective endocarditis is rarer

We present the case of a previously apparently healthy young woman with a late diagnosis of congenital heart disease (CHD), in which IE was the first manifestation of the disease

2. PRESENTATION OF CASES

We describe the case of a 27 year old woman, with no previous history of disease or medical check-ups during childhood, with a history of repeated corticosteroid injection for weight gain, she presented to the emergency for breathlessness, asthenia, and fever 3 weeks duration .

At her admission, the physical examination found , a blood pressure at 122/62 mmHg, regular heart rate at 130 beats per minute, a respiratory rate at 28 breaths per minute, SpO₂ at 83%, temperature at 38.9°C. Cardiac auscultation revealed a diastolic murmur at the right second intercostal space, pulmonary auscultation revealed crackles in both lung fields without any other signs of congestion, The abdomen was soft with hepatosplenomegaly

Laboratory tests showed microcytic hypo chromic anemia with hemoglobin level of 6.2 g/dl and no ferritin deficiency explained by inflammatory systemic disease, with an active infection (neutrophilic leukocytosis: 26 103/ μ l, with 20 \times 103/ μ l neutrophils, and C-reactive protein 242 mg/dl) , procalcitonin 32,2 ,

Transthoracic echocardiography with Doppler study was performed which revealed a small perimembranous restrictive VSD, with a left to right shunt , with a large vegetation measuring 35 x 33 mm inserted on the perimembranous ventricular septal defect extended through the pulmonary infundibulum to the main pulmonary artery during systole, Moderate tricuspid regurgitation was documented, The other valves presented no vegetation or severe regurgitation. Left ventricular function was preserved.

A chest X-ray revealed bilateral alveolar infiltrates , In addition, a CT scan of the thorax demonstrated septic pulmonary emboli, as well as mild right pleural effusion

Microbiology studies were done in conjunction with empiric synergic dual antibiotic: ceftriaxone 02g/day and gentamicin 3mg/kg /day; while waiting for the antibiogram.

At least two sets of blood cultures confirmed the presence of methicillin-sensitive *Staphylococcus aureus*

The patient was diagnosed with endocarditis complicating perimembranous VSD following the 2023 European Society of Cardiology modified diagnostic criteria of infective endocarditis, Despite 1 week

of appropriate antibiotic therapy, she had persistent fever with rising CRP, repeated a CT scan of the thorax demonstrated multiple septic pulmonary emboli. Therefore, in consensus with our endocarditis team, including a cardiac surgery evaluation, and given the hemodynamic and embolic risk, we decided to perform surgical treatment, vegetectomy, VSD patch closure and tricuspid valve plasty depending on surgical exploration. The patient's postoperative course was uneventful and he was discharged 2 weeks after surgery.



Figure 1: Transthoracic echocardiography showed an enormous vegetation measuring 35 x 33 mm inserted on the perimembranous ventricular septal defect extended through the pulmonary infundibulum to the main pulmonary artery during systole.

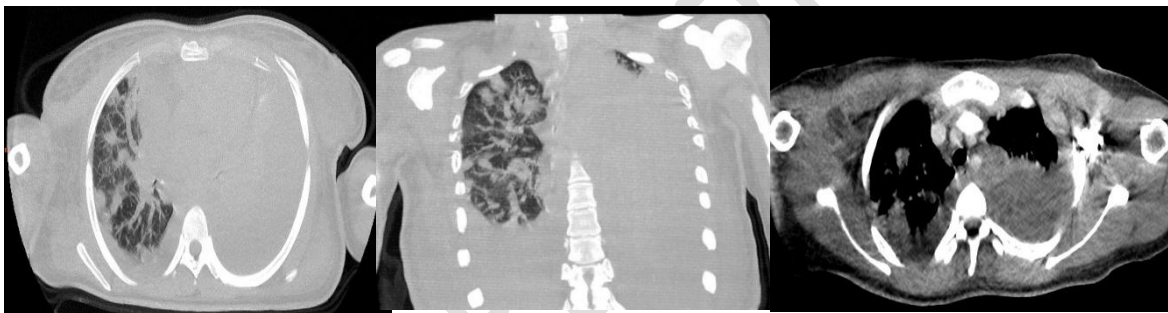


Figure 2: CT scan of the thorax demonstrated foci of pulmonary condensation associated with masses and pulmonary nodules that are scattered and excavated in places with pleural effusion of great abundance on the right and little on the left, suggesting an infectious origin (septic emboli).

3. DISCUSSION

Right-sided IE is rare, accounting for only 5–10% of all IE cases (1). Infective endocarditis is a rare complication of ventricular septal defects. Its incidence is estimated to be 2–2 per 1000 patient-years (1)(2)(3).

Congenital heart disease predisposes to IE via several mechanisms including turbulent non-laminar blood flow causing shear stress and endothelial damage.

Risk factors for right-sided IE include patients with CHD, indwelling catheters, and CIED, as well as immunocompromised and PWID patients (1).

The most common microorganism causing right-sided IE is *S. aureus*, accounting for the majority of patients, the tricuspid valve is much more commonly infected (4)(5). Right-sided IE patients generally present with fever, bacteraemia, and pulmonary complaints such as cough, chest pain, or haemoptysis. Right-sided HF may also occur due to tricuspid or pulmonary regurgitation, or to pulmonary hypertension induced by multiple pulmonary septic emboli. (5)(6)(7).

It had been suggested that patients with multiple lung cavity lesions with fever should be worked up for right-sided IE with trans-oesophageal echocardiography even in the absence of significant risk factors (8).

An active search for embolization is always recommended in patients with endocarditis, especially in patients with large (>10 mm) and mobile vegetations.

Pulmonary septic embolization is a common complication of right-sided IE, and computed tomography scan is the imaging modality of choice (8). In a retrospective analysis conducted by Hecht and Berger in 1992 (9) they found approximately 55% of patients with chest radiograph infiltration on

presentation consistent with pulmonary septic emboli. Our patient had embolization of vegetation into the main pulmonary trunk, resulting in septic atelectasis, pneumonia, and pleural effusion. Right-sided IE is generally a more benign clinical entity than left-sided IE and can be medically managed in ~90% of patients, with surgery reserved for those who fail medical therapy. (10) According to ESC guidelines of management of IE, Surgery is recommended in patients with right-sided IE who are receiving appropriate antibiotic therapy in case of Right ventricular dysfunction secondary to acute severe tricuspid regurgitation non-responsive to diuretics, persistent vegetation with respiratory insufficiency requiring ventilatory support after recurrent pulmonary emboli. large residual tricuspid vegetations (>20 mm) after recurrent septic pulmonary emboli. And in Patients with simultaneous involvement of left-heart structures(2)

4.CONCLUSION

One of the most serious late complications in CHD patients is infective endocarditis (IE). Besides, an active search for clinical and radiological signs of pulmonary embolization is necessary for patients with right-sided endocarditis, especially those with large and mobile vegetation. Primary prevention of IE in CHD patients and corresponding patient education is essential

CONSENT

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

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