Tricuspid Infective Endocarditis Complicated by Complete Atrioventricular Block in Child Aged 14 Years: A Case Report

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Abstract

Infective tricuspid endocarditis on a healthy heart is rare. It remains extremely serious because of cardiovascular complications. We report on a case that occurred in a black child aged of 14 years old with no particular history. He was admitted for septicemia starting at joint and muscle level. He had syncope a few days later in a context of a bradycardia. The electrocardiogram gave evidence of a complete atrioventricular block, and the echocardiography showed tricuspid vegetation with significant regurgitation. Despite controlling the infection with antibiotics, evolution was marked by right ventricular failure and persistence of the complete atrioventricular block, which was well tolerated without cardiac pacing.

INTRODUCTION

Infective endocarditis (IE) is a microbe transplants on the valves or parietal endocardium [1,2]. It is rare but not exceptional in children who suffer minor incidence [1,3]. The endocarditis of the right heart is rare, accounting for 10% of infectious endocarditis. Atrioventricular block is a possible complication of infective endocarditis withspread of infection on the conduction pathways. We report on a case complicated by complete atrioventricular (AV) block revealed by syncope in a black child of 14 years.

CASE PRESENTATION

This is about a black African child of 14, with no history of valvular or congenital heart disease. He was first admitted to the pediatric department for bilateral septic arthritis of the knees and hip associated with pneumonia. Despite broad spectrumanti-antibiotic treatment, evolution was marked by the occurrence of several episodes of syncope and persistent fever. Examination found bradycardia with a heart rate of 48 beats per minute and systolic tricuspid murmur. The rest of the clinical examination revealed a right pulmonary condensation syndrome and signs of right heart failure. Electrocardiogram showed a complete atrioventricular block with narrow QRS with ventricular rate of 51 beats per minute (Figure 1). Echocardiography showed a large tricuspid vegetation of 18 mm x 29 mm on the septal tricuspid valve (Figure 2). There was also a significant tricuspid regurgitation, pulmonary hypertension with pulmonary arterial pressure of 60 mm Hg and a dilation of the right heart chambers and the inferior vena cava. The left ventricular ejection fraction was normal. Blood cultures and collection of pus in the joint aspiration isolated a methicillin-resistant Staphylococcus aureus (MRSA). Other laboratory tests showed moderate anemia, normochromic, normocytic with a hemoglobin level of 8.1 g/dl, leukocytosis with 16,800 white blood cells per mm³, predominantly neutrophil, a C-Reactive Protein of 75 mg/l. At cytobacteriological examination, urines were sterile. VIH test was not performed and immunological tests were not available in our laboratory. Management of infection was based on the arthritis surgical lavage and the use of various broad-spectrum antibiotics. Before bacteriological results, we used empirical antibiotic therapy with Ceftriaxon and Gentamycin. Blood cultures isolated Staphylococcus aureus sensitive to Vancomycin and Lincomycin, which replaced other antibiotics. Duration of antibiotic therapy was at least 8 weeks. Patient was also treated for right heart failure and prevention of thromboembolic complications. Infectious was controlled with stable apyrexia, regression of inflammatory syndrome and heart failure was stable. Transthoracic echocardiography control showed a disappearance of vegetation (Figure 3). However, AV block persisted throughout hospitalization without recurrence of syncope despite the absence of temporary cardiac stimulation and pacemaker implantation because a lack of financial resources. Six month after hospital discharge, he presents signs of right ventricular failure and joint sequelae. EKG shows complete AV
Figure 1 Electrocardiogram showed a complete atrioventricular block with narrow QRS rate to 51 beats per minute.

Figure 2 Transthoracic echocardiography showing vegetation (red arrow) on the septal leaflet of the tricuspid valve.

Figure 3 Transthoracic echocardiography control shows a right ventricular dilation and disappearance of vegetation.
block and echocardiography an important tricuspid regurgitation with right heart chambers dilation without vegetation.

DISCUSSION

We present a case of acute tricuspid endocarditis on a previously healthy heart and without injecting drug uses. It was complicated by complete atrioventricular block. These are two clinical situations [4,5]. Tricuspid endocarditis occurs most often among intravenous drug users under probes of implantable cardiac devices, on central venous catheter, or congenital heart disease [6]. Other situations are described such as post abortion and postpartum [7]. Endocarditis on healthy heart without traditional predisposing factors is even rare [4,5]. They often present an acute endocarditis with obvious sepsis. Our patient had no predisposing factor and tricuspid endocarditis had occurred in a context of severe sepsis with skin as gateway leading to bilateral arthritis of the knees and hip. Nevertheless, he had a peripheral venous peripheral catheter, which could be a contributing factor but the presence of a central venous catheter is most often implicated in the occurrence of endocarditis on a healthy heart [8]. The key diagnostic remains echocardiography with the discovery of vegetations. Antibiotic therapy is the basic treatment but surgical resection of vegetation may be required [6]. The occurrence of conduction disorders is rare in endocarditis, and they represent a poor prognosis [9]. Disorder of conduction and particularly AV block has a highly positive predictive value for abscess formation [9]. They are usually related to the spread of infection in the peri-valvular region with an alteration of the conduction pathways [9]. This peri-valvular extension is associated with lesions including abscesses of the ring that is more easily identified by trans-esophageal echocardiography [9,10]. Such examination could not be conducted in this patient due to lack of technical means, however transthoracic echocardiography did not reveal any abscess. High degree AV block readily occurs in cases of endocarditis in the left side of the heart (aortic and mitral valves) and rarely in tricuspid endocarditis [9-11]. Heart block is associated only with 5% of cases endocarditis involving the tricuspid valve. The location of the vegetation on the septal leaflet can damage the trigone in proximity to the conduction pathways [11]. Fordyce et al were said to have reported the first case of complete atrioventricular block on tricuspid endocarditis [11]. This scarcity of conduction disorders complicating tricuspid endocarditis could be explained by the anatomical position of Koch triangle in which lies the atrioventricular node [9,10]. They are usually transient and disappear with the infection control, or require at least a temporary electro-systolic simulation as reported by some authors [9,10]. Yet, they can be permanent and require the implantation of permanent cardiac pacemaker [11]. Despite the persistence of the atrioventricular block, our patient could not have a pacemaker because of the lack of financial resources. In fact, the patient or his entourage in Senegal pays implantable devices. Our patient could not afford to pay for the pacemaker. This situation is the cause of the persistence of right heart failure and complete AV block, 6 months after hospital discharge.

CONCLUSION

Tricuspid endocarditis is rare and its association with atrioventricular block is even rarer in children. This complication entails poor prognosis and higher mortality and is usually linked with a peri-valvular abscess.

REFERENCES