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Right-Sided Endocarditis Presenting With Cardiac Failure and Complicated With Septic Emboli and Pleurisy in A Teenager

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Abstract **Case Report**

Right-sided infective endocarditis (RSIE) occurs predominantly in intravenous drug abuser (IVDA). In non-drug users, it is usually associated to predisposing factors such ascongenital heart disease; central venous catheters, cardiac devices, immuno-depression as well as others comorbidities. Most of the patients can be successfully treated with medical therapy. Indication and timing for surgerydepend mainly on the type of predisposing factors, the causative pathogen and the response to antibiotic treatment. We report the management of a 15-year-old male with unknown predisposing factors who presented a tricuspid valve (TV) infective endocarditis (IE) with complications.
Keywords: Right-sided endocarditis, septic pulmonary embolism, non-Drug abuser teenager.

INTRODUCTION

Right-sided infective endocarditis represents 5 to 10% of all infective endocarditis in adults [1]. In the literature, 3 groups of patients have been described as host of the disease: intravenous drug users (IDU), cardiac device carriers and the "3 noes" group (no left-sided, no IDUs and no cardiac devices). Relevant epidemiologic, clinical, microbiologic, echocardiographic and prognostic differences exist among these groups [2, 3]. When TVIE is present, pulmonary embolism with or without infarction, acute pneumonia, pleural effusion or emphysema is common. Pulmonary septic embolus is defined as the embolization of septic thrombi from a primary infectious site into pulmonary circulation. Large vegetation is a predisposing factor for embolization [3]. The guidelines for infective endocarditis management include antimicrobials, surgery and comorbidities management, all based on a multidisciplinary approach "endocarditis team" for the diagnosis and the treatment [1]. Surgery is preferred for patientswithsevere tricuspid regurgitation contributing to right heart failure with poor response to diuretic therapy, persistent tricuspid valve vegetation > 20 mm after recurrent pulmonary emboli, and in case of failure of antimicrobial therapy [1,4]**.** We report the medical management of a 15-year-old male teenager who presented with a complicated tricuspid valve endocarditis with unknown predisposing factor.

CASE PRESENTATION

A 15 year-old male with no significant past medical history was admitted to the Pediatrics department of our facility with abdominal pain and poor general health state. The patient had no history of cardiovascular disease, intravenous catheter placement or drug abuse. On admission his temperature was 39.4°C, blood pressure was 97/51 mmHg, pulse was 115 beats/min, respiratory rate was 64 breaths/min and oxygen saturation was97% on 100% oxygen non-rebreather. On physical examination, the patient was pale, in respiratory distress, with decreased breath sounds bilaterally in the basal lung fields and he presented signs of right-sided heart failure. Dermatologic examination was normal. Initial laboratory work-up revealed anemia with hemoglobin of 3.8 g/dl, leukocytosis of 38000/mL, normal platelets and acute kidney injury without hematuria. Hemoglobin type was HbAA on electrophoresis. Chest X-Ray was consistent with bilateral lungs infiltrates associated to bilateral pleural effusion predominantly at the left side (Figure1). Series of blood cultures were collected and acid fast stain was also conducted. Empiric antibiotics (3rd generation cephalosporin and quinolones) were initiated as well as diuretics, angiotensin converting

enzyme (ACE) inhibitor and blood transfusion. The initial transthoracic echocardiography (TTE) revealed a mobile 18 mm vegetation on the lateral leaflet of the tricuspid valve (TV) with severe tricuspid valve regurgitation (Figure 2) without valve perforation as well as pulmonary hypertension (mean pulmonary arterial pressure was 53 mmHg)(Figure 3).The right atrium and ventricle were enlarged. The left ventricle function and the other valves were normal. Methicillin sensitive staphylococcus aureus (MSSA) was isolated from the blood culture. Based on these findings; primary right-sided infective endocarditis was confirmed according to the major criteria of ESC 2015. Although a significant right-sided heart failure was present, surgery was not conducted as there were no congenital defect, no significant valve damage, vegetation less than20 mm and also due to lack of technical platform of the hospital. The antibiotics were then switched to lincomycin and ciprofloxacin based on the microbiologists and internist's recommendation. On day 5 of hospitalization, the patient developed a sudden onset of respiratory distress. Physical examination was consistent with an accentuation of the pleural effusion which was confirmed on the chest x-ray (Figure 4). A chest tube was placed, which drained about1.5 liters of hematic fluid. Subsequently, the patient presented one episode of hemoptysis suggesting septic lung emboli. Computed tomography pulmonary angiography (CTPA) showed bilateral septic emboli to lungs with cavitary lesions and moderate right pleural effusions (Figure 5). The clinical course improved gradually with resolution of the fever on day 25(Figure 6). Due to financial issues, only one blood culture was repeated on day 20 and was negative. The patient was discharged on day 31 of hospitalization with a total of 8-weeks course of antibiotics. At the follow-up one month later, he was doing clinically well.

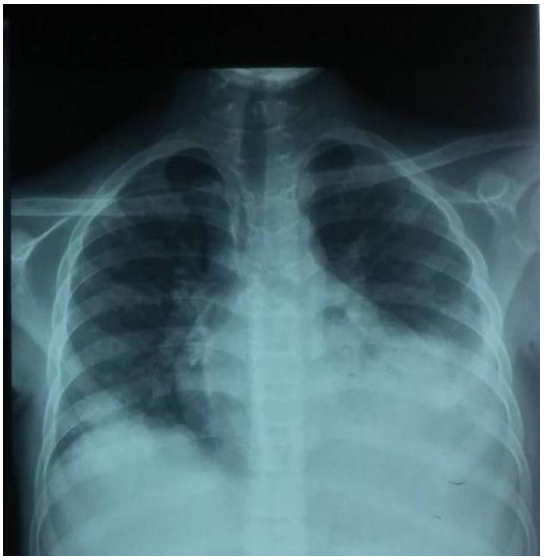

Fig-1: Bilateral lungs infiltrates with cavitary lesions and pleural effusion predominant at the left side

Fig-2: Transthoracic echocardiography (TTE) showing vegetation on thetricuspid valve (TV)

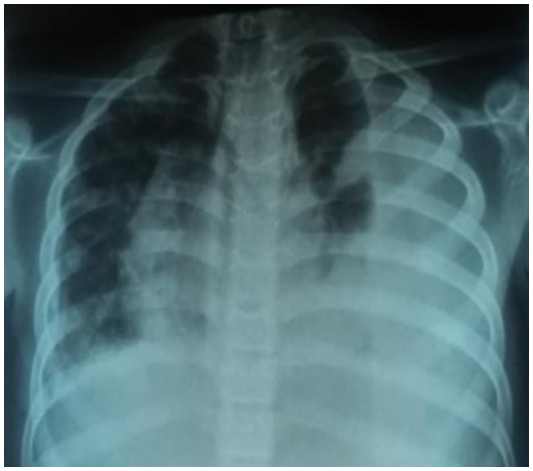

Fig-3: Chest X-ray showing extension of the left pleural effusion

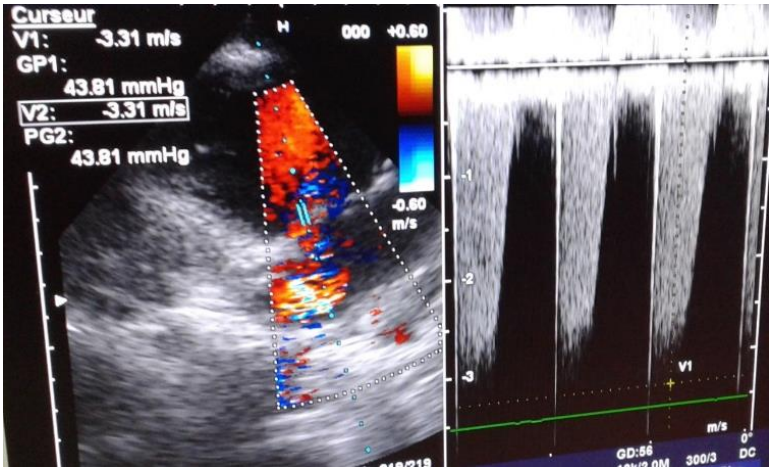

Fig-4: TTE showing severe tricuspid valve regurgitation with pulmonary hypertension: mean pulmonary arterial pressure at 53 mmHg

Fig-5: Bilateral septic emboli to lungs with cavitary lesions and moderate right pleural effusions on Computed tomography pulmonary angiography (CTPA)

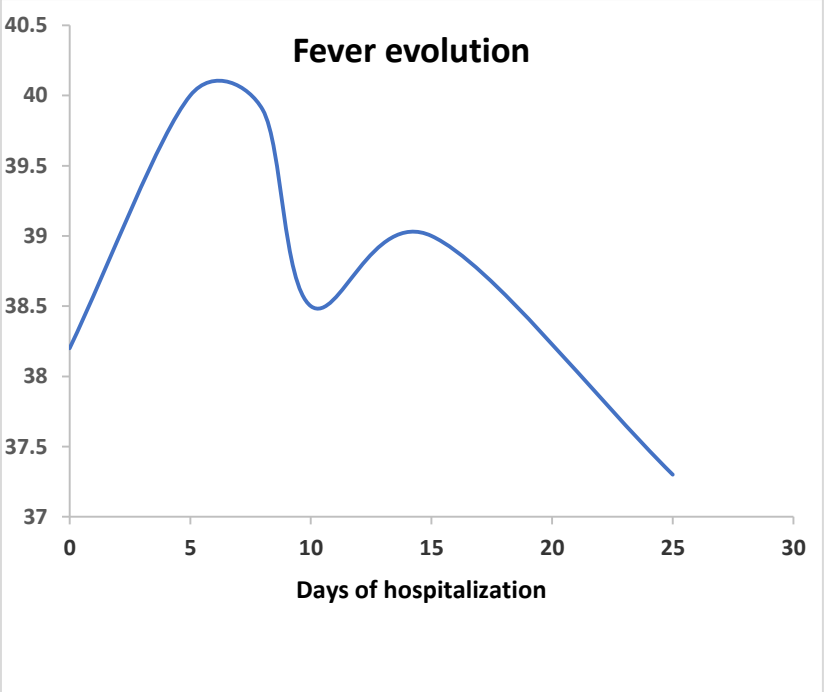

Fig-6: Fever evolution during hospitalization

DISCUSSION

Our patient presented with sepsis associated with right-sided heart failure and was found to have a primary tricuspid valve infective endocarditis (TVIE). He also presented with components of the "tricuspid syndrome", a hallmark of TVIE, including respiratory events, anemia and microscopic hematuria [2, 4]. Regarding the epidemiological characteristics of the patient, no predisposing factor for RSIE was found from the history. He had no congenital heart disease, was not a cardiac device carrier, had no previous history of drug addiction or recent venous catheterization and wasn't immunodepressed. Considering microbiological characteristics of RSIE, staphylococcus aureus represents the most common responsible pathogen with methicillin-resistantstrains (MRSA) becoming more prevalent and reaching almost 40% of S. aureus cases in the setting of pulmonary emboli[1,3,5]. In non-drug abuser, MRSA suggests health-care-related endocarditis which is not the case of our patient. Furthermore, RSIE represents the most common source of septic pulmonary emboli (SPE)with the majority of emboli arising from tricuspid valve vegetations.[5]SPE may manifest as chest pain, cough or hemoptysis and can cause lung consolidation mimicking bronchopneumonia, thin-walled cavitary lesions simulating pneumatoceles, necrotic lung infarcts, lung abscess, bronchopleural fistula, pleural effusion (found in 30 to 50% of the cases with empyema in more than half of them), fatal pulmonary hemorrhage, and infrequently pneumothoraxes[1,6]. In our patient case, SPE manifested as hemoptysis.

RSIE management is based on specific guidelines. Surgical intervention is indicated in patients with severe tricuspid regurgitation contributing to right heart failure with poor response to diuretic therapy, persistent tricuspid valve vegetation > 20 mm after recurrent pulmonary emboli, and in case of failure of antimicrobial therapy [1,4]. Regarding the timing, surgery is recommended in case of bacteremia, one week after the antibiotic therapy was initiated. In our case, the persistence of a fever at 39 ° C indicating bacteremia represented an indication for surgery. But the absence of blood cultures and the lack of adequate technical platform of the hospital represented the main limitations. In addition, a good response to diuretics reinforced the maintenance of medical treatment, according to the recommendations for RSIE management [1]. Finally, except the persistent signs of infection, our patient had no other predictors of poor outcome which comprises: diagnosis delay, comorbidities, methicillin-resistant Staphylococci, coexistence with left-sided IE. All these factors increase in-hospital mortality. The diagnosis and management based on a collaborative approach pediatrics, microbiologist, radiologist, cardiologist, cardiac surgeon, internal medicine contributed to the good evolution of our patient case.

CONCLUSION

In conclusion, vast majority of TVIE patients do not require surgical intervention for complete recovery and the prognosis is often good when they have no associated comorbidities, a vegetation less than 20 mm, MSSA as the causative agent rather than MRSA, as well as when the diagnosis is made on time and based on a multidisciplinary collaboration particularly in the setting of complications.

Conflicts of interest

The authors do not declare any conflict of interest

Authors' contributions

ACA, ID, AKA, SM collected and analyzed the data, reviewed the literature and drafted the report. JTB, WG, PA, CL, OB, MH provided care for the patient and revised the manuscript for important intellectual content. All authors approved the final version.

REFERENCES

1. Habib G, Lancellotti P, Antunes MJ, Bongiorni MG, Casalta JP, Del Zotti F, Dulgheru R, El Khoury G, Erba PA, Iung B, Miro JM. 2015 ESC guidelines for the management of infective endocarditis: the task force for the management of infective endocarditis of the European Society of Cardiology (ESC) endorsed by: European Association for Cardio-Thoracic Surgery (EACTS), the European Association of Nuclear Medicine (EANM). European heart journal. 2015 Nov 21;36(44):3075-128.
2. Ortiz C, López J, García H, Sevilla T, Revilla A, Vilacosta I, Sarriá C, Olmos C, Ferrera C, García PE, Sáez C. Clinical classification and prognosis of isolated right-sided infective endocarditis. Medicine. 2014 Dec;93(27).
3. Lee MR, Chang SA, Choi SH, Lee GY, Kim EK, Peck KR, Park SW. Clinical features of right-sided infective endocarditis occurring in non-drug users. Journal of Korean medical science. 2014 Jun 1;29(6):776-81.
4. Akinosoglou K, Apostolakis E, Koutsogiannis N, Leivaditis V, Gogos CA. Right-sided infective endocarditis: surgical management. Eur J Cardiothorac Surg. 2012;42(3):470-9.
5. Inchaustegui CA, Wang KY, Teniola O, De Rosen VL. Large septic pulmonary embolus complicating streptococcus mutans pulmonary valve endocarditis. J Radiol Case Rep. 2018;12(2):18-27.
6. Kapoor S, Thakkar J, Siddique MA. Septic pulmonary emboli causing recurrent bilateral pneumothoraces in a patient with right sided endocarditis: A case report and review of literature. SAGE Open Medical Case Reports. 2018; 6:2050313X18784823.