



Rare Case of Fungal Endocarditis of the Right Heart

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Report

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ABSTRACT

Fungal endocarditis of the right heart constitutes a pathological entity of often delicate diagnosis, associated with a potentially severe prognosis. We report the case of a 37-year-old patient, hospitalized for *Candida albicans* infective endocarditis of the right heart on a tunneled hemodialysis KT, in whom the clinical history, the means of exploration as well as the therapy deployed are described.

Keywords: Fungal endocarditis; right heart; *Candida albicans*; hemodialysis.

1. INTRODUCTION

Infective endocarditis (IE) of the right heart accounts for 5-10% of IEs. They are most frequently seen in intravenous drug users,

including those infected with the human immunodeficiency virus, as well as the immunocompromised. They may also occur in patients with pacemakers or Implantable cardioverter-defibrillators (ICDs) central

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venous catheters or congenital heart disease [1,2].

They are usually associated with a primary left-sided location (IE on interventricular septal defect or complicated by perforation of the interventricular septum), or exclusively localized to the valve orifices of the right heart, tricuspid more often than pulmonary [3].

The microorganism most often involved is *Staphylococcus aureus* [4], with an increase in the prevalence of methicillin-resistant strains for both this germ and polymicrobial infections [5,6].

Because of the anterior location of the valve and the often large size of the vegetations, transthoracic echocardiography usually allows the diagnosis of tricuspid IE. In parallel, transesophageal echocardiography is more efficient for the analysis of the pulmonary valve, abscesses and left heart lesions [7].

The prognosis of right IE is relatively good, with an initial hospital phase mortality of less than 10%. Thus, factors with a poorer prognosis are very large vegetations (>20 mm), fungal infection, and, in human immunodeficiency virus-infected patients, a CD4 count < 200/mm³ [2,8].

2. CASE REPORT

We report the case of a 37-year-old patient, diagnosed with type 1 diabetic on insulin,

complicated with diabetic retinopathy causing blindness, followed for CKD for 3 months on hemodialysis, at a rate of 2 sessions per week. He was admitted for a definite infectious endocarditis of the right heart, at the level of the septal leaflet of the tricuspid valve on a tunneled hemodialysis KT, with LVEF at 60%. Cardiovascular and pleuropulmonary auscultation was strictly normal. The clinical examination revealed a rectal mass. He was feverish at 39 degrees. Her blood pressure was 102/54 mmHg. On trans-thoracic echocardiography, a vegetation was found at the level of the tricuspid valve measuring 22x20mm (Fig. 1). Biological findings included a predominantly neutrophilic hyperleukocytosis of 22,000/mm³ with a CRP of 323mg/L and a PCT of 100ng/ml and isolation of *Candida albicans* from blood cultures and ECBU. An extension workup was performed: a cerebral angioscanner finding no paradoxical emboli, a thoracic angioscanner finding multiple septic emboli with left basal pulmonary infarction.

The initial therapeutic approach was to put the patient on a probabilistic biologic therapy based on gentamycin and vancomycin then to switch to antifungal agents (amphotericin B) after the results of the blood cultures. 3 days after patient died.



Fig. 1. Trans-aortic ultrasound showing vegetation on the tricuspid valve measuring 22x20mm

3. DISCUSSION

Invasive mycoses are severe pathologies whose incidence is increasing, due to the increase in populations at risk, such as patients who are seropositive for the human immunodeficiency virus (HIV), treated with immunosuppressants or antimitotic chemotherapy, or transplanted with organs or hematopoietic stem cells.

The incidence of candidemia is 0.2 to 0.4 per 1000 admissions and up to two per 1000 admissions in intensive care units [9], representing the seventh most common cause of hematogenous infection in Europe [10,11,12].

Tricuspid fungal endocarditis is a rare, severe and difficult to diagnose condition, occurring at any age. In this patient with several identified risk factors (tuned KT from hemodialysis, immunodepression, polyantibiotic therapy), trans-thoracic echography has demonstrated its value in identifying the vegetation as well as its location, measurement and characteristics, thus allowing the diagnosis of endocarditis and the choice of a better management.

The role of the combination of *Amphotericin B* plus 5-FC in *cryptococcosis* is established by numerous in vitro and experimental studies and clinical trials in humans. However, these are much rarer for the evaluation of first-line treatment of candidiasis and *aspergillosis*, with only one published prospective study in candidiasis [13].

The choice of antibiotic therapy depends on the suspected microorganism and the location of the cardiac involvement [6]. At entry, in IE on native right heart valve, antibiotic therapy should always be directed against *Staphylococcus aureus*. Treatment includes penicillinase-resistant penicillin or vancomycin or daptomycin, depending on the local prevalence of methicillin resistance in *Staphylococcus aureus*, combined with gentamicin [6]. Once the microorganism has been identified, antibiotic therapy must be adapted.

In our study, *Candida Albicans* was isolated in the blood cultures and in the ECBU, which allowed us to start the patient on antifungal agents after a probabilistic antibiotic therapy based on vancomycin gentamycin and amphotericin B.

Despite the expansion of the antifungal therapeutic arsenal, the overall mortality of these infections remains high: 20% for *cryptococcosis* [13], more than 35% for *aspergillosis* and candidiasis [14,15,16].

4. CONCLUSION

This observation raises the question of the management of candidiasis in patients with right heart infective endocarditis. It is necessary to treat effectively and appropriately in order to improve the survival of the affected subject

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).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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