

RARE CASE OF INFECTIVE ENDOCARDITIS: CASE REPORT

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SUMMARY:

*Infective endocarditis is a very severe condition, encountered relatively rarely, with an incidence rate and mortality that has not decreased over the last 30 years. This article presents the case of a patient with fungal endocarditis with *Candida albicans*, diagnosed and treated well so far. We will report the state of the patient on admission, the diagnostic process and the latest treatment available. The purpose of this paper is to discuss about an extremely rare pathology and to highlight favorable results of the treatment used, despite the limited experience in the literature.*

Keywords: endocarditis, fungi.

REZUMAT: Endocardita infecțioasă este o afecțiune deosebit de severă, întâlnită relativ rar, cu o rată de incidență și mortalitate care nu a scăzut în ultimii 30 de ani. Acest articol prezintă cazul unei paciente cu endocardită fungică cu *Candida Albicans*, diagnosticată și tratată satisfăcător până în prezent. Vom prezenta starea pacientei la internare, procesul de diagnosticare și tratamentul de ultimă actualitate. Scopul articolului este acela de a prezenta o patologie extrem de rară și de a semnaliza rezultatele favorabile ale tratamentului utilizat, în ciuda experienței limitate din literatură.

Cuvinte cheie: endocardită, fungi.

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INTRODUCTION

Infective endocarditis is an infectious, inflammatory disease of the endocardium, that predominantly affects the valvular apparatus and leads to formation of amorphous masses of vegetation, composed of fibrin, platelets, microorganisms and inflammatory cells

The first descriptions of this disease dates from the seventeenth century, under different names, so that in 1885, Sir William Osler constituted major elements of diagnosis and in 1908 wrote that "with carefully made blood cultures one should now be able to determine the presence of the septicemia; this was easily done in three of my recent cases" The treatment has long remained unknown, despite increasing understanding of endocarditis; in 1945, were reported good results with

penicillin Around 1940, a connection was made between dental extractions and endocarditis, suggesting the need for prophylaxis in high-risk interventions At the end of the 20th century the criteria necessary for the diagnosis of endocarditis were defined, the Duke criteria being used until today.

Infective endocarditis with fungi is a rare condition, especially when it occurs on native valves, it is severe and has a mortality rate of over 50% In general, the most common fungal agent is *Candida albicans*, usually encountered in cases of debilitated patients with prosthetic valves, in patients undergoing cardiac surgery, in drug users, in immunocompromised patients, in

patients with prolonged intravenous antimicrobial therapy and parenteral nutrition.

The pathological mechanism of endocarditis includes endothelial injury, homeostatic mechanisms, the immune system, the properties of the pathogenic microorganism and an event that initiates the pathological process. In a first step endocarditis is a non-bacterial form due to endothelial injury and coagulation status changes. Next, the endocarditis becomes bacterial with valvular vegetations and abscesses due to bacteremia.

Clinical manifestations of fungal endocarditis are described as being the same as those of bacterial endocarditis: fever, new or modified cardiac murmurs, splenomegaly, peripheral embolism, skin lesions and heart failure. It is mentioned in literature as a "classic endocarditis with *Candida albicans*": cerebral, renal, mesenteric and limbs embolism.

CASE REPORT

Female patient, 57 years old, with cardiovascular risk factors (essential hypertension, obesity, inactivity, family history of heart disease) known hypertensive, with valvular disease, with paroxysmal atrial fibrillation, comes to our clinic recently discharged from another hospital, complaining of chest pain, palpitations, dyspnea with orthopnea, dizziness, cough with sputum, predominantly nocturnal sweating and pain in the left hemithorax, complaints that last for about four months. Electrocardiographic recording reveals irregular rhythm which appears to be atrial fibrillation with rapid heart rate.

The patient's history reveals that she was diagnosed in November and December last year with acute

pneumonia and two rounds of antibiotics were prescribed with no amelioration in the general condition. So patients turn to healthcare in ambulatory, and then she is admitted to three hospitals with different treatment recommendations and finally without any improvement.

The clinical examination at admission indicates severely impaired general condition, anxious facies; the patient was without fever, presented skin excoriations in the left hemithorax after scratching and varicose venous dilatation at the lower limbs. The pulmonary auscultation revealed hardened vesicular murmur, bronchial rales at the bases of the lungs; auscultation of the heart revealed tachyarrhythmic heart sounds and a systolic murmur in aortic area, with irradiation in the neck vessels. The blood pressure was at admission 120/80 mmHg and the heart rate 90 beats per minute. The patient has also pain in the hypochondrium and left flank at the abdominal palpation.

Electrocardiographic recording reveals irregular rhythm, which appears to be atrial fibrillation with rapid heart rate, and transthoracic echocardiography detected aortic root with diameter of 11 mm, aortic valves extensively damaged, with an incomplete closing, heterogeneous deposits which appear to be vegetations or calcifications (Fig1,2); spectral Doppler echocardiography confirms aortic degenerative insufficiency grade II, aortic stenosis grade II (average gradient 36 mmHg, maximum gradient 51 mmHg) mitral degenerative insufficiency grade I / II, tricuspid secondary insufficiency, mild secondary pulmonary hypertension, dilatation of the left cavities of the heart and abnormal systolic performance (ejection fraction 41%).

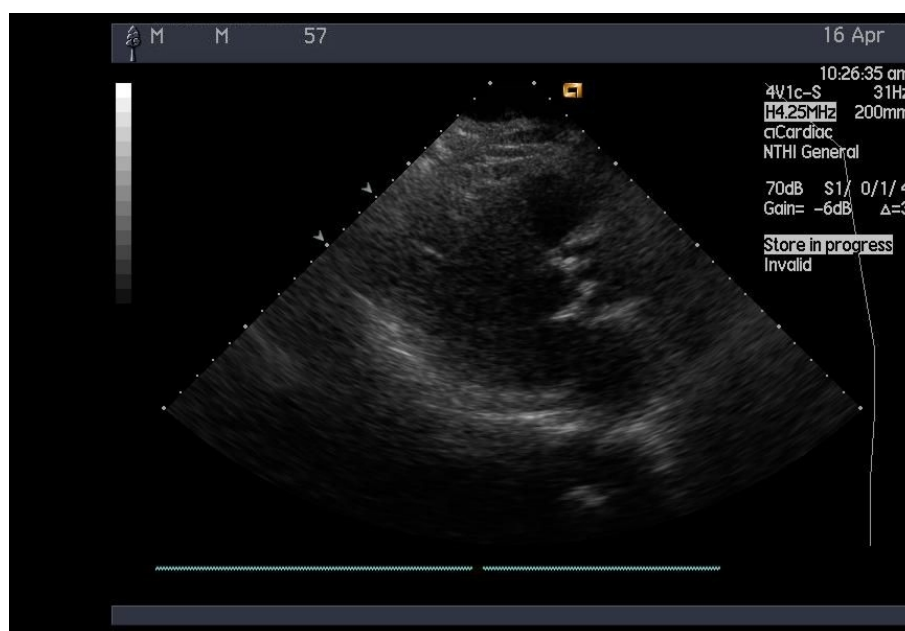


Fig. 1. Transthoracic echocardiography - parasternal long axis section-aortic valves with heterogeneous deposits .

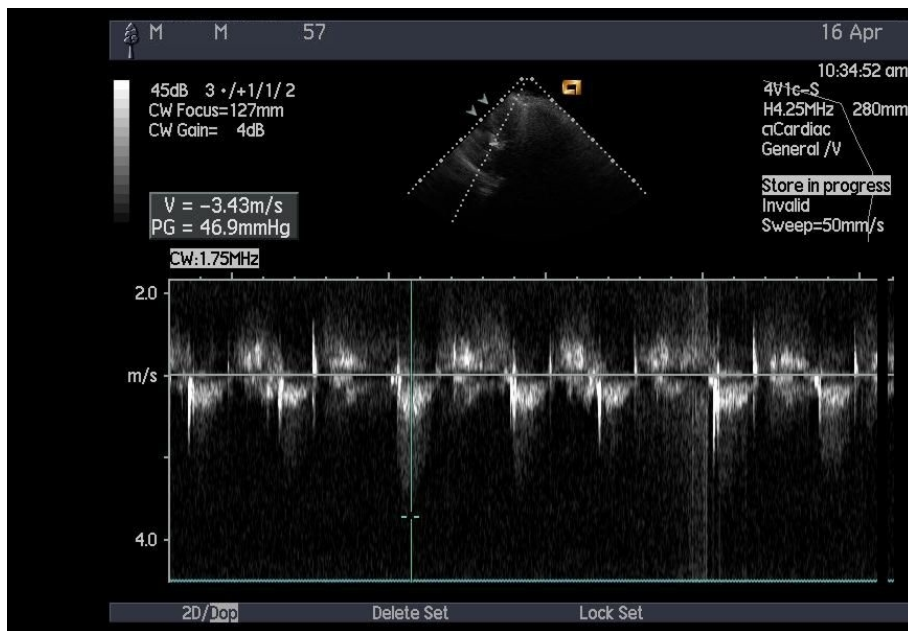


Fig. 2. Transthoracic echocardiography -four chambers section - aortic transvalvular gradient.

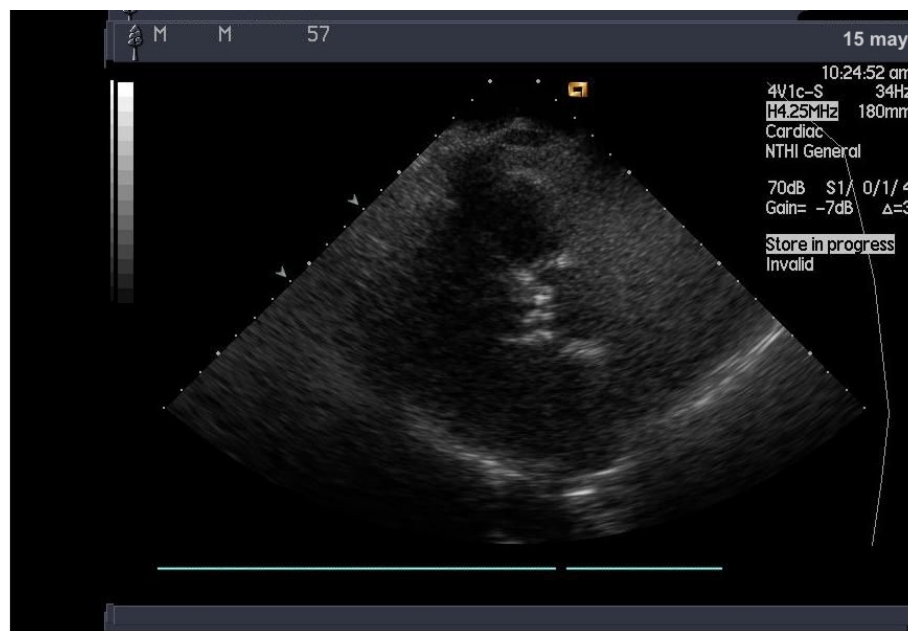


Fig. 3. Transthoracic echocardiography -parasternal long axis section -aortic valves with heterogeneous and expanded deposits.

Diagnostic issues raised at a sick obese women with venous insufficiency, abnormal pulmonary auscultation and valvular lesion were: pulmonary embolism, acute respiratory pathology and infective endocarditis. Pulmonary embolism was ruled out through Angio-CT with contrast enhancing agent and the lower limbs venous duplex. The chest radiography excluded a pulmonary infection which could explain the severe condition of the patient. There were taken cultures: blood, sputm, urine. The first two were negative. The antibiotherapy given previously repeatedly, the family`s statements concerning frequently "colds" and the shape of the valves rise the suspicion of infective endocarditis,

which were confirmed through the results of blood cultures: the presence of *Candida albicans* without any other bacterian activity. While the results were expected, an empirical antibiotic therapy was started with a third generation cephalosporin. Moreover, after starting digital medicine, the patient converted to sinus rhythm and amiodarone was introduced in therapy to maintain the rhythm. All this time, the oral anticoagulation with anti-K vitamine was adjusted according to INR control.

Along with receiving the results of blood cultures with fungigrame, both positive for *Candida albicans*, antibiotic therapy was stopped and the fungal treatment with fluconazole was started. Patient's condition did not seem

to be improving after 7 days of fluconazole, the sweating, the fatigability persisted, with an fever episode. The ecocardiography revealed an increase in the transaortic gradient, both mitral and aortic regurgitation aggravated and the vegetations expanded (Fig. 3). Therefore we changed fluconazole with the latest antifungal treatment available, capsfungin, recent reported as a successful therapy.⁵ After a few days of treatment with capsfungin, the patient's condition improved.

During hospitalization, we noticed that the patient was mainly afebrile, presenting a single episode of fever, the treatment with capsfungin was well tolerated with no renal or hepatic deterioration. On the auscultation of the heart, intensity and character of the murmurs changed: the murmur was initially harsh, located strictly in the aortic area, with an intensity of III / VI, afterwards it was heard softer, more musical, in all the areas of the auscultation of the heart and finally the musical sound decreases and in the aortic area a systolo-diastolic murmur appears.

In theory, the treatment of endocarditis with *Candida albicans* combines both long-term antifungal therapy, valve replacement surgery and complete removal of any areas that maintain infection. Therefore, we decided to discuss with a surgent for valve replacement. Before the surgery, due to the very scanty dentition of the pacient, all dental infections must be solved, before cardiovascular surgery.

DISCUSSIONS

Fungal endocarditis is undoubtedly extremely rare, but seems to have an increased incidence in recent years through the development of invasive medical techniques and misuse of antibiotics.

The prognosis of fungal endocarditis is reserved on short and long term, with an increased rate of mortality (> 50%).⁵ The best reported survival rates are about 50% at 5 years, obtained by combining aggressive antifungal therapy before surgery with radical removal of infected tissue and subsequent valve replacement, ideal using a biological valve.

Also, fungal endocarditis usually generates large vegetations that may produce frequent peripheral

embolism, which is another negative prognostic factor.¹⁰ Therefore, early diagnosis is the basic objective for faster initiation of antifungal therapy.

In the case presented, although echocardiography detected heterogeneous deposits which appeared to be vegetations, the patient showed no clear signs of endocarditis, was afebrile, without a known immunocompromised system, which made diagnosis difficult. The results of the blood cultures, both positive for *Candida albicans*, were the defining factor of diagnosis.

Another challenge of this case was finding an effective antifungal medication from the short list offered by the laboratory and most importantly an antifungal without side effects, without renal and hepatic impairment. Ultimately, we chose the treatment with capsfungin, a new antifungal medication, but with references in literature as having good results. This fact was confirmed during the treatment, the patient presenting an obvious improvement of her general condition and most important that antifungal treatment was without side effects, without renal and hepatic destruction.

After 28 days of injections with capsfungin, the patient is sent to a specialized clinic in order to solve the dental problems before the cardiovascular surgery.

CONCLUSION

The most interesting elements of this case are the history of the patient, without fever, with no clinical signs suggestive for fungal endocarditis, with paroxysmal atrial fibrillation and chronic anticoagulation treatment, who was hospitalized in the last months in three different hospitals and the extremely rare etiology of the disease. The antibiotherapy and repeated hospitalizations were responsible for masking the clinical signs of endocarditis. The starting point, most likely was the dental infection.

Every day was a challenge for establishing the appropriate treatment, of considering the drug interaction and their cumulative effects. Until the pacient was discharged from the hospital, the results were satisfying, further on the case will be evaluated by the cardiovascular surgeons.

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