

Giant vegetation in patient with a pacemaker with infective endocarditis

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Introduction

The use of Implantable Cardiac Devices (ICDs), such as pacemakers, defibrillators and resynchronizers, has increased in the last two decades and, proportionally, there has been an increase in associated infections. ICDs have become frequent sites of infective endocarditis (IE), posing a diagnostic and therapeutic problem that is even more challenging than when IE occurs in native valves.¹ The diagnosis of IE can be easily established in patients with classic characteristics. However, in clinical practice, atypical presentations in patients with complex heart diseases and multiple comorbidities lead to frequent delays in diagnosis.² In IE in ICD, there is a limitation of exclusive antimicrobial treatment, requiring removal of the device and the decision on the best way to do so. The size of the vegetation is the parameter that suggests the etiology, severity and invasive approach. The case reported here is surprising because of the large size of the vegetation found.

Case report

Female, 63 years old, with PM, admitted with complaints of fever of unknown origin, asthenia, weight loss, petechiae in the upper and lower limbs, progressive dyspnea, cough with hemoptysis and lower limb edema in the past 3 months. Report of urinary infection treatment with clindamycin and metronidazole 15 days before admission.

On physical examination: Hippocratic, hypohydrated, anemic (2+/4+) and icteric (2+/4+) facies. Blood pressure of 150 × 80 mmHg, heart rate of 50 bpm, respiratory rate of 22 bpm, axillary temperature of 35.9 °C; pathological jugular swelling at 45°; normal respiratory auscultation; regular heart rate, fourth heart rate and presence of systolic murmur (3+/6+) in the tricuspid focus. The patient had symmetrical edema in the lower limbs and Janeway lesions on the toes. Transthoracic echocardiogram (ETT) showed a large mass estimated to be greater than 30 mm, attached to the PM cord and to the tricuspid valve, causing valve

stenosis (Figure 1 and Video 1). Tomography of the skull and abdomen was normal. Hemoglobin 8 g/dL; leukocytes 16,900 mm³; platelets 42,000/mm³; urea 155 mg/dL; creatinine 3.1 mg/dL; eGFR 18 mL/min/1.73m²; sodium 133 mEq/L; potassium 6.3 mEq/L; direct bilirubin 1.96 mg/dL; N-terminal Portion of Type B Natriuretic Peptide Prohormone (NT-proBNP) 48,014 pg/mL. Arterial gasometry with metabolic acidosis. Urinalysis showed pyuria, cylindruria, and hematuria. HIV and collagenases test were performed and resulted negative.

The patient eventually required hemodialysis. Surgical removal of the PM cord was performed and a no. 29 biological valve (Saint Jude Medical, USA) was implanted in the tricuspid position (Video 2). *Candida parapsilosis* was found in two blood culture samples and initial treatment with micafungin was performed. A fluconazole regimen was instituted for 6 weeks after sensitivity testing. The patient was discharged asymptomatic with improved renal function. Histopathological examination by macroscopy showed irregular tissue segment, measuring 40 × 25 × 20 mm with a brownish base (Figure 2). Microscopic examination showed abundant fibrinoid and leukocyte material.

Discussion

Fungal ICD infections are rare, difficult to suspect, and always lead to delayed diagnosis. Studies have reported that staphylococci (60-80%), Gram-negative bacilli (5 to 12%), polymicrobial infection (2 to 7%) and fungi (2 to 5%) are the main etiologies.^{2,3}

In an echocardiographic study of 60 hospitalized patients with IE associated with ICD, only 19% of the cases with vegetation greater than 20 mm were reported. Of the 60 cases evaluated, 33% had indication of surgical extraction, with mean vegetation size 17.9 ± 7.0 mm, as indicated for our patient. The ICD infection associated with the tricuspid valve was found in this study in only one case.⁴

The American Heart Association (AHA) guideline recommends complete removal of the device with long-term antibiotic therapy in any patient with device infection. Cord removal can be performed by percutaneous techniques in most cases, but in patients with valve endocarditis or vegetations greater than 30 mm, as in this case, open surgery should be performed.⁵ Surgery combined with antifungal agents may alter the evolution of the disease. The rate of mortality from IE by *Candida sp.* has been exceptionally high. It is a rare but often fatal disease.

The rarity of this case is established by the vegetation size of 40 mm, concomitant involvement of the ICD with the valve apparatus, and etiology by *Candida sp.*

Keywords

Endocarditis; Pacemaker, Artificial; Tricuspid Valve Stenosis.

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Case Report

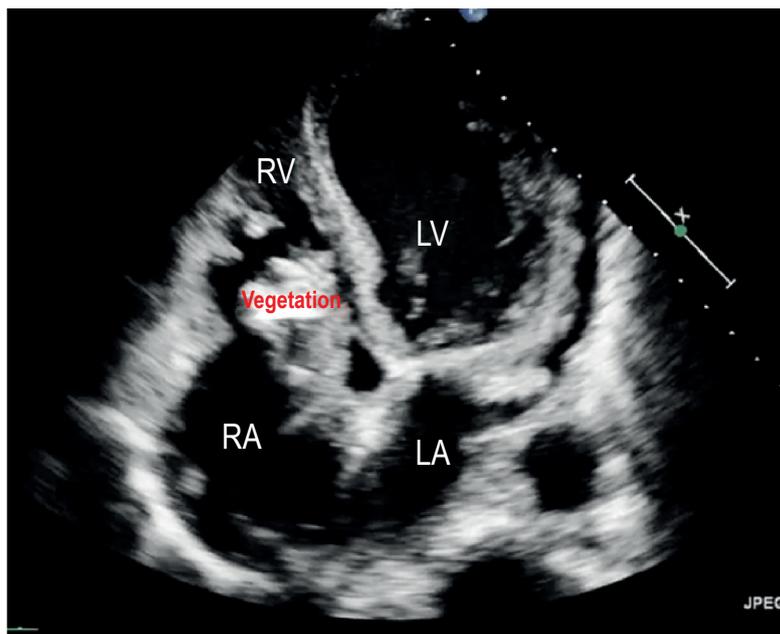
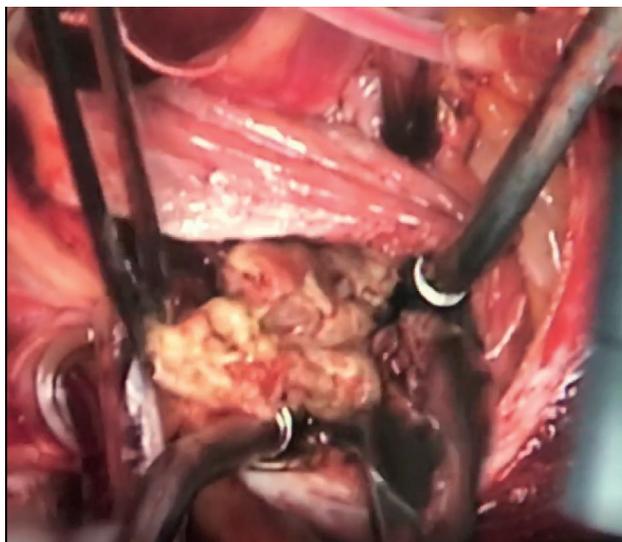


Figure 1 – Transthoracic echocardiogram, apical 4-chamber view, shows giant vegetation on tricuspid valve and right ventricle (RV) topography. LV: left ventricle; RA: right atrium; LA: left atrium.



Video 1 – Vegetation. Watch the video here: http://departamentos.cardiol.br/dic/publicacoes/revistadic/2019/v32_3/video_v32_3_vegetacao_gigante_em_paciente_portador_de_marca_passo_ingles.asp

Authors' contributions

Research creation and design: Avila DX; Data acquisition: Avila DX, Lemos CM, Silva EM, Ribeiro ML; Manuscript writing: Jorge AJL, Avila DX, Martins WA, Villacorta Junior H; Critical revision of the manuscript as for important intellectual

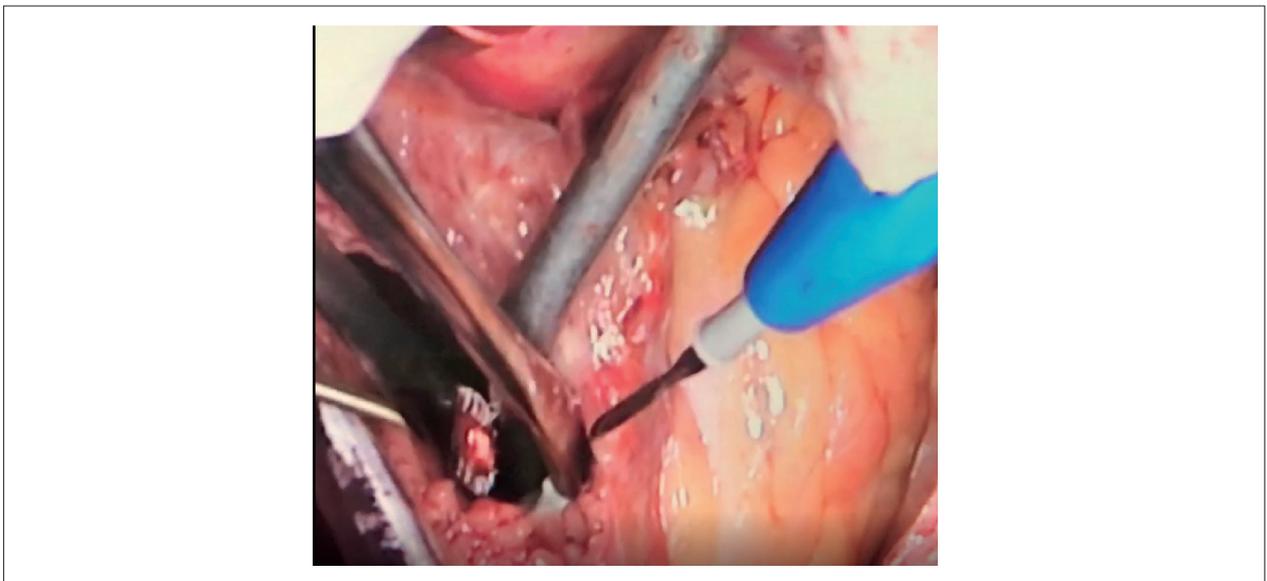
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Potential Conflicts of Interest

All authors declare no potential conflict of interest related to this article.



Figure 2 – Histopathological examination showed irregular tissue segment measuring 40 × 25 × 20 mm, with brownish base, greenish and white projections and, under microscopy, abundant fibrinoid and leukocyte material, with bacterial colonization.



Video 2 – Pacemaker coral. Watch the video here: http://departamentos.cardiol.br/dic/publicacoes/revistadic/2019/v32_3/video_v32_3_vegetacao_gigante_em_paciente_portador_de_marca_passo_ingles.asp

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