

CASE PRESENTATION

A Case of *Enterococcus* Spp. Endocarditis in a Seemingly Cured Hemorrhoidal Disease. Case Report

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ABSTRACT

Background: Infective endocarditis with *Enterococcus* spp. is common in patients with digestive tract diseases. Such patients should be monitored periodically through clinical examination and colonoscopy, to detect the recurrence of seemingly cured disease. There are currently no studies on the incidence of infective endocarditis in patients with hemorrhoidal disease.

Case report: The case of a 48-year-old man is addressed, known with type 2 diabetes mellitus, with a seemingly cured hemorrhoidal disease, who developed infective endocarditis of the mitral and aortic valve, complicated by ischemic stroke as the first symptom. After six weeks of antibiotic treatment, an almost complete echocardiographic resolution of the vegetation was achieved, such that surgical intervention was postponed.

Conclusion: Performing a colonoscopy in all *Enterococcus* spp. infective endocarditis patients, regardless of the presumed source of infection, could be helpful in diagnosing colorectal disease and avoiding a new bacteraemia episode - and eventually infective endocarditis - by the same or a different microorganism. The presented case emphasizes the importance of periodic monitoring of the digestive tract for hemorrhoidal disease in patients with a high risk of recurrence - due to high risk of bacteraemia and systemic complications. Moreover, it is worth noting that in certain cases, efficient antibiotic treatment on its own can achieve an outstanding result for patients with large vegetations, presenting with an embolic episode, and thus postpone (indefinitely) a surgical intervention.

Keywords: infective endocarditis, *Enterococcus* spp., hemorrhoidal disease.

REZUMAT

Introducere: Endocardita infecțioasă cu *Enterococcus* spp. este des întâlnită la pacienții cu patologie digestivă. Aceștia ar trebui monitorizați periodic, prin examen clinic și colonoscopie, pentru decelarea recurenței afecțiunii aparent vindecate. La acest moment, nu există studii privind incidența endocarditei infecțioase la pacienții cu boală hemoroidală.

Prezentare de caz: Prezentăm cazul unui pacient în vârstă de 48 de ani, cunoscut cu diabet zaharat tip 2, cu patologie hemoroidală aparent vindecată, care a dezvoltat endocardită infecțioasă la nivelul valvei mitralei și respectiv a valvei aortice, complicată cu accident vascular ischemic, ca prim simptom manifest. După șase săptămâni de tratament antibiotic, s-a obținut rezoluția ecocardiografică aproape completă a vegetației astfel încât intervenția chirurgicală a fost amânată.

Concluzie: Efectuarea colonoscopiei la toți pacienții cu endocardită infecțioasă cu *Enterococcus* spp., indiferent de sursa prezumată a infecției, poate fi de folos pentru a diagnostica afecțiunile colorectale și a evita un nou episod bacteriemic - și, în cele din urmă endocardita infecțioasă - cu aceiași sau cu alți germeni. Cazul prezentat evidențiază importanța monitorizării periodice a tubului digestiv pentru boala hemoroidală, la pacienții cu risc mare de recurență, din cauza riscului ridicat de bacteriemie și a complicațiilor sistemice. Mai mult decât atât, este demn de menționat faptul că, în anumite cazuri, tratamentul antibiotic eficient poate conduce singur la un rezultat excelent pentru pacienții cu vegetații de dimensiuni mari, cu eveniment embolic, amânând astfel (pe termen nedeterminat) intervenția chirurgicală.

Cuvinte cheie: endocardita infecțioasă, *Enterococcus* spp., boala hemoroidală.

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INTRODUCTION

The enterococci are gram-positive bacteria, part of the normal gastrointestinal flora of humans. These organisms are reportedly the third most common cause of infective endocarditis (IE), accounting for 5 to 20% of cases and they are associated with a 20 to 40% mortality rate^{1,2}. Many enterococci strains isolated from human specimens belongs to the species *Enterococcus faecalis* (80%) and *Enterococcus faecium* (10%)³. IE complications are common and life threatening, as the valve perforation incidence for *Enterococcus spp.* IE is of 34%⁴.

CASE REPORT

We present the case of a 48-year-old patient, known with type 2 diabetes mellitus, a professional driver, referred to our department by a neurologist following a recent left frontal cortico-subcortical lacunar stroke, symptomatic by left lateral diplopia and left lateral nystagmus, onset one week prior to arrival to the cardiology department. The patient had a history of internal and external hemorrhoids, excised six years

earlier. On admission, the patient had central vertigo syndrome, was febrile (38° Celsius), hemodynamically stable, blood pressure (BP) 130/80 mm Hg, regular heart rate (HR) 100 beats per minute, without murmurs and without pulmonary congestion. The rectal exam showed external hemorrhoids, without acute bleeding signs.

The electrocardiogram (EKG) showed sinus tachycardia, normal QRS complex and no specific ST-T wave abnormalities (Figure 1).

Blood tests showed significant inflammation (leucocytosis count with neutrophilia, elevated erythrocyte sedimentation rate (ESR) as well as high C-reactive protein and fibrinogen), hyperglycemia with glycosylated haemoglobin (HbA1c) 11.5%, normal renal function and negative gastrointestinal tumor markers.

Transthoracic echocardiography (TTE) at admission and afterwards transesophageal echocardiography (TEE), both performed with GE Vivid E9, revealed a hyperechogenic mass, with independent movement, attached to the posterior mitral leaflet, on the atrial surface, with a diameter of 6/6 mm, prolapsing A2 scallop and mild mitral regurgitation (Figure 2). At the same time, it revealed a large mobile mass (diameter 18/4 mm) on the aortic valve, attached to all three leaflets (Figure 3), prolapsing in the left ventricular outflow tract (LVOT) (Figure 4) with high probability of non-coronary cusp (NCC) perforation without hemodynamic impact (Figure 5). Left ventricular size and ejection fraction were normal (Figure 6).

Upon admission, three sets of blood cultures were taken at 30 minute intervals, the results being available ten days later. Meanwhile, intravenous empiric antibiotic treatment was initiated immediately according

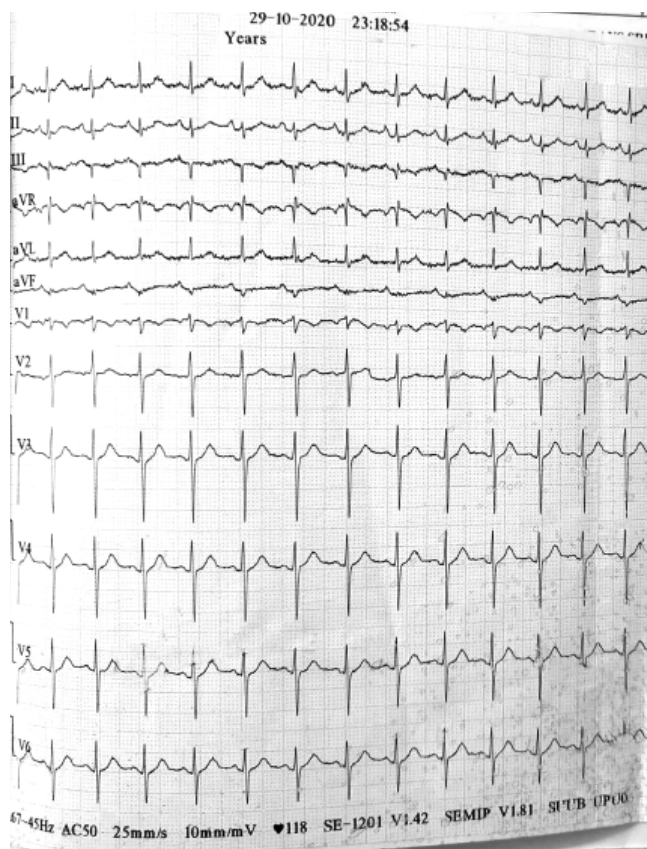


Figure 1. 12-leads electrocardiogram (EKG): sinus tachycardia, normal QRS complex and no ST-T specific abnormalities.

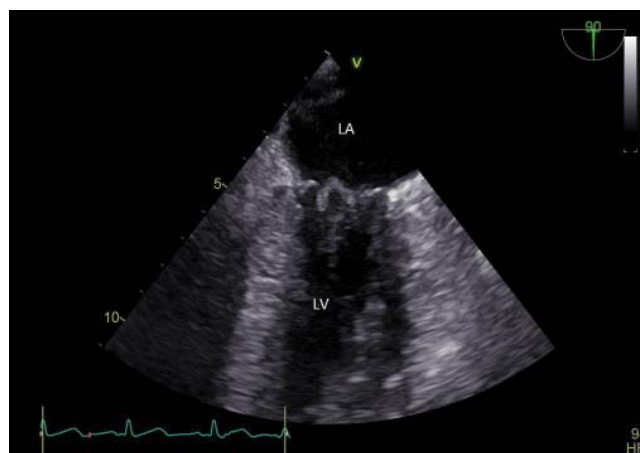


Figure 2. Transesophageal echocardiography – midesophageal mitral commissural view-mass attached to the posterior mitral valve, on the atrial surface, with a diameter of 6/6 mm and prolapsing A2 scallop.

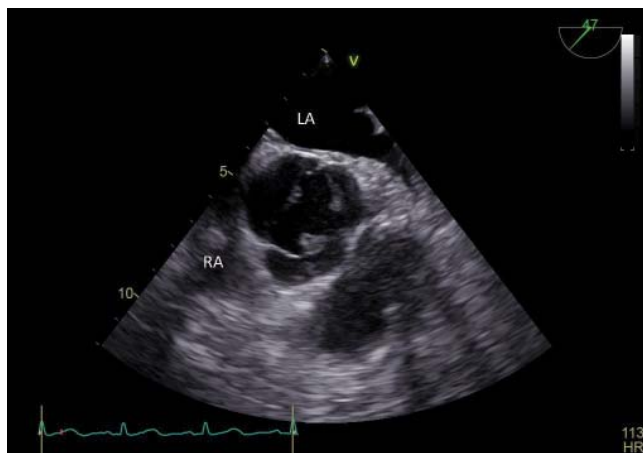


Figure 3. Transesophageal echocardiography – midesophageal aortic short axis view, zoom on the aortic valve- all three leaflets are involved.

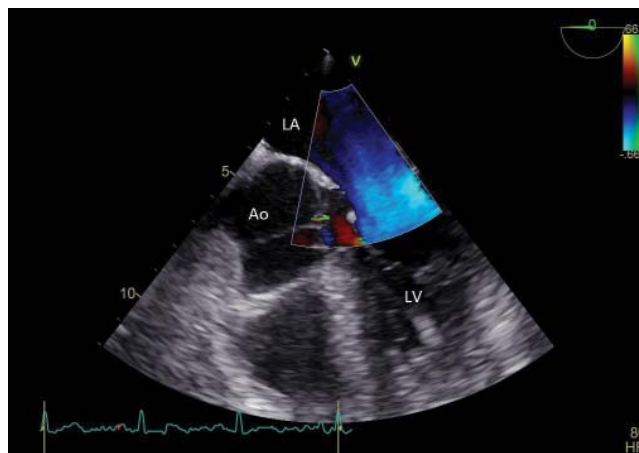


Figure 5. Transesophageal echocardiography midesophageal 5 chamber view-perforation cusp without hemodynamic impact is revealed by colour Doppler examination.

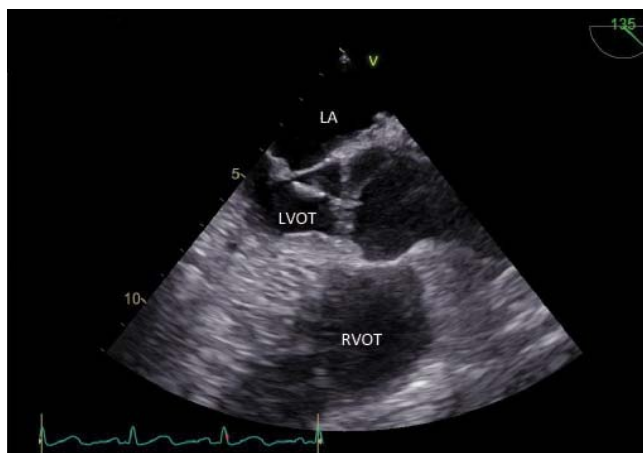


Figure 4. Transesophageal echocardiography aortic valve long-axis view 18 mm long, mobile, hyperechogenic mass attached to the ventricular side of the aortic valve. The echocardiographic appearance is suggestive for vegetation.

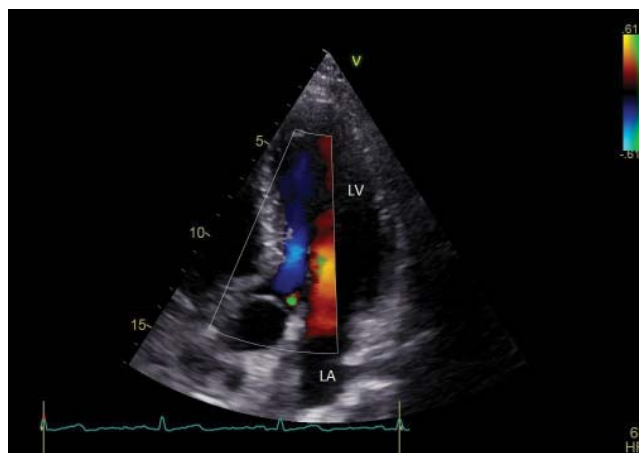


Figure 6. Transthoracic echocardiography apical 5 chamber- normal left ventricle size and normal ejection fraction. Colour Doppler imaging reveals no hemodynamic impact.

to current international guidelines, namely Ampicillin 12 g/day in 6 doses, with Oxacillin 12 g/day in 6 doses, with Gentamicin 3 mg/kg/day in 1 dose 5. The results of the blood cultures were positive for *Enterococcus* spp. and the intravenous antibiotic treatment was adjusted to Ampicillin 200 mg/kg/day in 6 doses with Gentamicin 3 mg/kg/day in 1 dose respectively, continuing for six weeks. During treatment, the renal function was not impaired.

The abdominopelvic computed tomography scan (CT scan) did not detect images suggestive of embolic determinations. No images suggestive of tumors were determined by the CT scan and the upper gastrointestinal endoscopy. Furthermore, marantic endocarditis was ruled out by positive blood cultures, negative

antinuclear antibodies, negative antiphospholipid antibodies, negative gastrointestinal tumor markers and imaging results.

Due to the etiology of the endocarditis and the known association between *Enterococcus* spp. endocarditis/bacteraemia and colonic lesions, a colonoscopy was carried out, using an Olympus EXERA III device. External and internal hemorrhoids with signs of recent bleeding were highlighted and rubber band ligation was performed.

Considering the stroke history of the patient and the size of the vegetation on the aortic valve, current guidelines provide for a class of recommendation IIb for surgical intervention, level of evidence C 5. After thorough consideration, surgical intervention was de-

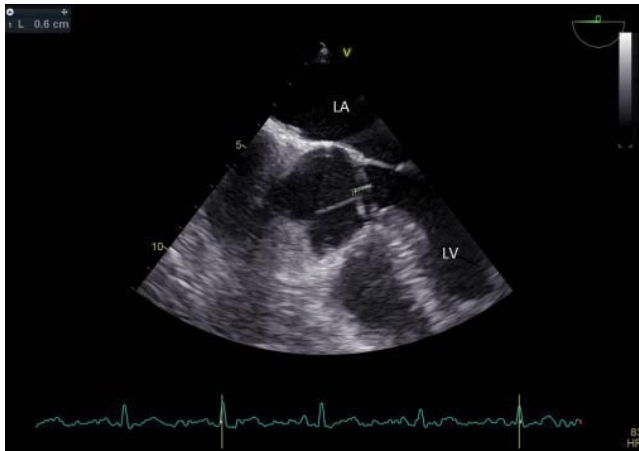


Figure 7. Transesophageal echocardiography-midesophageal 5 chamber view - a significantly reduced aortic vegetation (6 mm). LA left atrium, RA right atrium, LVOT left ventricle outflow tract, RVOT right ventricle outflow tract, LV left ventricle, Ao ascending aorta.

layed by the endocarditis team, until a minimum of two - three weeks of antibiotic therapy elapsed.

After four weeks of antibiotic therapy, in consideration of a possible surgical intervention, a second TEE was performed, which revealed no vegetation attached on the mitral valve and a much smaller aortic vegetation (6 mm diameter), attached to the NCC (Figure 7), NCC discontinuity with colour flow - high probability of perforation (without significant aortic regurgitation) and normal LV size and function. Heart failure biomarkers (NT-pro-BNP) were within normal limits (32 pg/mL), and the blood cultures (three sets) were negative at 37 days upon starting the antibiotic therapy.

Three weeks after completing the antibiotic therapy and being discharged, TTE showed persistent reduction of aortic vegetation (3 mm).

In this context, the surgical intervention was postponed indefinitely, considering the favourable evolution of the patient, both clinical (without onset of heart failure signs or systemic emboli) and imaging (cardiac ultrasound).

The patient should undergo clinical and echocardiographic follow up (the next one within three months), and, in case of onset heart failure, recurrence of systemic complications or echocardiographic aggravation, a surgical intervention may be considered.

DISCUSSIONS

Our case describes a type 2 diabetic mellitus patient, with a seemingly cured hemorrhoidal disease, diagnosed with *Enterococcus* spp. IE in the native left side

valves, with large vegetation on the aortic valve, with local and systemic complications, without hemodynamic impact.

It is noteworthy that the patient had both systemic (present in between 13 to 44% of the cases) and local complications⁶. His risk factors associated with embolic events were the presence of large size left side valves vegetation, multivalve IE and type 2 diabetes mellitus^{5,6}.

The management of such a patient requires a multidisciplinary approach, between the neurologist, infectologist, cardiologist, diabetologist, cardiac and general surgeon.

Recent studies showed that patients with both IE and diabetes mellitus develop systemic and local complications and have a poor outcome – lower survival, both in hospital stay and during follow up, compared to non-diabetic patients (approx. 10% gap)^{6,7}. However, in the case of our patient, his diabetic status did not impact the outcome.

IE cases complicated by perforation require emergency surgical intervention and those who cannot benefit from it, have a poor outcome due to heart failure^{8,9}. This risk would normally lead to a surgical intervention.

However, in this specific case, considering the absence of a hemodynamic impact, the endocarditis team decided on initially administering the antibiotic treatment and to follow up. There is no consensus on timing the surgical intervention in IE¹⁰.

In our case, the patient's evolution was remarkable after six weeks of combined antibiotic treatment of aminoglycosides and an inhibitor of cell wall synthesis (β -lactam antibiotics), without developing kidney failure.

Following this treatment, the patient no longer has an indication for surgical intervention and he will be monitored for chronic valve regurgitation, in accordance with *European Society of Cardiology* guidelines.

CONCLUSIONS

This case illustrates the importance of determining the bacterial source for IE and quickly applying initial empiric antibiotic treatment, thereafter, adjusted according to the antibiogram. A quick initial response is designed to limit local and systemic complications as well as their recurrence and worsening, which would then lead to urgent surgical intervention.

Modern imaging techniques are essential in monitoring the size of vegetations, they provide key infor-

mation to determine the patients' prognosis and guide the appropriate management for each specific case.

Compliance with ethics requirements:

The authors declare no conflict of interest regarding this article. The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study.

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