



## CASE REPORT

# Infective endocarditis in an HIV-infected intravenous drug user



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### KEYWORDS

Infective  
endocarditis;  
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Tricuspid valve

**Abstract** Infective endocarditis is a common complication among injecting drug users. Disease risk among these patients is increased by the spread of HIV infection. In the following article, we discuss the exceptional clinical presentation of a 28-year-old patient who used intravenous drugs (heroin) for 10 years, had been infected with HIV for seven years and as a complication had developed *Staphylococcus aureus* infective endocarditis.

The patient came to the hospital in serious condition, complaining of bodily pain, swelling of the legs and general weakness. During hospitalization, besides infective endocarditis, she was also diagnosed with anemia, toxic hepatitis, renal failure, ascites, sepsis, and pneumonia. A completely disrupted tricuspid valve, damaged aortic valve, and fibrosis of the mitral valve were detected. Echocardiographic and radiologic data showed that the patient's condition continued to deteriorate day by day, with significant progression of heart failure, ejection fraction decreasing from 45% to 10%, and development of myocarditis, hydrothorax and pericarditis. However, this progressive worsening of the patient's condition ceased when vancomycin was administered. To the authors' knowledge, this is the first such case described in the literature in which significant improvement was observed despite the patient's complex condition with associated complications.

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### PALAVRAS-CHAVE

Endocardite  
infecçiosa;  
VIH;

### Endocardite infecciosa no VIH – fármaco intravenoso utilizado em doente infetado

**Resumo** A endocardite infecciosa é uma complicação comum entre os consumidores de drogas injetáveis. O risco desta doença nestes pacientes aumenta com a propagação da infeção do

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Utilização de fármaco intravenoso;  
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VIH. Neste artigo, discute-se a apresentação clínica de uma jovem doente que consumiu drogas intravenosas (heroína) durante dez anos e que há sete anos que está infetada pelo VIH. Para além disso, desenvolveu endocardite infecciosa causada por *Staphylococcus aureus*. De 28 anos de idade apresentou-se no hospital em estado grave, queixando-se de dores no corpo, pernas inchadas e de um estado geral de fraqueza.

Durante o internamento, para além da endocardite infecciosa, foi-lhe também diagnosticado – anemia, hepatite tóxica, insuficiência renal, ascite, sepsis e pneumonia. Foram também detetadas interrupção total da válvula tricúspide, válvula aórtica danificada e fibrose da válvula mitral. De acordo com a avaliação ecocardiográfica e dados radiológicos, a situação da doente continuou a deteriorar-se: a insuficiência cardíaca progrediu significativamente, a fração de ejeção diminuiu de 45% para 10% e desenvolveram-se miocardite, hidrotórax e pericardite. No entanto, apesar da situação grave da doente progredir de modo contínuo, houve uma melhoria assim que lhe foi administrada vancomicina. De acordo com os autores, este será o primeiro caso clínico descrito na literatura que revelou uma melhoria significativa apesar da situação complexa da doente com demais complicações.

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#### List of abbreviations

AoV	aortic valve
CHF	congestive heart failure
CRP	C-reactive protein
EF	ejection fraction
ESR	erythrocyte sedimentation rate
HF	heart failure
ICU	intensive care unit
IDUs	intravenous drug users
IE	infective endocarditis
LV	left ventricle/left ventricular
MRSA	methicillin-resistant <i>Staphylococcus aureus</i>
MV	mitral valve
RBC	red blood cells
RC	right coronary
RV	right ventricle/right ventricular
TV	tricuspid valve

## Introduction

Despite advances in diagnosis, infective endocarditis (IE) remains a common cause of hospitalization, with high morbidity and mortality rates.<sup>1</sup> This may be due to the changing epidemiology of IE, including increasing antimicrobial resistance, more frequent heart surgery and prosthetic valve implantation, and widespread use of intravenous drugs.<sup>2</sup>

IE was initially recognized to be a complication of intravenous drug use in the 1950s.<sup>3</sup> It is a potentially fatal consequence of injecting illicit drugs, such as heroin, cocaine, and methamphetamine. Intravenous drug use increases IE risk through a variety of mechanisms. Drug solutions may contain particulate matter (e.g. talc) that damage cardiac valves if injected intravenously. In addition, poor

injection hygiene and injecting contaminated drug solutions can introduce high circulating bacterial loads.<sup>4</sup> In intravenous drug users (IDUs), the incidence of IE is 2%–5% and it is responsible for 5%–10% of deaths.<sup>5</sup>

HIV infection increases the risk of IE. In developed countries HIV infection among IDUs with IE ranges between 30% and 70%.<sup>6</sup> The tricuspid valve (TV) may be more susceptible to heroin use, as heroin can cause an increase in pulmonary arterial pressure, creating more turbulence at the TV.<sup>7</sup>

In this article we describe an exceptional clinical case of an IE patient who was HIV-infected and also injected heroin. We compare the case with data in the literature and analyze the differences, and also review the clinical features of IE among IDUs, nonaddicts, and HIV-infected and uninfected patients.

## Case report

A 28-year-old Lithuanian woman was admitted to our hospital. Her presenting complaints were bodily pain and general weakness. She had been addicted to heroin for 10 years. Her past medical history was significant for anemia and chronic pyelonephritis, leading to stage 2 renal failure, and infection with HIV for seven years. She was an alcohol abuser and a smoker. Physical examination on presentation showed body temperature of 36.8°C, edema in the legs, pale mucous membranes, dry tongue, normal cardiac rhythm and breath sounds, respiratory rate 20/min, heart rate 88 beats/min, and blood pressure 120/80 mmHg. Laboratory tests revealed microscopic hematuria and leukocyturia and C-reactive protein (CRP) 28 mg/l, erythrocyte sedimentation rate (ESR) 45 mm/h, and hemoglobin 59 g/l. Ascites was found in the abdomen. X-ray study showed no abnormalities in the thoracic organs. On day 7 of hospital stay the patient's condition deteriorated. The X-ray showed

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