



Revista Portuguesa de
Cardiologia
Portuguese Journal of **Cardiology**
www.revportcardiol.org



CASE REPORT

18F-FDG PET/CT in the diagnosis of prosthetic valve endocarditis

Verónica Vidal*, Cristina Albiach, Josep Gradolí, José Leandro Pérez, Vicente Montagud, Joaquina Belchí, Salvador Morell, Lorenzo Fácila

Departamento de Cardiología, Hospital General Universitario de Valencia, Valencia, Spain

Received 26 December 2016; accepted 13 May 2017

KEYWORDS

Prosthetic valve endocarditis;
Cardiac imaging;
18F-FDG PET/CT;
Modified Duke criteria

Abstract Prosthetic valve endocarditis is a major diagnostic challenge in clinical practice, due to the lower sensitivity of the modified Duke criteria and a higher percentage of cases with negative or inconclusive echocardiography results. The delay in establishing medical and surgical treatment increases the morbidity/mortality rate. New imaging techniques and 18F-FDG PET/CT in particular have meant a significant advance in cases of high clinical suspicion and negative or inconclusive echocardiography, increasing the overall sensitivity of the modified Duke criteria.

We report the case of a male patient with prosthetic valve endocarditis, where 18F-FDG PET/CT provided the diagnostic key, determining the origin of the endocarditis and avoiding treatment delay.

© 2018 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L.U. All rights reserved.

PALAVRAS-CHAVE

Endocardite das próteses valvulares;
Imagem cardíaca;
18F-FDG PET/CT;
Critérios de Duke modificados

18F-FDG PET/CT no diagnóstico da endocardite das próteses valvulares

Resumo A endocardite das próteses valvulares é um desafio diagnóstico real na prática clínica devido à menor sensibilidade dos critérios de Duke modificados e a uma maior percentagem de casos em que o ecocardiograma é negativo ou inconclusivo. O atraso no início do tratamento médico ou cirúrgico aumenta a taxa de morbilidade e mortalidade, de modo que o surgimento de novas técnicas de imagem e, em particular, da 18F-FDG PET/CT tem sido um grande avanço em casos de alta suspeição clínica com ecocardiograma negativo ou duvidoso, o que aumenta a sensibilidade global dos critérios diagnósticos de endocardite.

* Corresponding author.

E-mail address: verovidal91@gmail.com (V. Vidal).

<https://doi.org/10.1016/j.repc.2017.05.014>

0870-2551/© 2018 Sociedade Portuguesa de Cardiologia. Published by Elsevier España, S.L.U. All rights reserved.

Apresentamos o caso clínico de um homem com endocardite da prótese valvular em quem 18F-FDG PET/CT foi a chave diagnóstica que permitiu diferenciar a origem da endocardite e evitar o atraso do tratamento.

© 2018 Sociedade Portuguesa de Cardiologia. Publicado por Elsevier España, S.L.U. Todos os direitos reservados.

Introduction

Infective endocarditis (IE) is a serious endovascular infection that requires early diagnosis because of its high initial mortality and morbidity rates and high risk of complications during follow-up.^{1,2} It has an estimated incidence of 3.1 to 3.7 episodes per 100 000 inhabitants per year, and is especially common in the elderly.³

The clinical presentation of IE can be acute or sub-acute, and it can develop with cardiac or noncardiac involvement. The most common symptom is fever, followed by anorexia, weight loss, weakness and night sweats. Heart murmurs are detected in 85% of patients and up to 25% suffer embolic complications at the time of diagnosis.⁴ This wide clinical spectrum makes it difficult to detect, requiring a multidisciplinary approach formed by cardiologists, cardiac surgeons, microbiologists, neurologists and specialists in infectious diseases and imaging. By using newer, recently introduced diagnostic imaging techniques, 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) in particular, a more accurate diagnosis is now possible.

We present the case of a patient with suspected IE, where this new image fusion technique was key to his management.

Case report

We report the case of a 54-year-old man with a mechanical aortic prosthetic valve implanted in 1998 following severe aortic regurgitation of rheumatic etiology who came to the emergency department reporting pain, erythema and edema in the left leg, without history of trauma and no fever or dyspnea. He denied recent interventions or dental extractions.

He had hemorrhagic skin lesions on his palms and both soles, most numerous on the left foot, consistent with Janeway lesions. No mobility abnormalities were found, and there was no data to suggest any abdominal infectious process. Auscultation revealed regular heart tones, click of prosthetic aortic valve closure and pansystolic murmur, predominantly in left parasternal border, along with bibasilar crackles.

Blood tests in the emergency department showed an increase in inflammatory parameters (procalcitonin 12.45 ng/ml, C-reactive protein 17.9 mg/dl with neutrophilia).

Portable transthoracic echocardiography (TTE) (Philips CX50, with broadband sector array transducer S5-1 with frequency range 5-1 MHz, Amsterdam, the Netherlands) showed no dysfunction of the mechanical aortic prostheses, but

did reveal thickening of the anterior mitral valve above A2 with a nodular image with irregular edges and a maximum diameter of 5 mm, suggesting a mild double mitral lesion, without other relevant changes. Consecutive blood cultures were positive for multi-drug-susceptible *Staphylococcus aureus*.

The patient was admitted to the cardiology department with the diagnosis of mitral native valve endocarditis (NVE) secondary to *Staphylococcus aureus* in a patient with an aortic prosthesis, with probable peripheral embolization. By consensus with the infectious diseases department, the patient was started on antibiotic therapy with cloxacillin, intravenous daptomycin and rifampin.

After developing abdominal and neurological manifestations, abdominal computed tomography (CT) and brain magnetic resonance imaging were performed, showing several foci of splenic and lacunar infarction, with resolution of the symptoms in less than 24 hours.

Infectious parameters began to decrease over the initial days of antibiotic treatment. Two-dimensional (2D) and three-dimensional (3D) TTE and transesophageal echocardiography (TEE) showed absence of endocarditis progression and an apparently unaffected, normal-functioning aortic prosthesis, with similar findings as in the initial echocardiography (Figure 1).

Given the high suspicion of aortic prosthetic valve endocarditis (PVE) despite the negative echocardiogram, an 18F-FDG PET/CT was requested because of the high sensitivity and specificity of this technique for diagnosing PVE. To reduce the myocardium physiological uptake of 18F-fluorodeoxyglucose (18F-FDG), the patient was prepared with a high-fat, low-carbohydrate meal and fasted for 18 hours.

The images revealed an intense hyper-metabolism confined to the aortic annulus, above the aortic-valve prosthesis, with inhibition of the rest of the cardiac metabolism after the prescribed preparation. This confirmed the diagnosis of aortic PVE, with no evidence of pathological deposits of tracer in the mitral valve or other body territories (Figure 2).

Consequently, repeat 2D and 3D TTE and TEE revealed a previously non-existent, or not visible, 5-6 mm vegetation (Figure 3 and Supplementary Video 1). The vegetation was observed on the posterior surface of the aortic prosthesis and was not causing regurgitation. A nodule persisted on the anterior surface of the mitral valve, but the positron emission tomography/computed tomography (PET/CT) images showed it to be only a simple degenerative finding. No abscesses or other complications of IE were observed and the mechanical aortic prosthesis discs were opening normally,

Download English Version:

<https://daneshyari.com/en/article/7535731>

Download Persian Version:

<https://daneshyari.com/article/7535731>

[Daneshyari.com](https://daneshyari.com)