PET scan in suspected but unproven pacemaker endocarditis

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Received 16 February 2011; received in revised form 28 March 2011; accepted 1st April 2011
Available online 28 October 2011

Case reports and a preliminary study have suggested that 18F-fluorodeoxyglucose positron emission tomography (FDG-PET)/computed tomography (CT) scans may be useful for the diagnosis of pacemaker infection. A 75-year-old man was implanted with a dual-chamber pacemaker 8 years ago for complete atrioventricular block. One year after implantation, he experienced a first septic episode. The causal pathogen identified by haemocultures was peregrinum, a non-tuberculous mycobacterium. Complete investigation could not reveal the origin of the infection. The pacing system was left in place and he was treated for several months with clarithromycin and ciprofloxacin.

After 8 years without objective signs of active infection, the patient was hospitalized for an episode of fever of unknown origin. The source remained uncertain after 1 week of comprehensive investigation. No signs of pacemaker pocket infection were observed and transoesophageal echocardiography (Fig. 1) and haemocultures were negative.

An FDG-PET scan revealed the presence of increased 18F-fluorodeoxyglucose uptake along the atrial lead, suggesting a lead endocarditis (Fig. 2). The patient underwent complete removal of the implanted material. Culture of the atrial lead was positive for the same mycobacterium, implying that the lead was involved in the infectious process. The symptoms and inflammatory markers resolved following system extraction.

This case suggests that in patients with fever of unknown origin, if the FDG-PET scan is positive, then the pacing system should probably be extracted. The administration of antimicrobial therapy at the time of FDG-PET/CT scanning may result in false negative tests; negative tests should be interpreted with caution in this context.

**KEYWORDS**

PET scan; Endocarditis; Pacemaker

**MOTS CLÉS**

TEP-scan ; Endocardite ; Pacemaker

Abbreviations: CT, computed tomography; FDG-PET, 18F-fluorodeoxyglucose positron emission tomography.

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Figure 1. No visible vegetation during the transesophageal echocardiography.

Figure 2. Presence of increased $^{18}$F-fluorodeoxyglucose uptake along the atrial lead (hot spot on the atrial lead) during the FDG-PET scan.