PET-diagnosed lead infection in ARVC

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A 31-year-old man suffered 6 months of rigors with only partial benefit from treatment of presumed chest infections. He previously had an internal cardioverter-defibrillator (ICD) fitted 7 years earlier for ventricular tachycardia (Figure A and B) due to arrhythmogenic right ventricular cardiomyopathy (ARVC).

His general practitioner consulted a rheumatologist who suggested a whole body 18 F fluorodeoxyglucose positron emission tomography (FDG-PET) scan to localize the suspected infection/inflammation. Avid uptake (arrows, Figure C) was present in the superior vena cava and right atrium.

He was transferred to our care. Transoesophageal echocardiography showed large vegetations on the ICD lead and tricuspid valve (Figure D, see Supplementary data online, Movie S1). Consecutive sets of blood cultures grew coagulase-negative Staphylococcus aureus.

Antimicrobial therapy failed to reduce the vegetations size or settle the infection, and surgical lead extraction was performed (Figure E) with vegetations also cleared from the tricuspid valve. Culture of the surgical specimen grew the same organism.

The patient received further intravenous antibiotics before a new ICD was fitted. During this time, a cardiac MRI scan (Figure F, see Supplementary data online, Movie S2) documented severe RV impairment and areas of akinesia/microaneurysms along the RV-free wall, typical for ARVC. Late gadolinium enhancement was present in several areas, indicative of fibrosis (Figure G, arrows). The patient has been symptom-free since with no evidence of infection on follow-up.

FDG-PET is a highly unusual imaging tool for identifying device endocarditis but was used initially when a cardiovascular source of infection was not suspected. Nonetheless, it showed good ability to localize the infection, subsequently confirmed by more conventional imaging methods. Its value as a first line investigation is controversial however.

Supplementary data are available at European Heart Journal – Cardiovascular Imaging online.

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