


EP CASE REPORT

A dramatic complication of a subcutaneous implantable cardioverter-defibrillator test: the difficult management of patients and devices when atrial fibrillation and heart failure coexist

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Atrial fibrillation (AF) can complicate heart failure (HF) course for the activation of coagulation cascade¹ and the difficult management of devices.

In September 2017, a 69-year-old man was admitted to hospital because of septic shock characterized by delirium, fever, cyanosis, hypotension, and oliguria.

He reported: past smoking habit, diabetes, hypercholesterolaemia, retinitis pigmentosa, and recent finding of a low-grade prostate cancer, now in the staging phase. A severe systolic HF (two previous myocardial infarctions treated with percutaneous coronary intervention) was present. Left ventricular ejection fraction was 30%. In 2016, he underwent to a primary prevention dual-chamber PM-implantable cardioverter-defibrillator (ICD) implantation. Few months later, due to the presence of

AF, edoxaban therapy (60 mg) was started. In June 2017, a hospitalization was needed for worsening HF.

At admission, laboratory data revealed metabolic acidosis with acute renal and hepatic failure. Left ventricular ejection fraction had worsened (20%). Left atrium was enlarged (diameter: 47 mm). Thorax inspection revealed a warm, reddened, floating swelling of the pacemaker pouch with high procalcitonin levels. Following the revision of the pocket, a *Staphylococcus aureus* was isolated. TEE excluded endocarditis and atrial thrombosis. Because of these findings and the severe conditions of the patient, device removal was postponed and specific antibiotic therapy started with significant and fast clinical improvement.² A ¹⁸F-FDG positron emission tomography/computed tomography (CT) revealed a glucose hypermetabolic state on the pacemaker and the catheters (Figure 1A). At 4 weeks, TEE was still negative. To remove

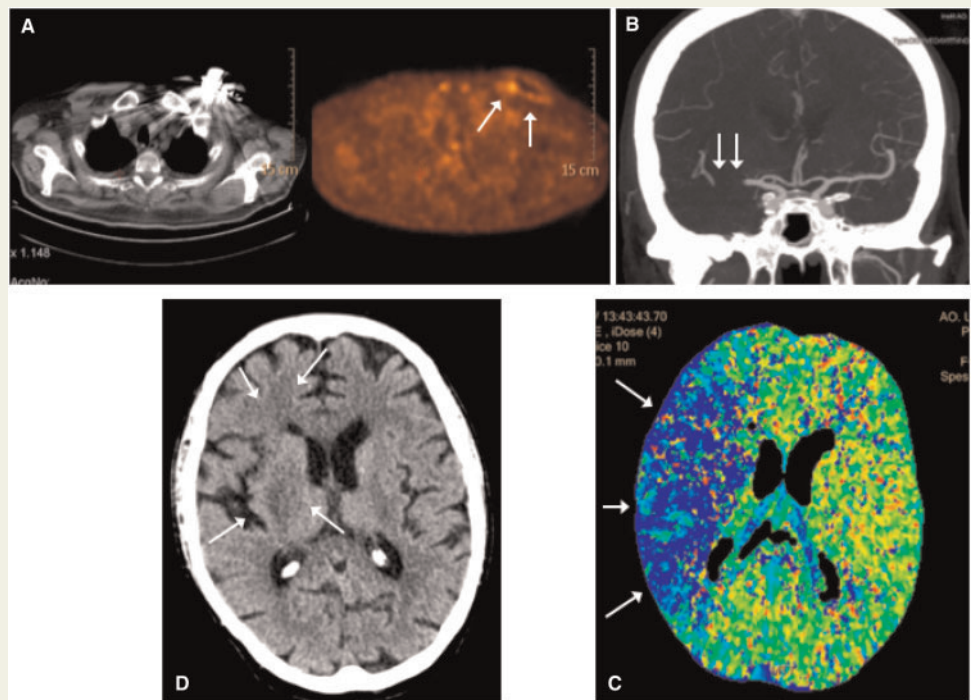


Figure 1 (A) The white arrows indicate the infection around the pacemaker profile at the ¹⁸F-FDG PET; the CT scan shows the corresponding thorax level. (B) The white arrow points out the tract of the occluded right middle cerebral artery. (C) The ischaemic area in blue as evaluated at the CT perfusion scan. (D) Brain CT scan at 72 h from the acute event showing a shaded cortical-subcortical lesion involving part of the right frontal lobe, the anterior insula and the striatum. CT, computed tomography; PET, positron emission tomography.

device and leads using manual traction, edoxaban was stopped for 72 h. The manoeuvre was successful. The electrocardiogram showed AF (heart rate: ~70 b.p.m.) with a QRS width <130 ms. It was decided to implant a subcutaneous ICD. Because an estimated high risk of events due to the severe conditions of the patient, the procedure was performed after only 6 days from PM-ICD removal. Edoxaban was stopped for only 24 h. The device was successfully tested but stable sinus rhythm emerged. Two days after, while preparing for discharge, patient collapsed with a stroke. An immediate neurologic evaluation evidenced 18 at the NIH Stroke Scale (NIHSS; only possible to execute simple tasks, persistent left hemiplegia and dysarthria). An angio-CT scan revealed the occlusion of right middle cerebral artery (*Figure 1B and C*). Because anticoagulation contraindicated thrombolysis, the patient promptly underwent effective mechanical thrombectomy with culprit artery recanalization. After 12 h, NIHSS score dropped to 5 (alert, right space orientation, left arm and leg drift with partial facial palsy, moderate dysarthria, normal sensation); progressive improvements were observed in the subsequent days with normalization of neurologic evaluation (NIHSS score = 0; small residual lesion at the CT scan) (*Figure 1D*). According to the AF guidelines, anticoagulation was restarted after 6 days.³ Patient was transferred to a rehabilitation centre and, afterward, discharged home. At 12 months, neurologic signs, new HF episodes and subcutaneous ICD shocks were absent. Removal of prostate cancer was planned.

Atrial fibrillation and severe systolic HF can complicate device management. A careful approach to procedures is mandatory to prevent serious complications, which often need a prompt, individualized, intervention.

Conflict of interest: none declared.

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