Pneumomediastinum after implantable cardiac defibrillator implantation

Nicolas Girerd¹, Anne-Sophie Lienhart¹, and Philippe Chevalier¹,²*

¹Department of Rhythmology, Hospices Civils de Lyon, Louis Pradel Cardiovascular Hospital, 59 bd Pinel, 69677 Lyon-Bron Cedex, France and ²Lyon Reference Center for inherited Arrhythmias, Louis Pradel Cardiovascular Hospital, Lyon, France

* Corresponding author. Tel: +33 4 72 68 49 46, Fax: +33 4 72 35 73 41, Email: philippe.chevalier@chu-lyon.fr

A 66-year-old male with prior tuberculosis pleuritis and anterior myocardial infarction was admitted to our hospital for sustained polymorphic ventricular tachycardia. The patient was already on oral amiodarone, sotalol, and perindopril. Invasive external overdrive pacing terminated the arrhythmia. Acute ischaemia was ruled out and an implantable cardiac defibrillator (ICD) implantation was decided. A Medtronic-6931 defibrillator lead was placed in the right ventricle and a Medtronic-5076 lead was easily placed in the right atrial appendage. Both leads were inserted via the left cephalic vein and connected to a Medtronic INTRINSIC-7288 ICD implanted in the prepectoral area. Normal sensing and capture were obtained.

The day after implantation, the patient complained of chest pain increased by deep breathing. Clinical examination and chest X-ray were unremarkable. Echocardiography showed no pericardial effusion. The next day, chest X-ray showed a right partial pneumothorax (Panel A). Atrial pacing threshold had dramatically increased (>6 V) and P-wave sensing was poor (0.3 mV). In addition to pneumothorax, thoracic computed tomography (CT) showed pneumopericardium and pneumomediastinum (Panels B and C, black arrows), likely due to an atrial lead pleuropericardial perforation. A slight extrusion of the atrial lead through the atrium was identified (Panel D, white arrow). The atrial lead was extracted in emergency under general anaesthesia. The procedure was uncomplicated. The CT performed 5 days later found no residual pneumopericardium or pneumomediastinum. A 3-year follow-up revealed no complications.

This case reminds us that severe mechanical complications can occur after pacemaker or ICD implantation, especially in patients with lung disease history. With this regard, CT is of particular interest in the early post-procedure period.

Published on behalf of the European Society of Cardiology. All rights reserved. © The Author 2010. For permissions please email: journals.permissions@oxfordjournals.org.