Abstract: P315

Subacute right ventricular perforation by active fixation pacemaker Lead

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On behalf:

Topic(s):
Device Complications and Lead Extraction

Citation:

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No findings

An 84-year-old woman underwent implantation of a dual-chamber pacemaker (PM) (Endurity, St.Jude Medical) for atrial fibrillation with slow ventricular response. She was rehospitalized 48 hours later because of sudden loss of ventricular pacing evidenced in the ECG (Figure 1A). A chest X-ray showed migration of the ventricular lead close to the anterior chest wall (Figure 1B-C). An echocardiography failed to visualize the tip of the lead. A computed tomography (CT) revealed that the ventricular lead perforated the myocardium, crossed pericardium and epicardial fat, and pulmonary parenchyma, and impacted against the periosteum of a rib (Figure 1D-E), but did not cause pleural or pericardial effusion. Percutaneous lead extraction with stand-by cardiothoracic surgery was performed. The lead was carefully pulled back to the right atrium, and the same lead was actively fixated in the right ventricular apex. Impedances were normal and a correct device function was corroborated. After a 9-month follow-up the patient has a stable position of the lead. Myocardial perforation is a rare complication of PM and defibrillators implantation. The majority of the perforations occur during the implantation procedure, being recognized intraoperatively or in the early postoperative. However, regarding the use of active fixation electrodes, perforation can occur several days (subacute) or even more than a month after the implant (late). The incidence of this complication in different series has ranged from 5% to 7%, due to the increasing number of implants. Risk factors for ventricular perforation include advanced age, female gender, thin ventricular wall, previous temporary PM, active fixation lead, stiffer leads or guidewires, excessive attempts at lead repositioning, medication with oral steroids, and permanent anticoagulation. The clinical presentation varied widely, from asymptomatic patients to sudden cardiac death, including cardiac tamponade, hemopericardium, pneumothorax or hemothorax, or diaphragmatic or pectoral stimulation. In Chest x-ray, myocardial perforation is suspected when a distance less than 3mm separates the tip from a fine radiolucent stripe of epicardial fat. In cases of PM lead migration, CT scanning is very useful to precisng the tip’s position. Effective management of this complication remains uncertain. Some authors consider that in cases of acute perforation, repositioning the lead and serial echocardiography follow-up are sufficient in most cases. In cases of late perforation, the electrode may be firmly adherent and the removal would be quite risky. If the lead’s tip is inside the mediastinum and there is no bleeding complication, an additional lead could be inserted without performing lead extraction. Whenever an uncontrolled bleeding occurs or when a lead migrates outside the pericardium with a potential risk of vascular or pulmonary damage, extraction must be performed.
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