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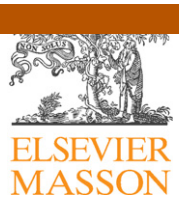

IMAGE

Left ventricular stimulation in a patient with tricuspid bioprosthesis

Stimulation ventriculaire gauche chez un patient porteur d'une bioprothèse tricuspide

Cyrus Moini[a], Jérôme Fichet[b], Christophe Bressolle[b], Didier Gedin[a], Walid Amara[c,*]

[a] *Institut Jacques-Cartier, hôpital privé d'Antony, Massy, France*
[b] *Hôpital de Bicêtre, Le-Kremlin-Bicêtre, France*
[c] *Unité de rythmologie, CHI de Le-Raincy—Montfermeil, 10, rue du Général-Leclerc, 93370 Montfermeil, France*

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A 66-year-old woman with a history of severe mitral stenosis, open heart valvotomy in 1958 and permanent atrial fibrillation was referred for cardiac pacemaker replacement. Mitral valve replacement with a mechanical prosthesis was performed in 1977, associated with tricuspid annuloplasty and insertion of a tricuspid ring. In 1999, tricuspid valve replacement was performed with a bioprosthetic valve. Permanent atrioventricular block occurred after cardiac surgery, leading to the implantation of a single-chamber pacemaker in the abdominal position associated with epicardial leads due to the risk of crossing the tricuspid prosthesis.

During follow-up, the patient was poorly symptomatic with medical therapy. However, pacing threshold and sensing values increased over the years (2.5 V at 1 ms) leading to replacement of the device in 2003. In accordance with the patient's wishes, the epigastric location was conserved, with elevated threshold after replacement, and the patient was informed of the high risk of premature failure. Three years later, interrogation of the pacemaker revealed high internal impedance, leading us to consider a novel device replacement.

The first option was replacement of the pacemaker and epicardial leads. However, in this patient, such an approach was associated with a high risk of persistent elevated threshold due to the previous surgery and local fibrosis, and with the risk of general anaesthesia

* Corresponding author. Fax: +33 1 41 70 80 63.
E-mail address: walamara@gmail.com (W. Amara).

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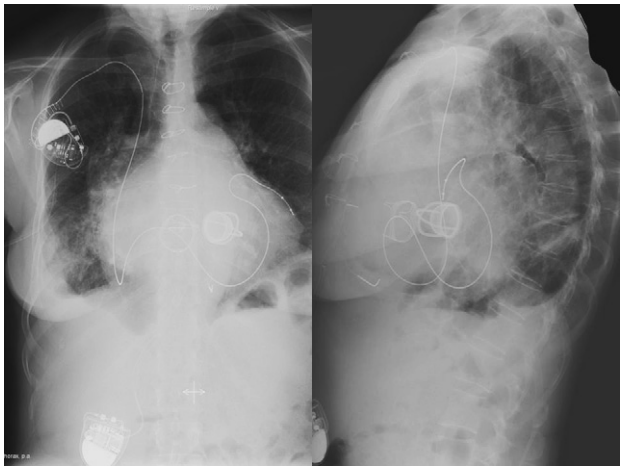

Figure 1. Chest X-ray. Note the previous pacemaker with epicardial leads and the left ventricular stimulation without the need to cross the tricuspid prosthesis.

and thoracic surgery. The second, chosen, option was left ventricular stimulation. A coronary sinus veinogram was performed to locate an appropriate site, and the stimulation lead was positioned in a lateral vein of the coronary sinus and connected to a pacemaker in a thoracic location (Fig. 1). Interrogation of the device revealed an excellent pacing threshold. One year later, follow-up validated the choice of left ventricular stimulation, with threshold values below 1 V.

Permanent stimulation for patients with a tricuspid valve prosthesis remains a clinical problem, due to the high risk of valve blockade or damage, associated with the risk of induced tricuspid regurgitation. With improvement of leads, devices and implantation techniques, left ventricular pacing using the coronary sinus approach may be an alternative option for patients at high risk of crossing the tricuspid valve—and not only in resynchronization therapy.