

## IMAGE IN CARDIOLOGY

# Leadless pacemaker: A paradigm change

## *Pacemaker sem eléctodos: uma mudança no paradigma*



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We present images of a leadless pacemaker – Micra™ (Medtronic, Inc.) – implanted in the right ventricle through femoral access. We believe it is important for cardiologists to be aware of these radiological images, since the traditional elements of conventional pacing (leads and generators) are absent in these devices.

The patient, an 87-year-old man with permanent atrial fibrillation, normal LV function, and a history of more than 30 years of pacing with leads and generators implanted on both sides of the chest and explanted due to infection, had been fitted with a single-chamber epicardial system with a very high capture threshold.

The leadless pacemaker is delivered through a 27F catheter system, inserted through the femoral vein. Once inside the right ventricle, the catheter system is placed against the septum and the pacemaker is released after obtaining a good position. The pacemaker is secured in the ventricular trabeculae with flexible tines (Figures 1–3). An external programmer is then used to test and program the leadless pacemaker. After adequate parameters are confirmed, the catheter system is removed.

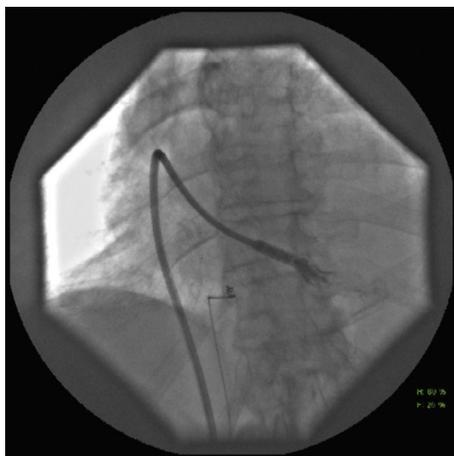
Leadless pacemakers represent a paradigm change in pacing. This patient is among the first group of patients implanted with a Micra system in Portugal (Figures 1–3).



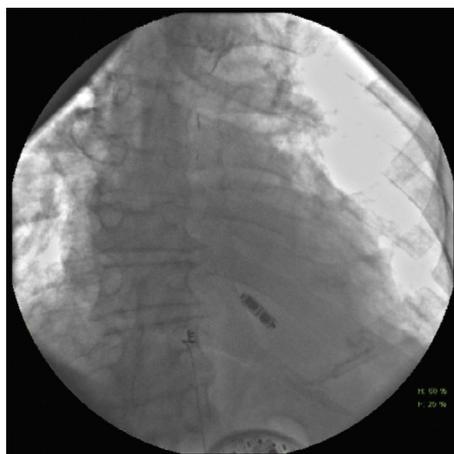
**Figure 1** Advancing the catheter system into the right atrium.

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**Figure 2** Placing the system against the right ventricular septum and assessing its position with dye.



**Figure 3** Final position of the leadless pacemaker.

## Ethical disclosures

**Protection of human and animal subjects.** The authors declare that no experiments were performed on humans or animals for this study.

**Confidentiality of data.** The authors declare that they have followed the protocols of their work center on the publication of patient data.

**Right to privacy and informed consent.** The authors have obtained the written informed consent of the patients or subjects mentioned in the article. The corresponding author is in possession of this document.

## Conflicts of interest

The authors have no conflicts of interest to declare.