

## Image in cardiology

## Leadless pacemakers for atrioventricular synchronous pacing

## Marcapasos sin cables con sincronía auriculoventricular



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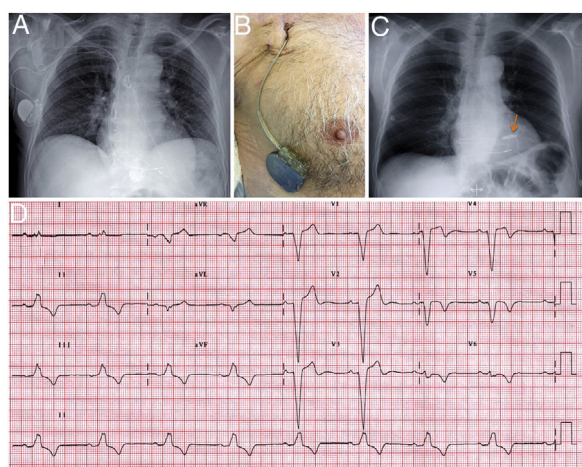


Figure 1.

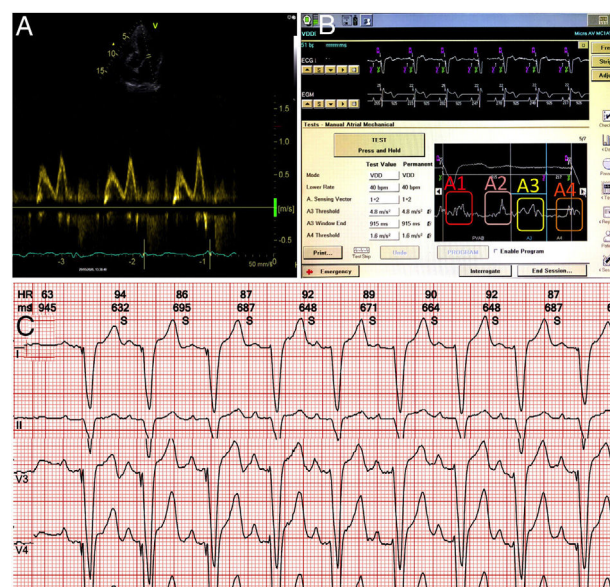


Figure 2.

The safety and effectiveness of leadless pacemakers with single-chamber pacing is well established, but leadless pacemakers that provide atrioventricular (AV) synchronous pacing are more recent.

We present the case of a 74-year-old man with chronic lymphocytic leukemia and complete AV block who had undergone multiple interventions due to left lead dislodgement, infection, or extraction and who was referred to our hospital for removal of a new contralateral pacemaker due to pocket infection followed by implantation of a leadless pacemaker (figure 1A,B). The 2 leads were successfully extracted by laser (Spectranetics-Philips, USA).

Twenty-four hours later, an AV leadless pacemaker was implanted via the right femoral vein and excellent pacing parameters were observed after deployment in the mid septum (figure 1C; arrow showing AV leadless pacemaker; video 1 of the supplementary data).

Normal functioning was checked by electrocardiography (figure 1D) and Doppler echocardiography (ventricular filling pattern) (figure 2A) before the patient was discharged. AV tracking was checked at rest and during exercise. In the first case it was checked using the mechanical atrial tracking test, which uses the following accelerometer signals: A1 (AV valve closure), A2 (closure of aortic and pulmonary valves), A3 (passive ventricular filling), and A4 (atrial contraction) (figure 2B and video 2 of the supplementary data). In the second case, AV tracking was checked during a stress test up to 90 beats per minute (the same as with Holter monitoring) (figure 2C).

The AV leadless pacemaker is a very promising device, particularly for patients in sinus rhythm who do not require a high heart rate and who have risk factors for complications associated with traditional pacemakers.

#### APPENDIX. SUPPLEMENTARY DATA

Supplementary data associated with this article can be found in the online version available at <https://doi.org/10.1016/j.rec.2020.06.038>

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