Image in cardiology

Ventricular Tachycardia Ablation Guided by Cardiac Magnetic Resonance

Ablación de taquicardia ventricular guiada por cardiorresonancia magnética

Andrea Di Marco,* Eduard Claver, and Ignasi Anguera

Servicio de Cardiología, Hospital Universitario de Bellvitge, L'Hospitalet de Llobregat, Barcelona, Spain

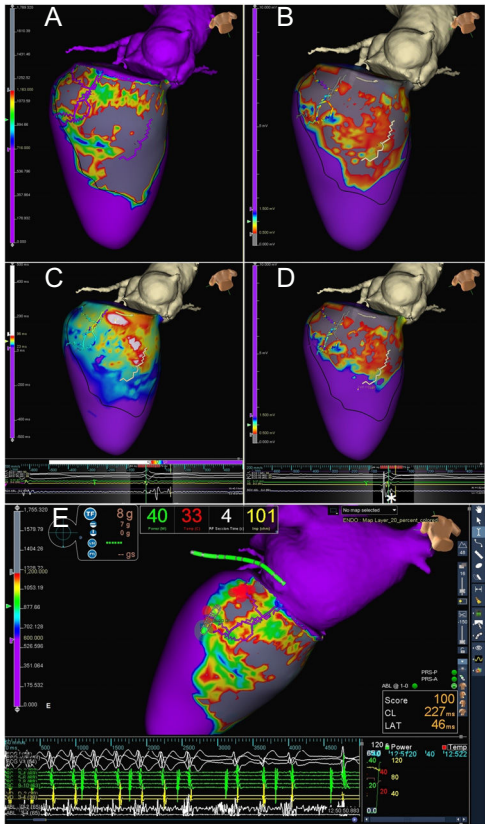

Figure.

A 61-year-old man with an old inferior myocardial infarction was referred for ventricular tachycardia ablation; we performed cardiac magnetic resonance (CMR), using a specific sequence with isotropic resolution of 1.6 mm, and cardiac computed tomography. ADAS-VT (Galgo Medical, Barcelona, Spain) software was used to reconstruct myocardial scar from CMR and to identify channels of heterogeneous tissue that could be directly involved in the ventricular tachycardia (VT) circuit (Figure A). For the first time, this 3-dimensional analysis was uploaded into Ensite Precision (Abbott, Chicago, Illinois, United States) and fused with the electro-anatomical map.

We observed a close correspondence between the CMR scar and electroanatomical scar (the latter is shown in Figure B, the black line corresponds to the border of CMR-scar). CMR-channels (shown as tubes) largely corresponded to low-voltage channels. The map of late potentials (Figure C) showed that the areas of latest activation (white) corresponded to the inner end of the CMR-channels. Scar recorded by Automap (Figure D) was smaller than CMR scar due to erroneous recording of the high-voltage far field instead of the low-voltage near field (asterisk in Figure D). After manual recording of the near field, the electroanatomical scar was similar to the CMR scar (Figure B), so the CMR scar also helped to correct Automap errors. Finally, clinical VT was effectively ablated at the entrance site of the CMR channel (Figure E, VT is interrupted after 4 seconds of radiofrequency application).

This report shows that image integration from ADAS-VT into Ensite Precision is very reliable and CMR-guided VT ablation can be reproducibly performed.

* Corresponding author:
E-mail address: ayfanciu@hotmail.com (A. Di Marco).
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