IMAGE

Natural history of myocardial scarring after radiofrequency ablation of ventricular tachycardia: Evaluation with comprehensive cardiac magnetic resonance imaging

Intérêt de l’IRM cardiaque dans le suivi des ablations de tachycardie ventriculaire par radiofréquence

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A 61-year-old patient was admitted to the intensive care unit for acute onset of palpitations; he had no cardiac medical history. Surface electrocardiogram showed episodes of wide QRS regular tachycardia, right bundle branch block and left axial deviation aspect (Figs. 1A, 1B). Echocardiography and coronarography were normal. Thus the diagnosis of fascicular VT was considered. Recurrences of acute VT longer than 30 seconds occurred despite intravenous antiarrhythmic drug therapy, therefore radiofrequency ablation of VT was carried out. After vein puncture, a 4 mm irrigated ablation catheter was inserted into the left ventricle by the atrial transeptal approach under echographic guidance. Several courses of therapy up to 40 W energy were necessary to treat the VT successfully. Two days later, a first cardiac MRI scan was performed (Siemens Symphony TIM, 1.5 T, Erlangen, Germany). Cine sequences after gadolinium injection showed a heterogeneous mid-left ventricular inferior wall. First-pass perfusion imaging demonstrated an important defect in the radiofrequency ablation area (Fig. 1C). LGE sequences revealed a larger than expected central no-reflow core in the ablation area, surrounded by a ring of LGE next to the posterior papillary muscle (Figs. 1D, 1E). Three months later, a second cardiac MRI was

Abbreviations: LGE, late gadolinium enhancement; MRI, magnetic resonance imaging; VT, ventricular tachycardia.
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Figure 1. (A) Ventricular tachycardia electrocardiogram showing right bundle branch block and left axial deviation aspect. (B) Rest electrocardiogram after ventricular tachycardia showing negative T waves in the lateral leads. (C) Initial magnetic resonance imaging (MRI) short-axis view: first-pass perfusion imaging demonstrated an important perfusion defect in the radiofrequency ablation area. (D, E) Initial MRI short- and long-axis view late gadolinium enhancement (LGE) sequences: no-reflow core was found, surrounded by a ring of LGE next to the posterior papillary muscle. (F) Three months later, MRI first-pass perfusion imaging short-axis view: defect had decreased but not disappeared. (G, H) Three months later, MRI short- and long-axis view LGE sequences: decreased but still present central no-reflow area surrounded by a ring of LGE.

performed. Cine sequences were normal. On first-pass perfusion imaging, the defect had decreased (Fig. 1F). Finally, LGE sequences showed a residual scar, significantly decreased but still associated with a central no-reflow area and ring of LGE (Figs. 1G, 1H). This report illustrates the usefulness of cardiac MRI for evaluating the natural history of focal scarring after radiofrequency ablation of VT.

Disclosure of interest

The authors declare that they have no conflict of interest concerning this article.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2011.11.009.