Successful catheter ablation of premature ventricular contractions originating from the tricuspid annulus using a Halo-type catheter

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Received 5 April 2008; accepted after revision 23 June 2008; online publish-ahead-of-print 10 July 2008

A 31-year-old woman with idiopathic premature ventricular contractions originating from the tricuspid annulus (TA) underwent electrophysiological testing. Activation mapping with a 20-pole bipolar Halo-type catheter positioned along the TA revealed the earliest ventricular activation at a site between 7 and 8 o'clock along the TA. A reversal in the polarity of the local ventricular electrograms was observed between the two neighbouring electrode pairs of the TA catheter. Successful catheter ablation was achieved at the ventricular site between those electrode pairs. A Halo-type catheter may be effective for mapping and catheter ablation of ventricular arrhythmias originating from the TA.

Case report

A 31-year-old woman with symptomatic idiopathic premature ventricular contractions (PVCs) was referred for catheter ablation. At baseline, monomorphic PVCs were frequent and exhibited a left bundle branch block and left inferior axis QRS morphology, upright R-waves in leads I, aVL, and V6, and a QS pattern in leads III and aVR (Figure 1). Because those electrocardiographic findings suggested that the PVCs might originate from the tricuspid annulus (TA),1 activation mapping was performed with a deflectable 20-pole bipolar Halo-type catheter (InquiryTM H-Curve, St Jude Medical, AF Division, Minnetonka, MN, USA) positioned on the atrial side along the TA and His-bundle catheter during the PVCs (Figure 1). The earliest ventricular activation that slightly preceded the QRS onset was recorded at a site between 7 and 8 o’clock along the TA. A reversal in the polarity of the local ventricular electrograms was observed between electrode pairs 13–14 and 15–16 of the TA catheter (Figure 1). Radiofrequency applications with a target temperature of 55°C achieved successful ablation.

Figure 1 Twelve-lead electrocardiogram (left panel) and cardiac tracings of the premature ventricular contractions (middle panel), and successful ablation site (right panel). The first beats are sinus beats and the second beats are premature ventricular contractions in the left and middle panels. ABL, the ablation catheter; HB d(p), the distal (proximal) electrode pair of the His-bundle catheter; LAO, the left anterior oblique view; RAO, the right anterior oblique view.

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A case of diaphragmatic pacing with cardiac resynchronization therapy

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Received 7 April 2008; accepted after revision 27 May 2008; online publish-ahead-of-print 16 June 2008

Cardiac resynchronization therapy (CRT) is now an accepted treatment for heart failure [McAlister et al. in Cardiac resynchronization therapy for patients with left ventricular systolic dysfunction: a systematic review. JAMA 2007;297:2502-14.]. In addition to the complications associated with standard pacemaker implants, CRT procedures have their own additional complications such as coronary sinus dissection, diaphragmatic stimulation, and longer implant times. We present a case of CRT implantation which illustrates these problems because of an unusual complication.

Case report

A 69-year-old female with hypertension and type II diabetes mellitus was initially diagnosed with high-grade atrio-ventricular block in 2003 and had a dual-chamber pacemaker implanted. At that time, her transthoracic echocardiogram demonstrated a mildly dilated left ventricle (LV end-diastolic 5.8 cm) and an overall preserved systolic function (estimated ejection fraction 50–55%).