Catheter Ablation of Focal Atrial Tachycardia From the Non-Coronary Aortic Sinus

To the Editor:

We present the case of a 78-year-old woman with a history of allergy to acetylsalicylic acid, type-2 diabetes mellitus, and dyslipidaemia. In January 2008, she experienced dyspnoea and palpitations with no chest pain; she was seen to have incessant atrial tachycardia (AT) and severe left ventricular dysfunction (LVEF, 25%), which was presumed to be secondary. An electrophysiological study was carried out in February 2008 in which an AT with 2 different P-wave morphologies and a cycle length of 460 ms (Figure 1) was induced in a spontaneous, repeatable way using steady atrial stimulation. An activation map was made of the left atrium using the CARTO® navigation system and a 4 mm Navistar® F-Type catheter, which showed a focal...
makes up about 4% of focal ATs at specialised centres. Clinically, its behaviour is no different from that of other supraventricular tachycardias, and in the electrocardiograph, the P-wave morphology, which shares common characteristics with focal tachycardias originating in the para-Hisian area and the interatrial septum, seems to vary from study to study, which reflects the high level of anatomical and conduction heterogeneity in that zone. As in our case, the presence of different P-wave morphologies

Figure 1. Left: record of the atrial tachycardia in a 12-lead ECG, where we can see the P-wave morphology. The first and third arrows show a different morphology from that shown by the central arrow, with no change in the length of the tachycardia cycle (490 ms). Right: intracavity record of electrograms at the level of the coronary sinus, the bundle of His and the distal ablation catheter (Abld). Observe how the local activation registered in the ablation catheter, located in the non-coronary aortic sinus, occurs before the one registered in the bundle of His; this finding is characteristic of this type of tachycardia.

Figure 2. In the upper part of the image, activation map of the 2 atria and the non-coronary sinus during tachycardia, taken with the CARTO® navigation system in a left anterior oblique projection. The earliest zones (in red) correspond with the parts of the left and right atria proximal to the septum and the non-coronary aortic sinus. In the lower part of the image, the schema shows the anatomical relationship of both atria with the aortic root. CS indicates coronary sinus; LA, left atrium; NCS, non-coronary sinus; RA, right atrium.
Letters to the Editor

in the surface ECG without major changes to the tachycardia cycle length has been described, which indicates different preferential conduction channels for the transmission of impulses from the ectopic focus (Figure 2). The activation map during tachycardia reflects an early atrial electrogram in the non-coronary sinus of Valsalva, which precedes the activation of the right atrium in the bundle of His. The earliest activation in the right atrium is several milliseconds earlier than the earliest activity in the left atrium, due to the fact that the non-coronary sinus of Valsalva is closer to the bundle of His than to the left atrial anteroseptal region. As a result, before performing ablation from the aortic root, it is necessary to demonstrate that the local activation in the non-coronary sinus of Valsalva precedes that registered in the Hisian region (Figure 1). This case makes it clear that for some ATs that appear to originate in the para-Hisian zone and which would be impossible to ablate from the atrial endocardium, mapping the non-coronary sinus of Valsalva and applying radiofrequency to it can effectively eliminate the tachycardia.

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