Atrial Reentrant Tachycardia After Heart Transplantation

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A 68-year-old man presented with an incessant supraventricular tachycardia 3 months after heart transplantation. A dual-chamber pacemaker had been implanted immediately after surgery for bradyarrhythmias. Electrophysiological study was performed with a multipolar halo catheter (20 electrode pairs) in the right atrium and bi- or quadripolar catheters in a high lateral, His, and coronary sinus ostium position of the right atrium (Figure, top right). An atrial reentrant tachycardia was depicted in the transplanted atrium from the proximal recordings of the halo (electrodes 17, 18 to 9, 10), while simultaneously, sinus rhythm of the remaining right atrium of the recipient heart could be recorded from the distal halo electrodes (5, 6 to 1, 2), with both rhythms overlapping at electrodes 7, 8 (Figure, top left).

The CARTO mapping system provides a three-dimensional electroanatomic reconstruction of the heart chamber and a color-coded representation of the endocardial activation sequence. We mapped 15 points of the “old” atrium during sinus rhythm, giving the typical picture of a “focal” atrial activation sequence of the sinus node (Figure, bottom left). Of the “new” transplanted atrium, 111 positions were mapped during the ongoing atrial tachycardia, visualizing the typical signs of a macroreentrant tachycardia with adjacent sites of the earliest (red) and latest (violet) local activation (Figure, bottom right).

Curative radiofrequency catheter ablation of the reentrant tachycardia was primarily successful. However, atrial tachyarrhythmias recurred 3 months after the ablation. Because signs of tachycardiomyopathy developed, we decided to perform His bundle ablation as a definitive treatment. Six months later, the patient has normal heart function and is free of tachyarrhythmia recurrences.
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