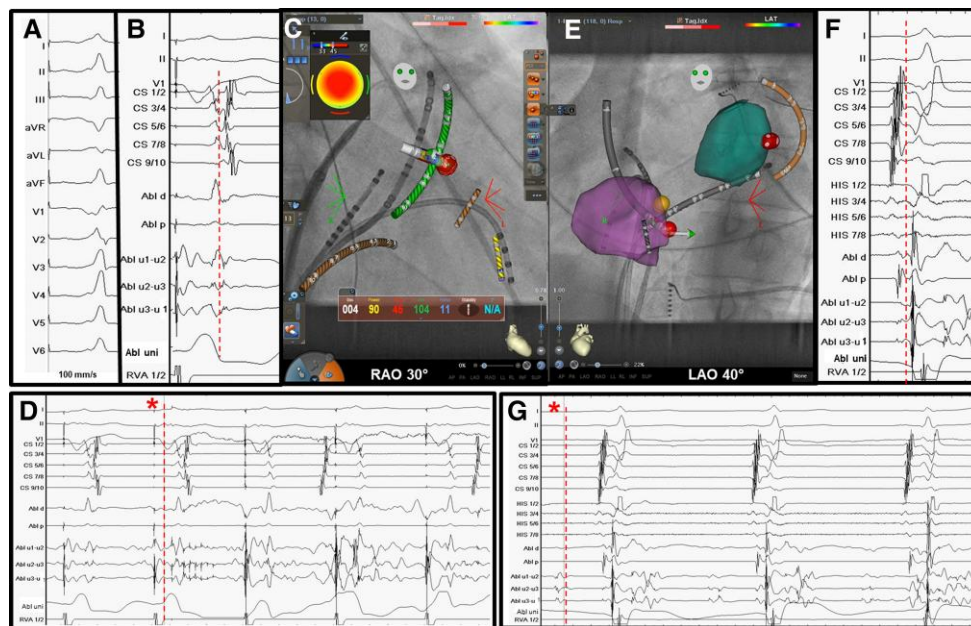


Accessory pathway ablation with a new ablation catheter containing microelectrodes and facilitating very-high-power short-duration ablation

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Case description

A 24-year-old male patient with previous catheter ablation for right septal accessory pathway (AP) presented with recurrence of preexcitation and palpitations (Panel A: 12-lead ECG with maximal preexcitation).

Electrophysiology study was performed with a multipolar catheter in the coronary sinus (CS), at the position of the his bundle (HIS) and in the right ventricular apex (RVA), confirming presence of an antegradely and retrogradely conducting accessory right paraseptal AP, as well as presence of a retrogradely conducting left lateral AP [Panel B: leads I, II, V1, CS electrodes

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from proximal (CS 9/10) to distal (CS 1/2), ablation catheter (Abl) electrodes distal (Abl d), proximal (Abl p), microelectrodes (Abl u1-u2, Abl u2-u3, Abl u3-u1), unipolar signal (Abl Uni), and RVA electrode (RVA 1/2)].

For mapping of left lateral AP single transseptal puncture and mapping of the mitral anulus was performed with the QDOT MICRO™ mapping and ablation catheter (Biosense Webster, Inc., Irvine, California, USA) during ventricular pacing (*Panel B, C*—right anterior oblique view). Radiofrequency (RF) catheter ablation with very-high-power short-duration (90 Watts over 4 s—settings that can only be used with this catheter in combination with the according generator) was performed (*Panel C + D*; start of ablation highlighted with asterix and red dotted line) at the site of earliest atrial activation with fusion of local ventricular and atrial electrogram (*Panel B*, red dotted line) resulting in immediate successful ablation. We added three bonus applications at this site with very-high-power short-duration (90 W, 4 s).

Mapping of right paraseptal AP was performed after puncture of the subclavian vein (*Panel E*—left anterior oblique view; *Panel A, F*). Power-controlled RF ablation was performed titrating energy from 20 to 40 W at the site of earliest ventricular activation with fusion of local atrial and ventricular electrogram (*Panel F*, red dotted line) for 120 s (one application) with loss of preexcitation within 3 s (*Panel F/G*, start of ablation highlighted with asterix and red dotted line). Ablation of right paraseptal pathway was performed using conventional power-controlled ablation due to safety considerations. Ablation of right paraseptal pathway was performed using conventional power-controlled ablation due to safety considerations. We considered use of the familiar power-controlled mode with titration of energy due to close vicinity to the atrioventricular nodal

conduction system and limited experiences with very-high-power short-duration ablation in this setting. Furthermore, up titration of energy facilitates cessation of energy application in case of AH-prolongation or atrioventricular block.

During six month follow-up, the patient did not experience any recurrence of palpitations and 12-lead ECG confirmed absence of delta wave.

To our knowledge, this is the first case of AP ablation using a new Ablation catheter facilitating high-resolution mapping with microelectrodes as well as ablation with very-high-power short-duration.

Patient Consent: Patient consent was obtained in accordance with the Committee on Publication Ethics (COPE) guidelines.

Conflict of interest: C.E. received travel grants from Biosense Webster, Medtronic, Biotronik, Abbott, and Daiichi Sankyo, speaker's honoraria from Biosense Webster, Medtronic, Abbott, and Daiichi Sankyo. C.-H.H. received travel grants and research grants by Boston Scientific, Biosense Webster and Cardiofocus and speaker's honoraria from Biosense Webster, Cardiofocus, and Boston Scientific. J.V. received travel grants from Bayer, Biosense Webster and Daiichi Sankyo, speaker's honoraria from Abbott, Daiichi Sankyo and Novartis. R.R.T. is a consultant of Biosense Webster, Biotronik and Boston Scientific and received Speaker's Bureau Honoraria from Biosense Webster, Medtronic, Boston Scientific and Abbot Medical.

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