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An accessory pathway with automaticity and bidirectional conductive capacity

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Citation

Bruyndonckx, L., Silva, M. D., Blom, N. A., & Bertels, R. A. (2021). An accessory pathway with automaticity and bidirectional conductive capacity. *Ep Europace*, 23(3), 379-379.
doi:10.1093/europace/euaa379

Version: Publisher's Version

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Downloaded from: <https://hdl.handle.net/1887/3238110>

Note: To cite this publication please use the final published version (if applicable).

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EP CASE EXPRESS

doi:10.1093/europace/evaa379

Online publish-ahead-of-print 4 January 2021

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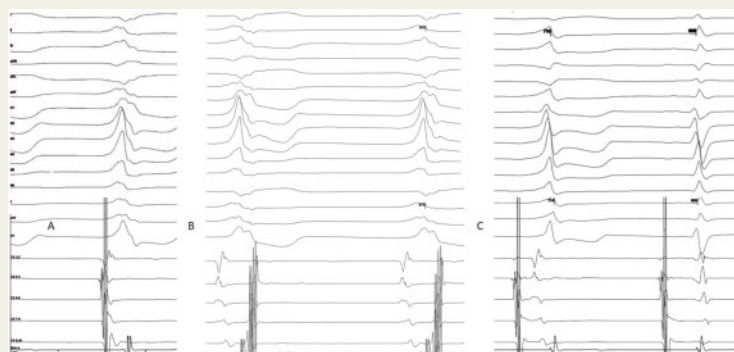
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We present a case of a 12-year-old boy referred for catheter ablation because of recurrent palpitations with documented paroxysmal supraventricular tachycardia. There was no structural heart disease and baseline electrocardiogram and Holter showed no ventricular pre-excitation. During the electrophysiological study, intermittent pre-excitation with the earliest ventricular activation located halfway the coronary sinus (CS) was observed. Two spontaneous ventricular rhythms with a right bundle branch block morphology were observed: the first showed simultaneous atrial and ventricular activation with atrial and ventricular earliest activation at the mid-CS (Panel A) and the second with earliest ventricular activation at mid-CS with retrograde atrial activation via the His bundle (Panel B). Additionally, an atrial rhythm was present arising from mid-CS both with and without pre-excitation (Panel C first and second complex, respectively). Transseptal puncture was performed and after radiofrequency ablation, the ectopic rhythms disappeared. Only sinus rhythm without pre-excitation remained, tachycardia was not inducible and both antegrade and retrograde block of the pathway was demonstrated. In conclusion, the electrophysiological study in this patient proved the presence of an accessory pathway that had inherent automaticity and bidirectional conductive capacity.



mid-CS with retrograde atrial activation via the His bundle (Panel B). Additionally, an atrial rhythm was present arising from mid-CS both with and without pre-excitation (Panel C first and second complex, respectively). Transseptal puncture was performed and after radiofrequency ablation, the ectopic rhythms disappeared. Only sinus rhythm without pre-excitation remained, tachycardia was not inducible and both antegrade and retrograde block of the pathway was demonstrated. In conclusion, the electrophysiological study in this patient proved the presence of an accessory pathway that had inherent automaticity and bidirectional conductive capacity.

The full-length version of this report can be viewed at: <https://www.escardio.org/Education/E-Learning/Clinical-cases/Electrophysiology>.

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