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Cooling of the atrioventricular node to unmask an accessory pathway

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A 34-year-old male with intermittent pre-excitation and atrioventricular (AV) reentrant tachycardia was referred to us due to an anteroseptal accessory pathway (AP) where attempts using radiofrequency ablation had failed. Positioning the catheter over the AP impaired conduction through the AP and lead to the disappearance of the pre-excitation after a few seconds [electrocardiogram (ECG)—Panel A].

As an alternative approach, the catheter tip was moved to the location of the AV node and cryomapping was performed, resulting in slowing of the AV nodal conduction and a temporary persistence of pre-excitation during (ECG—Panel B) and 20 s after cryomapping was stopped (ECG—Panel C). The optimal site for ablation could easily be mapped and a successful ablation was performed. The patient has been arrhythmia-free during a 24-month follow-up, the pre-excitation has not reappeared, and the AV nodal conduction has been normal.

In 1303 cryoablation procedures of substrates adjacent to the AV node, we observed 158 cases of transient first-, second-, or third-degree AV block during cryomapping/cryoablation. During a 24-month follow-up, no late AV block was found. Since transient AV block during cryomapping is benign, we judged that temporarily slowing down the AV nodal conduction by cryomapping was a safe procedure to obtain a reasonable time for adequate mapping of the AP for successful ablation.

The full-length version of this report can be viewed at: http://www.escardio.org/communities/EHRA/publications/ep-case-reports/Documents/Cooling-of-the-AV-node.pdf.

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