Resumption of dormant accessory pathway conduction with adenosine administration: a simple intervention to ensure successful accessory pathway ablation

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A 19-year-old with supraventricular tachycardia was referred for an electrophysiology study. Delta waves were absent and the HV interval 36 ms. Orthodromic anterograde reentrant tachycardia utilizing a left-septal accessory pathway (AP) was diagnosed and radiofrequency energy delivered at the site of earliest retrograde atrial activity during ventricular pacing. Loss of ventriculoatrial (VA) conduction occurred during ablation. Approximately 30 min post-ablation, administration of intravenous adenosine during ventricular pacing resulted in transient resumption of VA conduction (Panels A and B). As VA conduction was absent at various pacing rates and adenosine inhibits atrioventricular (AV) nodal conduction, our findings were consistent with transient retrograde AP conduction. Since VA conduction block persisted thereafter and for a total of 1 h post-ablation, the procedure was terminated. Unfortunately, there was recurrence of the index arrhythmia.

This case highlights the utility of adenosine in unmasking dormant retrograde AP conduction post-ablation. Adenosine’s effect in this case was not mediated by its effect on the AV node given the presence of VA conduction block prior to its administration. Rather, adenosine likely facilitated hyper-polarization of injured but still viable tissue at the AP atrial insertion site. Intra-procedural administration of adenosine may be valuable in identifying injured cardiac tissue, which may recover thereby resulting in future arrhythmia recurrence.
