

## Double Dissociated Tachycardias: Isorhythmic A-V Dissociation at Rapid Atrial and Ventricular Rates

David H. Spodick, MD, DSc

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A 44-year-old man with coronary artery disease was evaluated. The atrium (P waves) shows sinus rhythm (P axis approximately  $+80^\circ$ ). The ventricles are controlled by a junctional pacemaker until after beat number 13. Sinus rhythm then takes over with conduction through the junction and no change in the heart rate. The paroxysmal junctional tachycardia is at 118 bpm and the atrial (sinus) rate is approximately the same, though probably minimally slower during the dissociation (which would permit dissociation). During dissociated beats, the P-Q intervals are short (under 12 milliseconds) or absent (P simultaneous with QRS). Also typical of A-V dissociation, the P waves never get into early or mid diastole (if it were third-degree A-V block, P waves would be anywhere). Somewhat atypical is the occurrence of paroxysmal junctional tachycardia in an adult, as its occurrence is most frequent among children. As with many A-V dissociations, this may be a toxic rhythm. The T-wave configurations in  $V_2$  and  $V_3$  are unusual and T  $V_4$  and T  $V_5$  are bifid (T-U waves). The patient also has minimal QRS voltage for left ventricular hypertrophy. The vertical P wave axis suggests emphysema, unless this is actually an ectopic atrial tachycardia, which occasionally occurs with a P axis within the accepted range for sinus rhythm.

