ANSWER TO QUIZ AND CASE DISCUSSION

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Answer to quiz: Electrophysiology on page 79

1) It would be surprising to see a first-degree atrioventricular (AV) block while the cycle length is longer (812 ms) than during the tachycardia (406 ms).

2) The presence of a 2 :1 AV block rules out the presence of an accessory pathway, because atria and ventricles are both involved in the circuit. In panel B, the presence of a right accessory pathway can also be excluded because the initial wide QRS tachycardia has exactly the same cycle length as the one during narrow QRS tachycardia.

3) The sudden onset, and the beginning of the tachycardia sequence by an atrial ectopy are not in favor of a sinus tachycardia.

4) It is very unlikely to see spontaneous 1 :1 conduction through the slow pathway at a basic cycle length of 812 ms (panel B). Thus, it seems impossible to reach the effective refractory period of the fast pathway at 812 ms. The other point is the difference of polarity of the P wave on the left part of the tracing (panel A), exclusively positive – which suggests a sinus P wave - in comparison with the P wave on the beginning of the tracing (panel B) ; which is isobiphasic negative/positive, suggesting an atrial activity from another origin.

5) Panel A shows the beginning of an atrioventricular nodal reentrant tachycardia (AVNRT) with an atrial ectopy conducted through the slow pathway, after an anterograde jump (arrow). Then Panel B shows on the left a 2 :1 infra-Hissian AV block during AVNRT, followed by a 1 :1 conduction initially with aberrancy on the right bundle, and then with narrow QRS complexes. The atrial activity has an inverted polarity in comparison with the sinus P wave observed on panel A, suggesting a retrograde atrial activity. This atrial complex is equally located between two QRS complexes, after a cycle length which is the half of the cycle length during 1 :1 conduction (812 and 406 ms).

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