

# Not so usual

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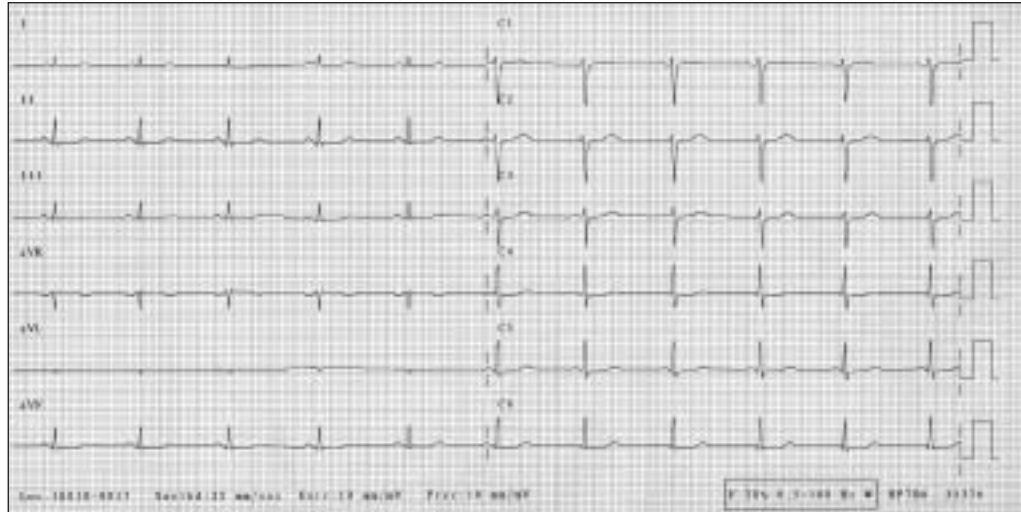


Figure 1.

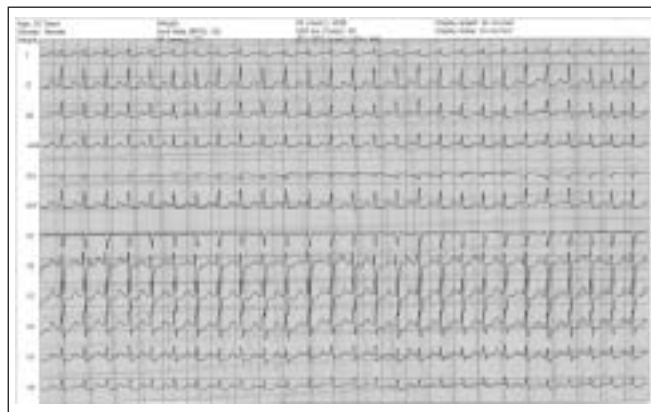


Figure 2A.

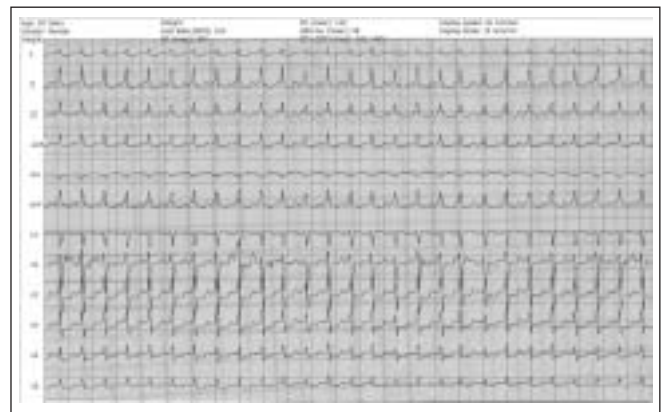


Figure 2B.

**A** 55-year-old female had been experiencing episodes of palpitations for 30 years. These palpitations could start at any moment of the day. Normally, these episodes were self-limiting. Last year, however, she visited the emergency ward because her complaints

did not terminate spontaneously, although after intravenous administration of adenosine they resolved. The ECGs during sinus rhythm and during palpitations are shown in figure 1 and figure 2 A and B, respectively.

Structural heart disease was ruled out, and she was referred for electrophysiological study (EPS) and catheter ablation using radio-frequency current (RFCA). During EPS, two types of narrow-QRS tachycardia were inducible as shown in figure 2A and B. What would be the underlying mechanism of these arrhythmias and what therapy would you suggest? ■

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**Answer**

You will find the answer on page 43.

## RHYTHM PUZZLE

### Answer rhythm puzzle (page 28)

Figure 2A shows a narrow-complex tachycardia (QRS 0.08 msec) at a rate of 210 beats/min. The inferior leads (II, III, and aVF) show slight s waves at the end of the QRS complexes. Lead aVR shows a small r. During sinus rhythm (figure 1), the QRS complexes in these leads do not show these features, suggesting that these are pseudo s/r waves and in fact represent atrial activation (negative P waves in II, III, and aVF, and positive P waves in aVR) during tachycardia, almost hidden in the QRS complex. These features are compatible with a common-type AV nodal re-entry tachycardia (AVNRT) with the impulse travelling anterogradely over the slow and retrogradely over the fast AV nodal pathway. The differential diagnosis is an atrial tachycardia with a long PR interval (RP<PR). The diagnosis of common-type AVNRT was confirmed at

EPS. The induction of AVNRT with a cycle length of 375 ms, which was similar to the clinical tachycardia, occurred after an AH jump of 103 msec. During the EPS, another tachycardia was also induced (figure 2B). This is an uncommon type of AVNRT with a reversed movement of the impulse travelling anterogradely over the fast and retrogradely over the slow AV nodal pathway giving an RP<PR on the ECG with negative P waves in II III, and aVF.

Such tachycardias are not life-threatening; anti-arrhythmic drugs are often the therapy of choice. However, RFCA is now also considered to be a first-line therapy with a high success rate. After RFCA with AV-nodal modification using the posterior approach, none of the AVNRT types were inducible anymore. ■