Diagnostic Challenge

Wide-complex tachycardia in a patient with syncope

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CASE HISTORY

A 24-year-old man presented to a community emergency department with a chief complaint of having a syncopal episode. He had no recollection of a prodrome prior to losing consciousness and found himself lying on the kitchen floor. There was no incontinence or tongue laceration. His past medical history was significant for Wolff-Parkinson-White syndrome that required ablation 2 weeks previously at the referral hospital. He had no history of seizures.

On examination, his glasses were broken and his face was bruised from the fall. His Glasgow Coma Scale score was 15, his pupils were equal and reactive, and there was no focal neurologic deficit. His heart sounds normal, without murmurs. His jugular venous pressure was not elevated, and his lung fields were clear. The abdomen was soft and nontender. His legs were not swollen. Symmetric peripheral pulses were palpable in the upper and lower limbs. His right groin was recently shaved, and there was a small resolving hematoma and a puncture site over the femoral artery.

A portable anteroposterior chest radiograph showed clear lung fields and no cardiac enlargement. Laboratory values found an initial troponin T of 0.01 μg/L (normal value ≤ 0.04 μg/L). Complete cell count, electrolytes, renal function tests, and thyroid-stimulating hormone were all within normal limits. A 12-lead electrocardiogram was obtained (Figure 1).

While in hospital, he had several episodes of chest pain, presyncope, and palpitations. Some of these episodes were caught on the rhythm monitor, and an example is shown in Figure 2.

QUESTION

What is the most likely diagnosis?

a. Ventricular tachycardia
b. Atrial fibrillation with aberrancy
c. Atrial fibrillation with pre-excitation (antidromic conduction)
d. None of the above

For the answer to this challenge, see page 180.

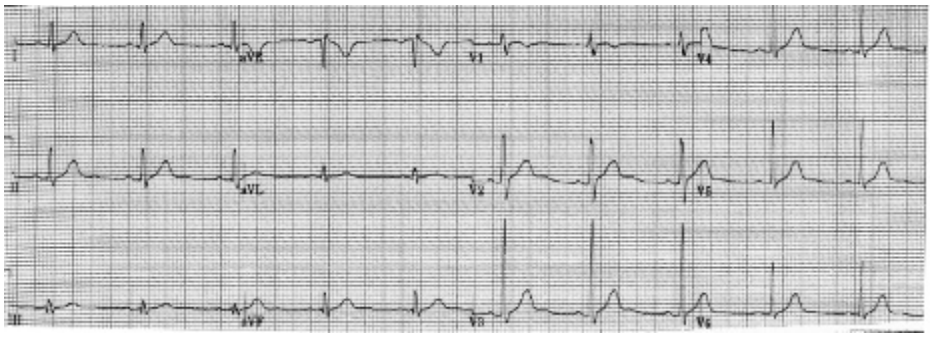

Figure 1. Twelve-lead electrocardiogram.

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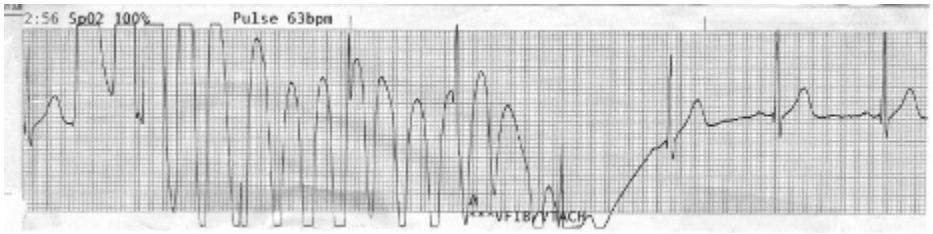

Figure 2. Rhythm strip during chest pain, presyncope, and palpitations.