

ECG CLINIC

Pseudo-apoplectic attacks

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Vignette

A 90-year-old man presents due to three brief episodes of loss of consciousness in the preceding 48 hours. He is on no regular medical therapy. His electrocardiogram (ECG) is shown in Figure 1.

Questions

- 1) What are the implications of the ECG abnormalities shown?
- 2) What is the most likely explanation for the patient's symptoms?

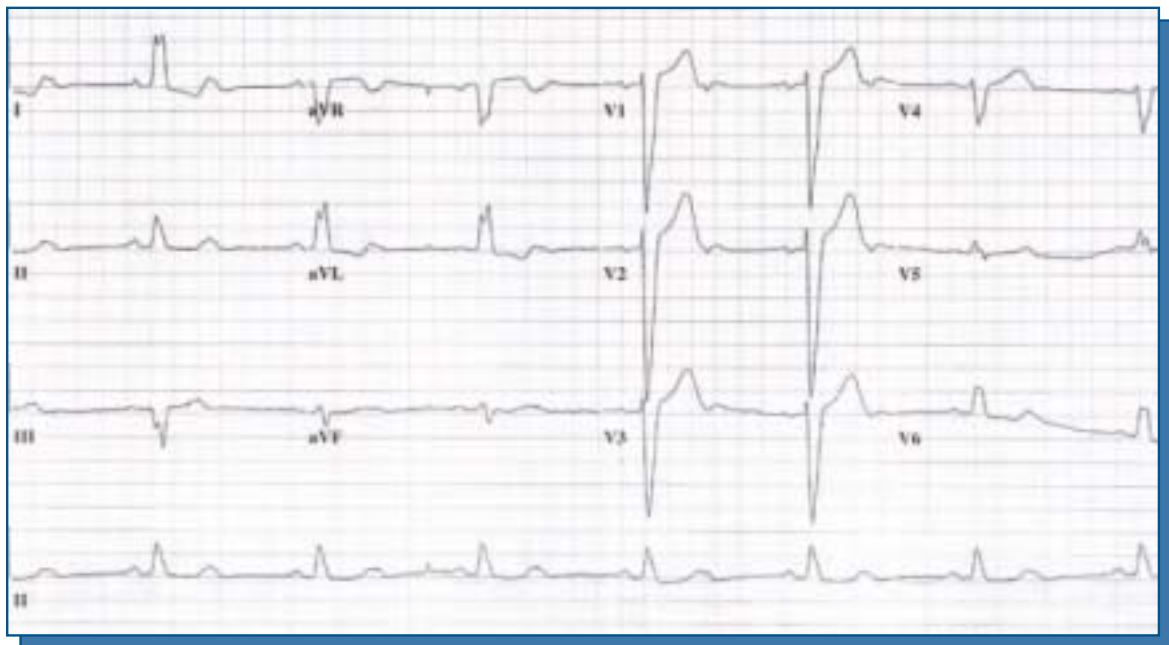


Figure 1

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Answers

1) The ECG shows what, at first glance, may appear to be a marked sinus bradycardia at 44 beats per minute. The QRS complexes are abnormally wide, with a left bundle branch block (LBBB) morphology. Close inspection reveals that the atrial rate is 88 beats per minute, with non-conducted P waves immediately following the T waves. This is most easily detected in lead VI, where the non-conducted P waves are well seen. Note that the lead II rhythm strip fails to reveal the problem because, in this lead, the P waves are concealed in the terminal portion of the T wave. This illustrates the importance of obtaining the rhythm strip which provides the best view of atrial activity when analyzing rhythm disturbances.

The patient is in 2:1 second degree heart block. The absence of two or more consecutively conducted P waves permitting analysis of the behaviour of the PR interval precludes strict classification of the block as Type I or Type II, as described by Mobitz. The presence of LBBB, however, indicates the presence of His-Purkinje conducting system disease below the level of the atrioventricular node. It is most likely that the block in this case is infra-nodal, within the right bundle branch. Type II second degree heart block, of which the present case may reasonably be considered a variation of the theme, implies important disease of a potentially fragile His-Purkinje conducting system and is an indication for pacemaker implantation.

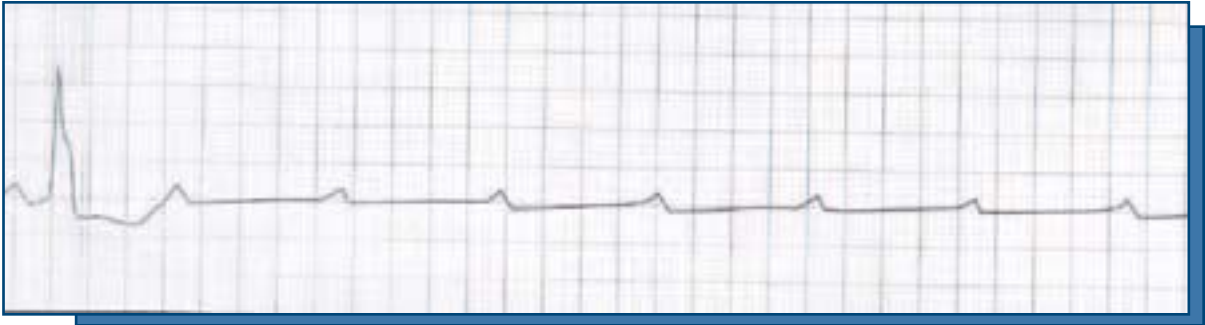


Figure 2

2) The patient was admitted to the hospital and placed on telemetry, pending arrangements for pacemaker implantation. A few hours later, he experienced a further episode of syncope and the monitor strip shown in Figure 2 was recorded. High-grade heart block is shown, with several non-conducted P waves and ventricular standstill. This is the classic picture of Adams-Stokes attacks, as originally described in the first half of the 19th century. The episodes of loss of consciousness, originally considered to represent “pseudo-apoplectic attacks,” are the result of transient ventricular standstill and consequent interruption of cerebral blood flow. The patient in this case underwent urgent pacemaker implantation and subsequently had no further attacks.