

Country cardiograms case 50: Answer

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On examination of the electrocardiogram (Fig. 1, page 74), the striking feature that is immediately apparent is the long RR interval near the beginning of the recording. P waves are best seen in this tracing in lead VI, and it is evident that close to the middle of this long RR interval there is a P wave that is not followed by a QRS complex (a “blocked” P wave).

The morphology of the next QRS complex is different than the other QRS complexes. This is a ventricular escape complex, and there is transient atrioventricular (AV) dissociation. The PR interval is otherwise constant at 0.225 seconds.

The remaining RR intervals are not constant because marked sinus arrhythmia (with a mean rate of 58 beats/min) is present, a not uncommon finding in the elderly. The distinctive features of right bundle branch block are present, with secondary ST and T wave changes in lead VI. Equivocal Q waves are present in leads III and aVF, which prompts consideration of an inferior myocardial infarction of undetermined age.

This electrocardiogram shows second-degree AV block. Given the constant PR interval when conduction through the AV node does occur, Mobitz type I block is ruled out. Mobitz type II block is strongly suspected, but cannot be diagnosed with certainty based on this tracing alone. Why not? A diagnosis of Mobitz type II block

requires the presence of 2 or more consecutive constant PR intervals preceding the blocked P wave. Because the blocked P wave is seen fairly early in this electrocardiogram, there is only 1 preceding PR interval to examine. Therefore, it is conceivable that 2:1 AV block, rather than Mobitz type II block, is present.

Regardless of these theoretical considerations, there is cause for concern. The right bundle is blocked, and the documented high-grade block suggests that conduction through the left bundle is in jeopardy. Given this patient’s history of dizziness and a recent near-catastrophic probable syncopal event, pacing must be urgently considered.

The presence of a ventricular escape complex following this episode of high-grade block is a potentially reassuring sign in the event that complete heart block develops. There is some evidence that an innate pacemaker may take over, although the RR interval is long at 2.6 seconds.

In this case, a glance at the monitor screen confirmed Mobitz type II block. Shortly thereafter, the patient’s rhythm changed to third-degree AV block, with a rate of 36 beats/min. Syncope and shock ensued. Resuscitation and pacing were required, with an eventual good outcome.

For the question, see page 74.

Competing interests: None declared.