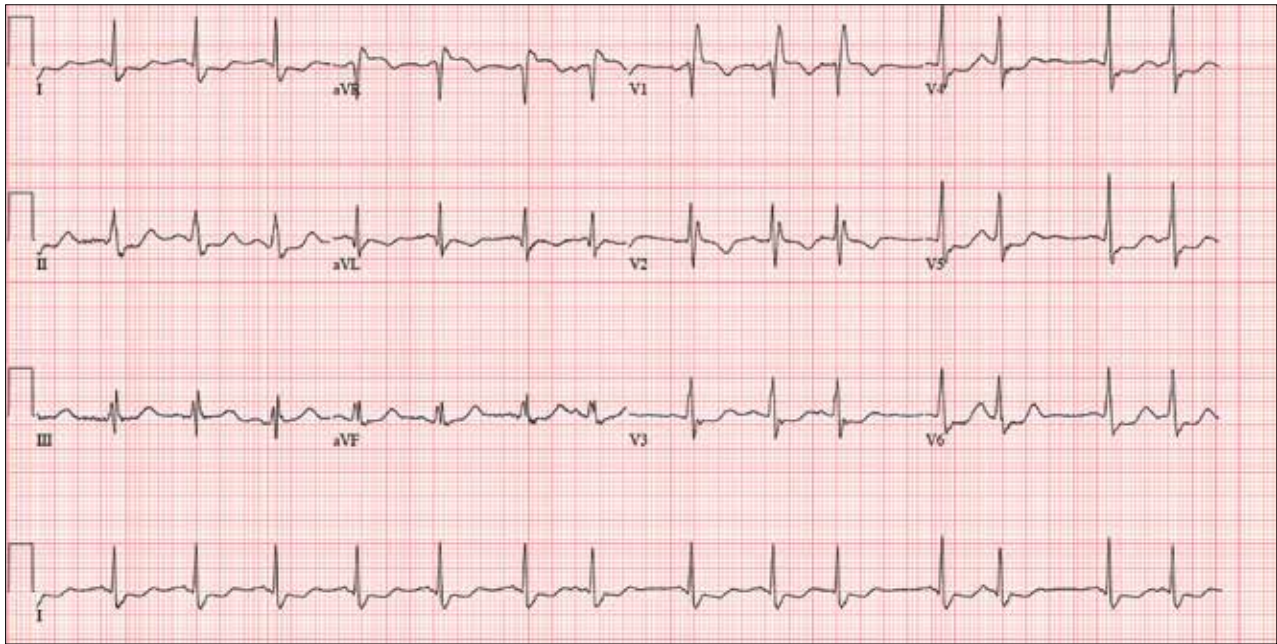


When Heart Problems Crop Up



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A 72-year-old farmer presents with heart palpitations he has had for the past three weeks. He fears he may be in atrial fibrillation and at risk for a stroke, stating that a few months ago his neighbor complained of palpitations (later attributed to atrial fibrillation) and had an embolic stroke due to a clot in the left atrium. The patient denies any history of cardiac arrhythmias, chest pain, syncope, or near-syncope. He does report occasional bouts of lightheadedness, which have increased in frequency. He is more concerned, though, by the strong, intensified heartbeats that he can feel in his throat.

Past medical and surgical histories are positive for type 2 diabetes, hypertension, and hyperlipidemia, as well as an appendectomy and cholecystectomy. He has also had several upper extremity fractures in the past, all of which have healed well.

The patient's wife died recently from complications following a hip replacement surgery, but he and his two sons continue to work on the 460-acre family farm he has owned all his life. A chronic smoker, he has smoked one to two packs of cigarettes per

day since he was 15. He does not drink alcohol but does consume one to two pots of coffee per day.

His medication list includes metformin, atorvastatin, and metoprolol. He hasn't taken his metoprolol for two months, because he switched pharmacies and the pills he received were a different color so he didn't believe they were the right drug (despite the label on the bottle). He has no known drug allergies, but sulfa drugs induce nausea.

The review of systems is remarkable for arthritic pain in his hands, shoulders, hips, knees, and ankles. The patient complains of gastric reflux and occasional diarrhea. He states his mood is still down from the loss of his wife, but he denies being depressed.

His weight is 232 lb and his height, 70 in. Vital signs include a blood pressure of 168/92 mm Hg; pulse, 84 beats/min; respiratory rate, 14 breaths/min⁻¹; and temperature, 99.2°F.

Physical exam reveals a weathered but otherwise healthy-looking male in no distress. He wears corrective lenses. The HEENT exam reveals surprisingly good dentition for a man his age. There are no carotid

bruits. The lungs have expiratory crackles in both bases that change with coughing.

The cardiac exam reveals an irregular rate of 88 beats/min with a grade II/VI early systolic murmur at the left upper sternal border. There are no extra heart sounds or rubs. The abdomen is soft and nontender with old, well-healed cholecystectomy and appendectomy incision scars. The peripheral pulses are strong and equal bilaterally. Arthritic changes are evident in the hands and feet. The neurologic exam is grossly intact.

An ECG is performed; it reveals a ventricular rate of 87 beats/min; PR interval, 156 ms; QRS duration, 138 ms; QT/QTc interval, 440/529 ms; P axis, 58°; R axis, 26°; and T axis, 105°. What is your interpretation of this ECG?

ANSWER

This ECG shows a sinus rhythm with premature atrial complexes, a normal axis, a right

bundle branch block, and T-wave abnormalities consistent with lateral ischemia.

Sinus rhythm is evidenced by the P waves' rate of ≥ 60 beats/min and ≤ 100 beats/min. The P waves that indicate premature atrial contractions have a different appearance than normal P waves, a result of the atrial activation from a site other than the sinus node. Because both the normal P wave and the premature atrial contraction conduct through the normal ventricular conduction system, the associated QRS complexes are identical.

A right bundle branch block is identified by a QRS duration > 120 ms with a terminal broad S wave in lead I and an RSR' complex in leads V_1 and V_2 . The ST segment depressions in precordial leads V_3 through V_6 propagate the diagnosis of lateral ischemia.

The patient was not found to have atrial fibrillation, and his palpitations and evidence of lateral ischemia resolved when he resumed taking his β -blocker. **CR**