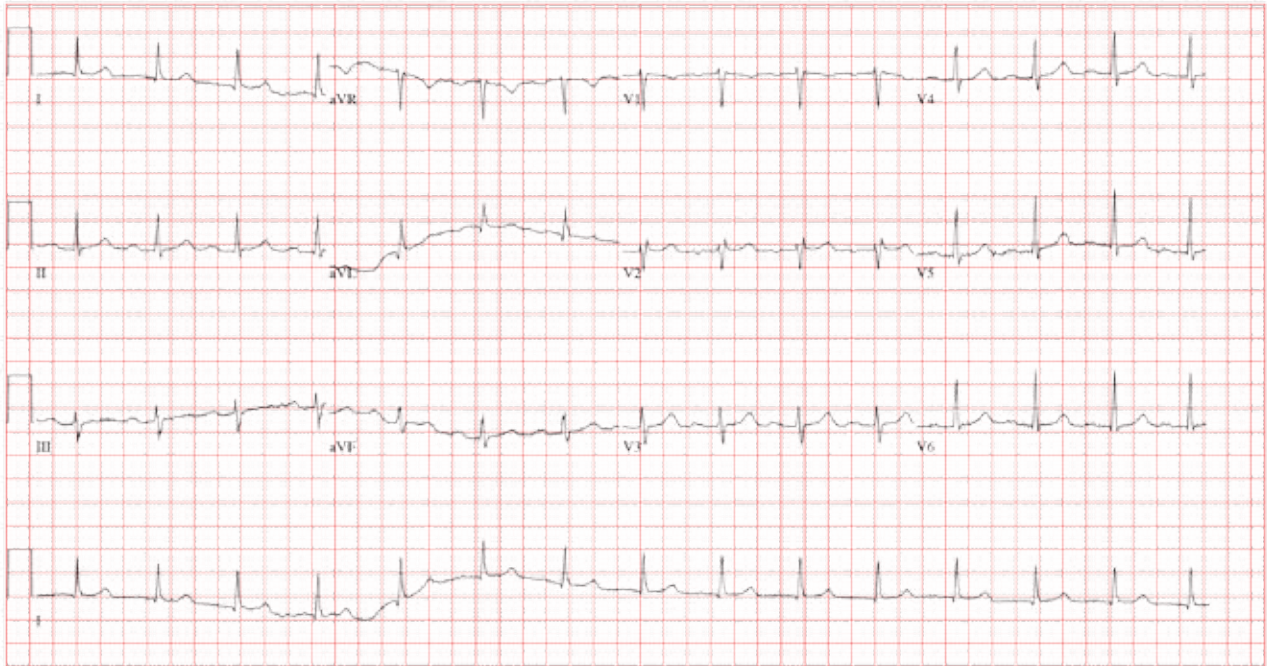


She Won't Quit—But Will Her Heart?



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A 58-year-old woman presents for preoperative workup for surgical repair of a distal left tibial fracture sustained while snowshoeing. She had been descending a side slope when she lost her footing. Her left snowshoe became entangled in a large granite rock, which defined the lateral wall of the path she was traversing. She has no prior orthopedic injuries.

Cardiac history is remarkable for hypertension, palpitations, and two episodes of paroxysmal atrial fibrillation. A Holter monitor, worn to help determine the etiology of her palpitations, captured the atrial fibrillation episodes, each of which was cardioverted within 48 hours of onset without complication. Following the second cardioversion, about 6 months ago, a novel oral anticoagulation agent was recommended, but she refused to take it because she felt such medication would interfere with her active lifestyle.

The patient is otherwise quite healthy and has been personally active in her preventive health maintenance.

Her current medications include lisino-

pril (5 mg/d) and aspirin (81 mg/d). She also takes a multivitamin daily. In the past 24 hours, she has taken two doses of acetaminophen/oxycodone (325/5 mg) for left ankle pain. She has no drug allergies.

The patient, an immigration attorney for a prominent law firm, is divorced and has no children. She works as a Zumba instructor on the weekends and has run 3 marathons within the past 2 years. She has never smoked or used recreational drugs, but she does partake in one or two glasses of wine with friends on weekends.

Family history is remarkable for hypertension in both parents and two of her three siblings. All are alive and otherwise healthy.

Review of systems reveals no current problems. She states she went through menopause about 10 years ago and was recommended to start estrogen therapy but refused this treatment.

Vital signs include a blood pressure of 118/88 mm Hg; pulse, 90 beats/min; temperature, 98.4°F; and O₂ saturation, 98% on room air. Her weight is 129 lb, and her height, 64 in.

Physical exam reveals a healthy, athletic woman in no distress. She wears an orthopedic boot on her left foot, but it isn't removed to examine the affected ankle. She wears contact lenses and has a posterior lingual brace on her lower teeth.

The HEENT exam is normal. The neck is supple without masses. There is no thyromegaly, carotid bruits, or jugular venous distention. The lungs are clear in all fields. The breasts are symmetrical without palpable nodules.

Cardiac exam is remarkable for a regular rate and rhythm at 90 beats/min. There is a soft end-systolic murmur consistent with mild mitral regurgitation. S_1 and S_2 are of normal intensity, and there are no extra heart sounds.

The abdomen is nontender with no organomegaly; the patient proudly shows her core strength and "a hint of a six-pack." The genitourinary exam is deferred. Peripheral pulses are strong and equal bilaterally. The neurologic exam is grossly intact.

A preoperative chest x-ray is performed; results are pending.

The ECG shows a ventricular rate of

89 beats/min; PR interval, 232 ms; QRS duration, 82 ms; QT/QTc interval, 364/442 ms; P axis, 86°; R axis, 23°; and T axis, 67°. What is your interpretation?

ANSWER

The correct interpretation is sinus rhythm with a first-degree atrioventricular (AV) block and possible left atrial enlargement. Criteria for sinus rhythm include a P wave for every QRS complex and a QRS complex for every P wave with a consistent PR interval.

Criteria for a first-degree AV block include a consistent PR interval > 200 ms in all leads. Criteria for left atrial enlargement include a P-wave duration > 120 ms in lead II or a downward deflection of the P wave in lead V_1 > 40 ms in length with > 1-mm negative deflection.

The P wave in leads II and V_1 , along with a murmur, is consistent with mitral regurgitation and a history of palpitations and paroxysmal atrial fibrillation. Left atrial enlargement should be considered. An echocardiogram was ordered and confirmed the diagnosis of left atrial enlargement in this patient. **CR**