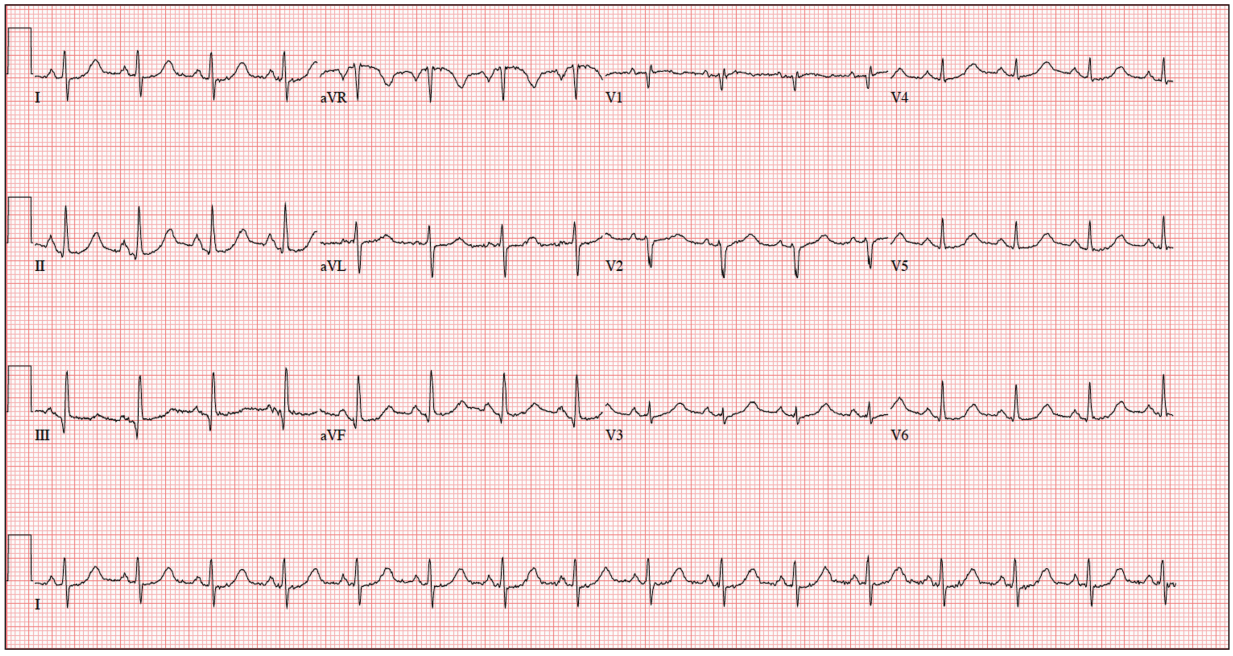
Leg Swelling Accompanied by Weight Gain



In the past two weeks, a 59-year-old postmenopausal woman has noticed swelling in her legs and a 10-lb weight gain. For the past three days, she has also had a vague, aching pain in the right upper abdominal quadrant, which surprises her, since her gall bladder was removed long ago. There is no prior history of chest pain, dyspnea, or systemic hypertension.

The patient does have a history of paroxysmal atrial fibrillation, palpitations, and pulmonary hypertension. She is chronically obese and has hypothyroidism. Surgical history is significant for cholecystectomy, hysterectomy, and left breast lumpectomy with axillary node dissection.

Her job at a local factory, assembling components for pressure washer pumps, requires her to sit for extended periods. She smokes 1.5 packs of cigarettes per day, a habit that began when she was 16. She drinks one or two beers daily and admits she has "many more" on the weekends. She has used marijuana in the recent past but not in the past month. She denies use of any other illicit drugs or homeopathic medications.

Her medication list includes levothyroxine sodium and ibuprofen. She says she's "supposed to be taking some kind of heart medication" but hasn't taken it for several months (and cannot remember the name). It was prescribed for her when she was on vacation in the Florida Keys and experienced similar symptoms. She sheepishly admits to trying her husband's sildenafil, as she's been told it works for pulmonary hypertension. She is allergic to sulfa and tetracycline.

Review of systems is remarkable for bilateral hip and ankle pain, which she attributes to her weight. She has had no change in bowel or bladder function. The remainder of the review is unremarkable.

Physical exam reveals a weight of 297 lb and height of 5′6″. Vital signs include a blood pressure of 128/88 mm Hg; pulse, 90 beats/min; respiratory rate, 14 breaths/

Lyle W. Larson, PhD, PA-C, is clinical faculty in the Department of Medicine, Division of Cardiology, Cardiac Electrophysiology, at the University of Washington, Seattle.

min^{-1}; temperature, 98.2°F; and O_2 saturation, 98.2%.

She is morbidly obese and in no distress. Pertinent physical findings include elevated jugular venous return, bilateral rales in both lung bases, a soft, early diastolic murmur best heard at the left lower sternal border, and a regular rate and rhythm. She also has mild tenderness to deep palpation in the right upper abdominal quadrant. Her lower extremities demonstrate 3+ pitting edema to the level of the knees bilaterally. There are no skin lesions, and the neurologic exam is grossly intact.

As part of her workup, you order an ECG, which reveals a ventricular rate of 94 beats/min; PR interval, 130 ms; QRS duration, 76 ms; QT/QTc interval, 394/492 ms; P axis, 50°; R axis, 80°; and T axis, 47°. What is your interpretation?

ANSWER

Pertinent findings on this ECG include normal sinus rhythm, right atrial enlargement, and a prolonged QT interval. Criteria for right atrial enlargement include P waves > 2.5 mm in leads II, III, and aVF and > 1.5 mm in leads V_1 and V_2. A prolonged QT interval is evidenced by a QTc > 470 ms using Bazett's formula (QTc = QT divided by the square root of the RR interval).

The patient's symptoms and ECG finding of right atrial enlargement coincide with pulmonary hypertension and right-sided heart failure. The prolonged QT interval may be due to her history of hypothyroidism; however, this has not been confirmed. **CR**