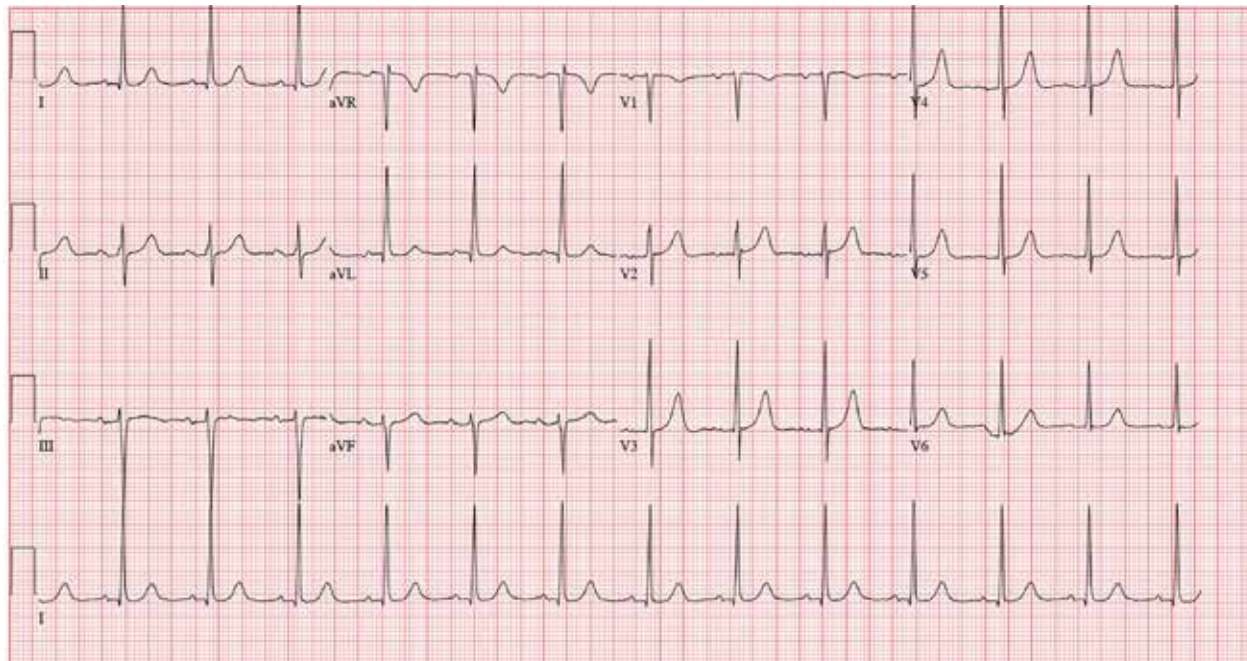


# Don't Worry, It's Just a Valve Problem

Lyle W. Larson, PhD, PA-C



**A** 49-year-old woman establishes care at your clinic after moving to the area. When asked about previous health care provision, she reports being followed for a “valve problem” and high blood pressure—although she admits she hasn’t kept many of her scheduled appointments. Two past echocardiograms documented valvular heart disease, although she can’t remember which valve. She was told it was nothing to worry about but that she should have follow-up. She also says she’s been prescribed medication to help with her hypertension but in the past 6 months hasn’t taken any because she’s been “too busy” to get the script filled.

She denies a history of chest pain or dyspnea on exertion, but she has had at least 2 episodes of palpitations and difficulty catching her breath that woke her from sleep. She also denies syncope or near-syncope.

Medical history is remarkable for resection of 2 lipomas on her left arm and leg. She has had 2 uncompliat-

ed pregnancies and 1 in which she had preeclampsia. All 3 deliveries were Cesarean. She is currently taking no medications and has no known drug allergies.

Family history is remarkable for hypothyroidism and type 2 diabetes (in her mother). When the patient was 4, her mother remarried, so she does not know her biological father’s health history. She has 2 sons and 1 daughter who are in good health.

Divorced for 7 years, the patient is not currently in a relationship. She is a project manager for a start-up software company where she works long, stressful hours and drinks “a lot” of coffee. She does not drink alcohol or smoke.

The review of systems is consistent with premenopausal symptoms including hot flashes, night sweats, and irregular menses. She has no gastrointestinal or urinary symptoms. She has had no recent weight loss or gain.

Vital signs include a blood pressure of 168/98 mm Hg; pulse, 80 beats/min; respiratory rate, 12 breaths/min<sup>-1</sup>; O<sub>2</sub> saturation, 96% on room air; and temperature, 98.2°F. Her height is 64 in and her weight, 164 lb.

Physical exam reveals a pleasant, well-kept woman in no distress. She wears contact lenses and has no



**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.

oropharyngeal lesions. Her teeth are capped with porcelain. There is no thyromegaly, jugular venous distention, or carotid bruits. The lungs are clear in all lung fields.

The cardiac exam is remarkable for a regular rate and rhythm of 80 beats/min, with a mid-to-late systolic murmur best heard when the patient is in the left lateral decubitus position. She has no extra heart sounds or rubs.

The abdomen is soft and nontender, with a well-healed Pfannenstiel surgical scar. The extremities have full range of motion with no peripheral edema. She has a recent full-sleeve tattoo on her right arm, which is well healed with no erythema. The neurologic exam is grossly intact.

As part of her workup, you order an ECG. It reveals a ventricular rate of 79 beats/min; PR interval, 184 ms; QRS duration, 76 ms; QT/QTc interval, 382/438 ms; P axis, 48°; R axis, -29°; and T axis, 33°. What is your interpretation of this ECG?

## ANSWER

The correct interpretation includes normal sinus rhythm, possible left atrial enlargement (LAE), and left ventricular hypertrophy (LVH).

Normal sinus rhythm is defined as a P for every QRS and a QRS for every P, with a normal PR interval and a rate > 60 and < 100 beats/min.

Criteria for LAE include a P wave > 120 ms in lead II and/or a biphasic P wave in lead V<sub>1</sub> with a downward deflection > 40 ms in length with a > 1-mm negative deflection. This ECG does not meet criteria for LAE; however, it is suspicious, particularly in the context of mitral regurgitation and LVH.

LVH is diagnosed using either the Sokolow-Lyon criteria (the sum of the S wave in V<sub>1</sub> and the R wave in V<sub>5</sub> or V<sub>6</sub> ≥ 35 mm) or the Cornell voltage criteria (the S in V<sub>3</sub> plus the R in aVL > 20 mm for women [ > 28 mm for men]).

LVH is usually not a target of therapy. Management is typically directed at treating the underlying pathology. For this patient, it is important to manage her hypertension and provide follow-up—including periodic echocardiography of her left atrium, mitral valve, and left ventricle—to determine response to hypertensive therapy. **CR**