Electrocardiogram in a 28-year-old woman with dyspnea on exertion

D. Luke Glancy, MD, and Fred A. Lopez, MD

Figure. Electrocardiogram in a 28-year-old woman with exertional dyspnea for 6 months. See text for explication.

A 28-year-old HIV-infected woman with dyspnea on exertion for 6 months had no history of acute rheumatic fever or opportunistic infections and no family history of heart disease. Her CD4 count 3 months earlier was 473/ μ L, and she was adherent with her antiretroviral therapy. On physical examination her neck veins were normal, as were her carotid pulses. The chest was clear to auscultation. A 1+/4+ left parasternal (right ventricular) lift was felt, and the left ventricular impulse was normal. The first heart sound was loud and split. The second heart sound was loud and palpable in the second left intercostal space. Heard at the cardiac apex were a soft pansystolic murmur of mitral regurgitation and an early low-medium pitched third heart sound immediately followed by a typical diastolic murmur of mitral stenosis. An electrocardiogram was normal except for signs of left atrial enlargement: a negative terminal

portion of the P wave in lead V1 ≥ 0.1 mV in amplitude and ≥ 0.04 seconds in duration (2); P waves in leads II, III, aVF, V3, and V4 ≥ 0.12 seconds in duration (3); and bifid with >0.04 seconds between the 2 peaks (4) in leads III and V3 (*Figure*).

An echocardiogram explained how a patient with a third heart sound could have a typical murmur of mitral stenosis

From the Sections of Cardiology, Departments of Medicine, Louisiana State University Health Sciences Center and the Interim LSU Hospital, New Orleans, Louisiana.

Note: This patient, believed to be the first in the United States and the second in the world reported to have both HIV infection and atrial myxoma, was described in detail in the *Journal of the Louisiana State Medical Society* (1). The electrocardiogram, however, was neither illustrated nor described in detail in that report.

Corresponding author: D. Luke Glancy, MD, 7300 Lakeshore Drive, #30, New Orleans, LA 70124 (e-mail: dglanc@lsuhsc.edu).

by demonstrating a large left atrial myxoma that fell into the mitral orifice early in each diastole causing a “tumor plop” followed by a mitral stenosis murmur because the orifice of the valve was almost completely occluded. The mean diastolic pressure gradient across the mitral valve was 18 mm Hg as measured by echo-Doppler. Because the hemodynamics of left atrial myxoma and mitral stenosis are so similar, it is not surprising that both the physical exam and the electrocardiogram would be similar in the two conditions, with P waves suggesting left atrial enlargement being early electrocardiographic findings in both. The patient

underwent uneventful operative removal of a $5 \times 4 \times 8.5$ cm left atrial myxoma.

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3. Kasser I, Kennedy JW. The relationship of increased left atrial volume and pressure to abnormal P wave on the electrocardiogram. *Circulation* 1969;39(3):339–343.
4. Thomas P, DeJong D. The P wave in the electrocardiogram in the diagnosis of heart disease. *Br Heart J* 1954;16(3):241–254.

Avocations

Spring at the Dallas Arboretum. Photo copyright © Rolando Solis, MD. Dr. Solis is an interventional cardiologist practicing at Baylor Medical Center at Garland and the Heart Hospital Baylor Plano (e-mail: rmsolis@me.com).