Wolff-Parkinson-White–type ventricular preexcitation mimicking left ventricular hypertrophy and an inferoposterior myocardial infarct

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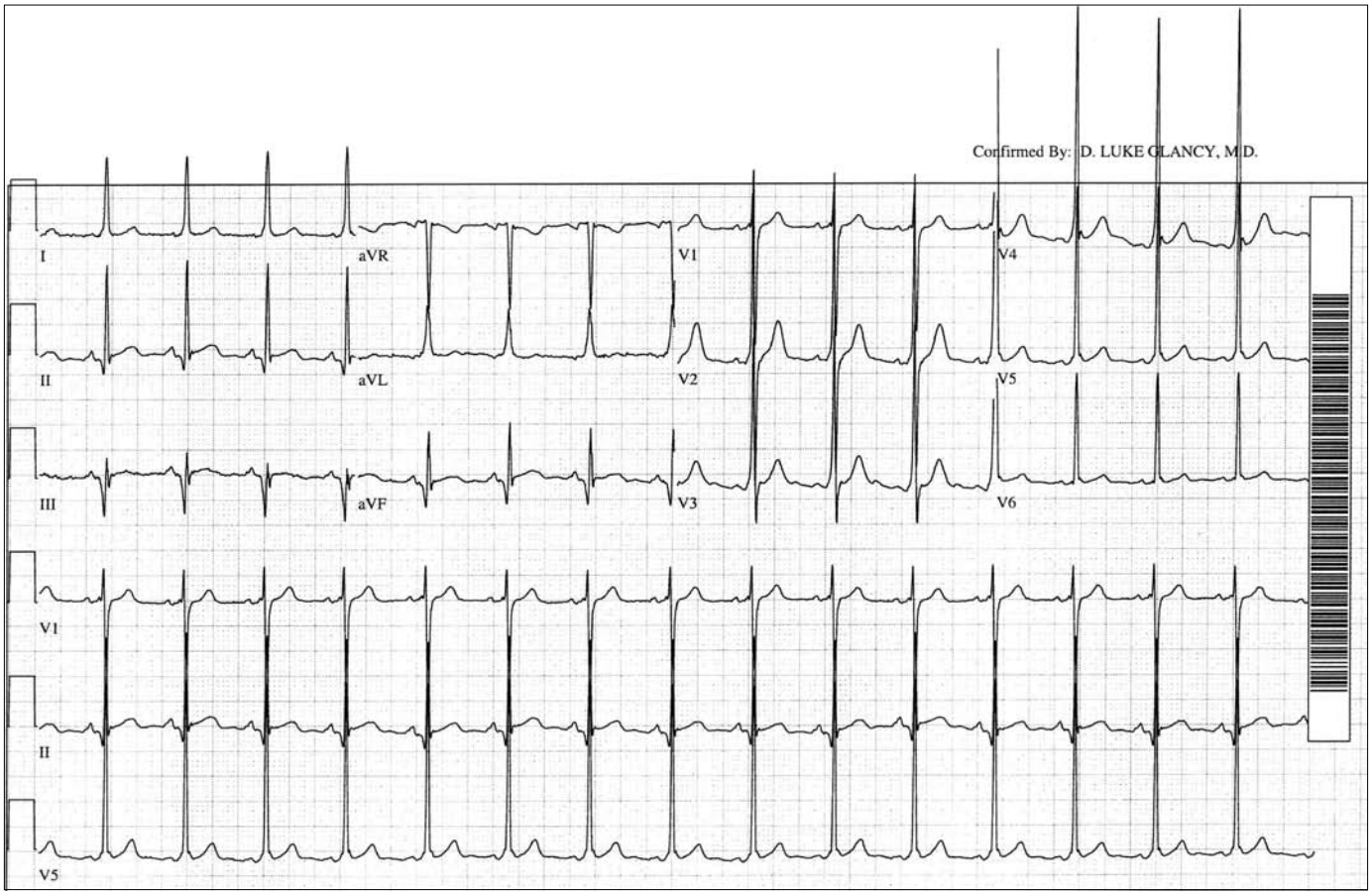

Figure. Electrocardiogram obtained during hospitalization for trauma. See text for explication.

The electrocardiogram *(Figure)* meets at least two commonly used criteria for left ventricular enlargement: the R wave in V_5 or V_6 > 2.6 mV, i.e., >26 mm with the usual standardization of 1.0 mV = 10 mm (here RV_5 is 35 mm); and SV_1 + RV_5 or RV_6 > 3.5 mV, i.e., >35 mm (here SV_1 + RV_5 = 57 mm). Broad and deep Q waves in leads II, III, and aVF with broad and tall R waves in leads V_1 and V_2 are consistent with an inferoposterior myocardial infarct of indeterminate age. The patient's age of 19 years, however, extends the limits of normal for SV_1 + RV_5 voltage to 60 mm (1) and makes myocardial infarction highly unlikely. Even more importantly, the electrocardiogram is typical of Wolff-Parkinson-White–type ventricular preexcitation, with a short P-R interval of 0.11 seconds, a long QRS duration of 0.12 seconds, and a delta wave visible in every lead except aVR and V_6. Delta waves are responsible for the Q waves in leads II, III, and aVF and the R waves in leads V_1 and V_2.

Wolff-Parkinson-White–type ventricular preexcitation is a notorious mimicker and can imitate right or left ventricular enlargement, right or left bundle branch block, and an infarct

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of various segments of the ventricular myocardium, in each instance dependent on the location of the accessory pathway (2). This patient probably has a posteroseptal accessory pathway (3, 4). Although repolarization is nearly normal in this patient, in many of those with Wolff-Parkinson-White–type preexcitation the QRS abnormalities are accompanied by repolarization changes that may be mistaken for ischemia. In addition, false-positive exercise tests have been reported (2). Finally, when the atrioventricular reciprocating tachycardia that often occurs in these patients is antidromic, i.e., antegrade over the accessory pathway and retrograde via the atrioventricular conduction system, the arrhythmia is often misdiagnosed as ventricular tachycardia.

The electrocardiographic abnormality in this patient was an incidental finding. He was admitted to the hospital because of being struck by an automobile, which resulted in a comminuted fracture of his right femur, a laceration of his right superficial femoral artery, and extensive soft tissue damage. He underwent multiple operations without cardiac difficulty, and at no time was a history of cardiac disease obtained.

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