ECG in a 49-Year-Old Man With Chest Pain

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Figure 1: ECG recorded on the patient’s arrival at another hospital. See text for explication.

What is your diagnosis?

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ECG of the Month
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DIAGNOSIS: Sinus rhythm (rate, 97 beats/min); two episodes of AV dissociation with an accelerated idioventricular rhythm (rate, 103 beats/min) dissociated from sinus rhythm; the two rhythms produce numerous fusion QRS complexes; acute inferoposterior myocardial infarction; left atrial enlargement.

The first QRS is sinus-initiated. The second through the eighth QRS complexes are fusion complexes that progressively look more like accelerated idioventricular complexes and less like sinus-initiated complexes. The ninth QRS is a ventricular premature complex, and the next three complexes are sinus-initiated. The last five QRSs are fusions, again looking progressively more like accelerated idioventricular complexes and less like sinus-initiated complexes.

Q waves with ST-segment elevation in the inferior leads and tall R waves with ST-segment depression in the anterior precordial leads indicate acute inferoposterior myocardial infarction. Accelerated idioventricular rhythm is common with acute myocardial infarction, and, in contrast to ventricular tachycardia, does not worsen prognosis. P-wave duration >0.12 s in the inferior leads suggests left atrial enlargement.

In acute inferior myocardial infarction, the culprit lesion is in the right coronary artery four times as often as it is in the left circumflex coronary artery. In this patient, however, four findings suggest that the left circumflex coronary artery is the culprit: ST elevation in lead I, ST elevation lead II > lead III, ST depression V<sub>1</sub> and V<sub>2</sub> and ST depression ≥1 mm (0.1 mV) in lead aVR. The patient was initially seen at another hospital where the ECG was performed, and the peak CK level was 1,764 U/L (reference < 230) with an MB fraction of 626 ng/ml (reference < 4.0). His coronary arteriograms at our institution four days later showed 70% narrowing of the left anterior descending coronary artery in its midportion, 80% narrowing of the mid-left circumflex, and 80-90% narrowing of the mid-right. Both the left circumflex and the right coronary arterial lesions were stented.

REFERENCES


Dr. Glancy is a Professor of Medicine and Dr. McShurley is a Fellow of Cardiovascular Diseases at the Louisiana State University Health Sciences Center in New Orleans.