

Chest pain. Chest pain. Goin' around my brain

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In the early hours of the morning, a 34-year-old Caucasian man arrived by ambulance at a community hospital emergency department (ED). He complained of severe chest pain that had been present for two days and worsened a few hours prior to admission. The pain radiated to his left arm and back and was accompanied by shortness of breath, nausea and vomiting. Based on the presence of hypotension, tachycardia, and ST-segment elevation in lead II, paramedics suspected acute myocardial infarction (AMI).

The patient did not recall any prior cardiac events; however, based on his electrocardiogram, an internist had advised him that he had coronary artery disease and a previous MI. Despite the absence of cardiac symptoms, the patient was being treated with nitroglycerine patches and diltiazem. ED staff suspected that he used street drugs, but this was never confirmed.

Physical examination revealed a thin, young man in severe pain. He was in sinus rhythm with a pulse of

125 beats/min, supine blood pressure of 93/45 mm Hg, and respiratory rate of 37 breaths/min. His skin was pale, mottled and cool. Jugular veins were distended and carotid pulses diminished bilaterally. The chest was clear to auscultation, but heart sounds were obscured by the patient's moaning. Radial and femoral pulses were palpable, but pedal pulses were absent. There was no dependent edema. A 12-lead ECG (Fig. 1) revealed diffuse anterolateral ST-segment elevation with reciprocal changes inferiorly.

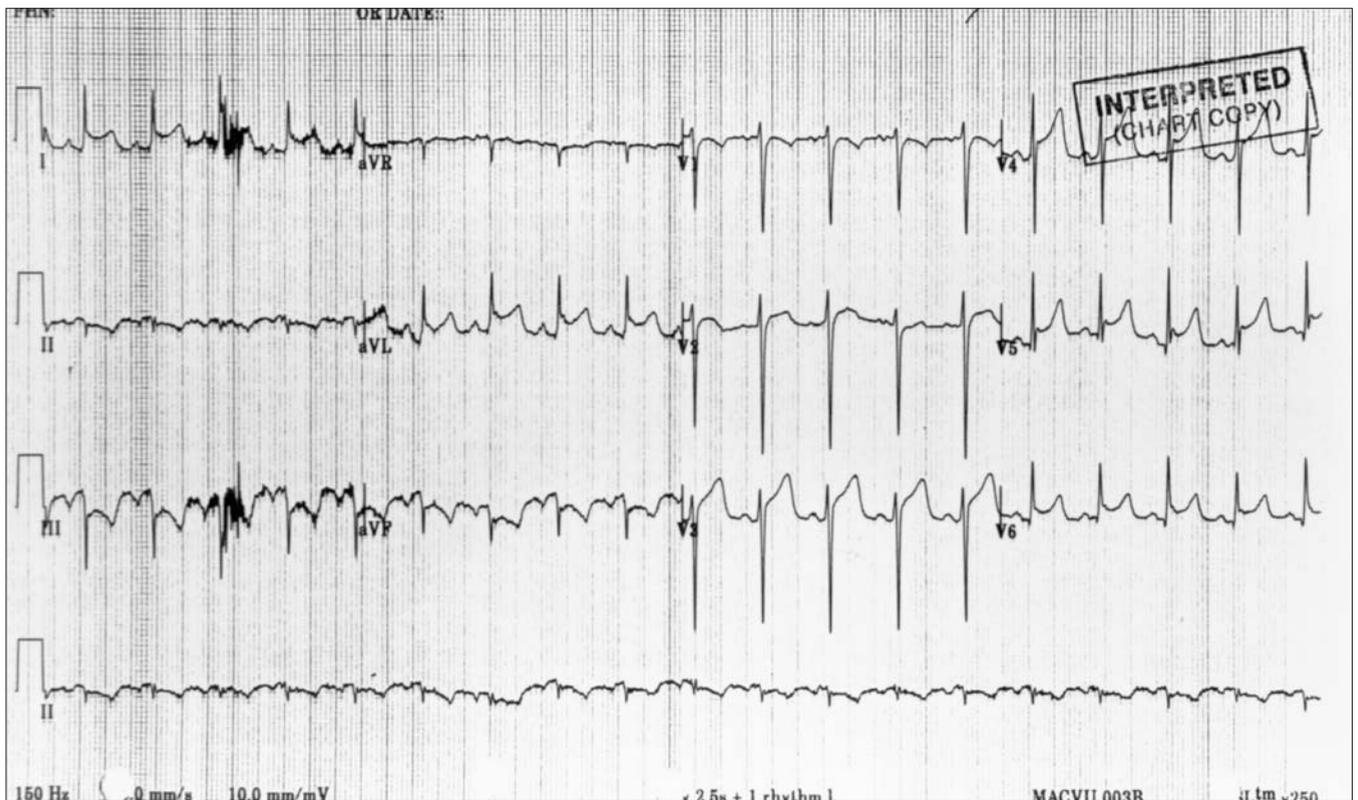


Fig. 1. 12-lead ECG demonstrating sinus tachycardia with diffuse ST-segment elevation across the antero-lateral precordial leads, with reciprocal changes in the inferior leads

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The upright portable anteroposterior (AP) chest x-ray is shown in Figure 2.

Shortly after arrival, the patient's blood pressure dropped to 70 mm Hg by palpation and he became increasingly lethargic. He was therefore intubated using rapid sequence induction. A right subclavian central venous line was inserted and dopamine started, after which a nasogastric tube and urinary catheter were inserted.

The correct diagnosis (and appropriate course of action) is:

- A. Massive AMI with cardiogenic shock (cardiac catheterization and primary angioplasty)
- B. Aortic dissection with coronary artery occlusion and pericardial tamponade (transesophageal echocardiography or aortography)
- C. Ruptured sinus of Valsalva aneurysm (emergent cardiothoracic surgical consultation and repair)
- D. Massive pulmonary embolism (intravenous tPA and heparinization)

For the Answer to this Challenge, see page 278.