

### QUESTION

A 65-year-old male patient with a long history of hypertension and hyperlipidemia presents to the emergency department with a 2-day history of severe, tearing chest pain that radiates to his left arm. He reports a sudden onset of symptoms while watching television. He has no known allergies and is currently on lisinopril and atorvastatin. His vital signs are: temperature 37.8°C, heart rate 110 bpm, blood pressure 180/100 mmHg, and oxygen saturation 92% on room air. Physical examination reveals a 2/6 systolic murmur at the left sternal border. ECG shows sinus tachycardia with ST-segment depression in leads V1-V4. Laboratory tests show a troponin I level of 0.15 ng/mL and a D-dimer level of 1.2 µg/mL. The patient is currently on oxygen at 2 L/min via nasal cannula.

### ANSWER

The patient's presentation is highly suggestive of an acute coronary syndrome (ACS), specifically a non-ST-elevation myocardial infarction (NSTEMI). The tearing chest pain, radiating to the left arm, and the presence of ST-segment depression on ECG are key findings. The elevated troponin I level and D-dimer level further support the diagnosis. The patient's history of hypertension and hyperlipidemia, along with his current medications, are also relevant. The physical examination finding of a 2/6 systolic murmur at the left sternal border may indicate aortic regurgitation, which is a common complication of aortic dissection. The patient's vital signs, including tachycardia and hypertension, are also consistent with ACS. The patient's oxygen saturation is slightly low, which may be due to the underlying condition or the low flow of oxygen.

**KEYWORDS:** acute coronary syndrome, chest pain, troponin, D-dimer, ECG, hypertension, hyperlipidemia

### QUESTION

A 45-year-old female patient with a long history of rheumatoid arthritis (RA) presents to the emergency department with a 2-day history of severe, tearing chest pain that radiates to her back. She reports a sudden onset of symptoms while walking. She has no known allergies and is currently on prednisone and methotrexate. Her vital signs are: temperature 38.2°C, heart rate 100 bpm, blood pressure 160/90 mmHg, and oxygen saturation 95% on room air. Physical examination reveals a 3/6 systolic murmur at the left sternal border. ECG shows sinus tachycardia with ST-segment depression in leads V1-V4. Laboratory tests show a troponin I level of 0.12 ng/mL and a D-dimer level of 1.5 µg/mL. The patient is currently on oxygen at 2 L/min via nasal cannula.

The patient's presentation is highly suggestive of an acute coronary syndrome (ACS), specifically a non-ST-elevation myocardial infarction (NSTEMI). The tearing chest pain, radiating to the back, and the presence of ST-segment depression on ECG are key findings. The elevated troponin I level and D-dimer level further support the diagnosis. The patient's history of rheumatoid arthritis (RA) and her current medications, including prednisone and methotrexate, are also relevant. The physical examination finding of a 3/6 systolic murmur at the left sternal border may indicate aortic regurgitation, which is a common complication of aortic dissection. The patient's vital signs, including tachycardia and hypertension, are also consistent with ACS. The patient's oxygen saturation is slightly low, which may be due to the underlying condition or the low flow of oxygen.

**KEYWORDS:** acute coronary syndrome, chest pain, troponin, D-dimer, ECG, rheumatoid arthritis, prednisone, methotrexate