

QUESTION

A 65-year-old male with a long history of hypertension and hyperlipidemia presents to the emergency department with acute onset of chest pain and shortness of breath. He reports the pain is a pressure-like sensation, radiating to his left arm and jaw, and is not relieved by rest or nitroglycerin. He has a 20-pack-year smoking history and is on chronic aspirin and statin therapy.

On arrival, he is tachycardic (heart rate 110 bpm) and tachypneic (respiratory rate 22 breaths per minute). His blood pressure is 180/100 mmHg. Physical examination reveals clear lung fields, no crackles, and no murmurs. An electrocardiogram (ECG) shows ST-segment depression in leads II, III, and aVF, and ST-segment elevation in leads V1, V2, and V3. Arterial blood gas analysis shows a pH of 7.35, a partial pressure of oxygen (PO₂) of 95 mmHg, and a partial pressure of carbon dioxide (PCO₂) of 40 mmHg. Serum troponin I is elevated at 0.15 ng/mL.

Test	Result	Reference Range
ECG	ST-segment depression in leads II, III, and aVF; ST-segment elevation in leads V1, V2, and V3	Normal
Arterial blood gas	pH 7.35, PO ₂ 95 mmHg, PCO ₂ 40 mmHg	pH 7.35-7.45, PO ₂ 80-100 mmHg, PCO ₂ 35-45 mmHg
Serum troponin I	0.15 ng/mL	<0.04 ng/mL

What is the most likely diagnosis?

A) Acute coronary syndrome (ACS)

ANSWER



Correct Answer: A
The patient's presentation is consistent with an acute coronary syndrome (ACS), specifically a non-ST-elevation myocardial infarction (NSTEMI). The ST-segment depression in leads II, III, and aVF, and ST-segment elevation in leads V1, V2, and V3, along with the elevated troponin I, are diagnostic of ACS.

Incorrect Answers: B, C, D, E
The patient's presentation is not consistent with a pulmonary embolism (PE), aortic dissection, or aortic aneurysm. The physical examination findings, including clear lung fields and no crackles, are also inconsistent with a PE. The patient's blood pressure is elevated, which is not typical for aortic dissection or aortic aneurysm.