

QUESTION

A 65-year-old male patient with a long history of hypertension and hyperlipidemia presents to the emergency department with acute chest pain. The pain is described as a heavy, crushing pressure in the center of the chest, lasting for approximately 30 minutes. The patient has a history of smoking 20 cigarettes per day for 30 years and has a family history of premature coronary artery disease. He is currently on treatment with lisinopril, atorvastatin, and aspirin. The patient's vital signs are: blood pressure 180/110 mmHg, heart rate 110 bpm, respiratory rate 20 breaths per minute, and oxygen saturation 92% on room air. Physical examination reveals a pale, diaphoretic patient with a third heart sound (S3) and a mild crackle in the right lower lung field. The ECG shows ST-segment depression in leads II, III, and aVF, and ST-segment elevation in leads V1, V2, and V3. The patient's chest X-ray is unremarkable. The patient is diagnosed with acute coronary syndrome (ACS) and is admitted to the cardiac care unit.

ANSWER

The patient's presentation is consistent with a non-ST-elevation myocardial infarction (NSTEMI). The key features include a heavy, crushing chest pain, ST-segment depression in leads II, III, and aVF, and ST-segment elevation in leads V1, V2, and V3. The patient's risk factors, including hypertension, hyperlipidemia, and smoking, further support this diagnosis. The physical examination findings, such as the third heart sound (S3) and mild crackle, suggest left ventricular dysfunction. The patient's chest X-ray is unremarkable, which is typical for ACS. The patient's current treatment with lisinopril, atorvastatin, and aspirin is appropriate for his underlying conditions.

The patient's acute chest pain is a medical emergency, and prompt treatment is essential to reduce morbidity and mortality. The patient should receive aspirin, a P2Y12 inhibitor (such as clopidogrel or ticagrelor), and a beta-blocker (such as metoprolol) as soon as possible. The patient should also receive a statin (such as atorvastatin) and a nitrate (such as nitroglycerin) for symptom relief. The patient's blood pressure should be controlled, and he should be monitored for signs of heart failure and arrhythmias.

DISCUSSION



The diagram illustrates the relationship between ST-segment depression in leads II, III, and aVF and ST-segment elevation in leads V1, V2, and V3. This pattern is characteristic of a non-ST-elevation myocardial infarction (NSTEMI) or unstable angina (UA). The overlapping area is shaded and labeled 'NSTEMI/UA'.

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