

Pulmonary embolism mimicking myocardial ischemia in an Emergency Department

A. Nawaz, I. Ahmed, A. Butt.

Emergency Department, Cavan General Hospital, Lisdarn, Cavan Town, Co. Cavan, Ireland.

Abstract

Presentation

A man in his seventies presented with sudden central chest pain radiating to both arms with diaphoresis. Observations, ECGs, and serial troponins were normal.

Diagnosis

Targeted history revealed previous unilateral calf pain and recent long-haul travel. D-dimer was elevated and CT pulmonary angiography confirmed multiple segmental and sub segmental pulmonary emboli without right heart strain.

Treatment

Therapeutic anticoagulation was commenced and later transitioned to apixaban for six months.

Discussion

This case highlights the need for structured history taking and avoidance of diagnostic anchoring in emergency chest pain assessment.

Introduction

Chest pain is a frequent emergency presentation where rapid decisions are made under time pressure. In that context, the commonest diagnosis can dominate early thinking. Pulmonary embolism is common and potentially fatal, and may present without classical respiratory symptoms. It should remain a “must not miss” diagnosis in emergency department even when acute coronary syndrome appears more likely.^{1,2}

Case Report

A man in his seventies presented at night with sudden central chest pain radiating to both arms, associated with diaphoresis. Symptoms began two hours earlier while sitting and had improved by arrival. He reported mild chest heaviness and bilateral arm numbness, but denied dyspnoea, pleuritic pain, cough, haemoptysis, syncope or fever.

His history included coronary artery disease with two previous coronary stents and surgical aortic valve replacement. On arrival, respiratory rate was 18/min, heart rate 78/min, oxygen saturation 97% on room air and he was afebrile. Cardiovascular and respiratory examinations were unremarkable.

Acute coronary syndrome was initially prioritised. Aortic pathology and pulmonary embolism were also considered because symptoms were sudden and severe at rest. ECG showed sinus rhythm without ST-segment or T-wave changes. Focused history was obtained to avoid anchoring on one diagnosis.⁴ He reported left calf pain two to three weeks earlier, lasting four to five days and resolving spontaneously, and long-haul travel around six weeks before presentation.

Serial troponins remained negative and repeat ECGs were normal. D-dimer was elevated at 1.2 mg/L FE, reference less than 0.5 mg/L FE. Although standard pre-test probability scoring was not high, pulmonary embolism remained a concern due to abrupt onset, lack of alternative explanation and additional history. Therapeutic low molecular weight heparin was given and he was admitted for imaging.³

CT pulmonary angiography confirmed multiple segmental and sub segmental pulmonary emboli, predominantly in the left lower lobe, without right heart strain. Chest radiograph was normal. Echocardiography showed no right ventricular strain. Lower limb Doppler ultrasound showed no deep venous thrombosis. Malignancy screening, including PSA and CT abdomen and pelvis, was unremarkable.

He remained stable throughout admission. Anticoagulation was transitioned to apixaban for six months. He was discharged after two days with outpatient follow up arranged.

Discussion

Pulmonary embolism can mimic acute coronary syndrome with central chest pain, arm radiation and diaphoresis, while observations, ECG and troponins remain reassuring. In emergency medicine, the primary risk is not lack of knowledge but workflow pressure leading to premature closure⁴, whereby once a plausible diagnosis is identified, alternative diagnoses are no longer actively considered. The practical solution is a deliberate “fatal differential

check” for chest pain, covering acute coronary syndrome, pulmonary embolism, aortic pathology, and other immediately life threatening causes, then actively ruling them out using history, examination, and appropriate tests.

Long haul travel is recognised as a transient low to moderate risk factor for venous thromboembolism, including pulmonary embolism, due to prolonged immobility and venous stasis.³ In this case, travel history, although remote, contributed to suspicion when interpreted alongside previous calf pain.

Clinical decision rules help standardise care, but do not replace judgement. Structured history taking identified relevant risk factors despite reassuring initial findings. This case reinforces deliberate consideration of fatal differentials, including acute coronary syndrome, pulmonary embolism and aortic pathology, before settling on a single diagnosis in emergency department.

Declarations of Conflicts of Interest:

None declared.

Corresponding Author:

Ahad Nawaz,
Emergency Department,
Cavan General Hospital,
Lisdarn,
Cavan Town,
Co. Cavan,
Ireland.

E-Mail: ahadnawaz125@gmail.com

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