

One diagnosis, four very different stories: thoracic aortic dissection presenting with diagnostic mimicry

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Background: Thoracic aortic dissection (TAD) is a time-critical cardiovascular emergency, with mortality increasing by approximately 1%-2% per hour if untreated. Diagnosis is often delayed because presentations can mimic acute coronary syndrome, stroke, sepsis, or metabolic emergencies, while ECGs, troponins, and D-dimer may be non-diagnostic.

Case Series: Case 1 involved a 54-year-old man with ischemic heart disease and chest pain resembling a previous myocardial infarction. Elevated troponin prompted treatment for non-ST elevation myocardial infarction, but echocardiography showed a dilated aortic root, and CT confirmed Type A dissection extending into the left carotid artery. Urgent surgery resulted in full recovery. Case 2 involved a 54-year-old man with agitation, hypotension, and diffuse ECG changes. Bedside echocardiography identified pericardial tamponade, and CT showed dissection from the aortic root to the bifurcation. He died intraoperatively despite emergency surgery. Case 3 involved a 69-year-old woman with sharp chest pain, negative D-dimer and serial troponins, who self-discharged and returned after collapse with shock and Glasgow Coma Scale score of 6. CT revealed Type A dissection with tamponade; she died shortly after intubation and intensive care transfer. Case 4 involved a 55-year-old man with transient chest pain and brief ST-segment elevation in a single lead. Marked hypertension prompted CT, confirming dissection from root to bifurcation. He was managed conservatively and discharged after 18 days; subsequent investigation suggested vasculitis.

Conclusion: TAD has highly variable presentations, and misleading biomarkers or ECG findings may delay diagnosis. Clinical vigilance, bedside echocardiography, and prompt CT imaging are essential for diagnosis when findings are incongruent.

Keywords: Thoracic aortic dissection, Type A dissection, emergency medicine, point-of-care ultrasound, echocardiography, CT aortography, pericardial tamponade, diagnostic delay.