

## Answer

Andrew Healey, MD;\* Tia Renouf, MD†

The best responses for this case are C and E. Although this patient had ECG criteria for thrombolysis (i.e., ST-segment elevation in 2 contiguous leads), which persisted on serial ECGs, the clinical picture was also compatible with aortic dissection. Because of atypical pain radiation into the flanks, and because the physicians felt something was “not right” with the diagnosis of acute coronary thrombosis, a CT scan of the chest, abdomen and pelvis was performed, looking for aortic dissection (Fig. 1). A type B dissecting aortic aneurysm was diagnosed and labetalol was administered to control hypertension. He was admitted to the intensive care unit and eventually discharged in good health on several antihypertensive medications.

### Commentary

Aortic dissection can be difficult to diagnose yet almost universally fatal if missed. As in this case, it can mimic acute coronary thrombosis and lead clinicians to mistakenly administer thrombolytic agents.

In a large series, Klompas reported that approximately

90% of patients with aortic dissection had severe chest pain; however, the location of pain was not helpful. If the pain was described as ripping, tearing or migratory, these descriptors were specific but not sensitive.<sup>1</sup> Physical findings are also specific but not sensitive: in other words, their presence suggests the presence of aortic dissection but their absence does not rule it out. Specifically, a pulse differential between carotid, radial or femoral pulses substantially increases the likelihood of aortic dissection (positive likelihood ratio [LR] 5.7; 95% confidence interval 1.4–23) as do focal neurological deficits (positive LR 6.6–33.0). Unfortunately, less than 50% of patients with aortic dissection have these classical physical findings.<sup>1</sup>

Most patients with aortic dissection will have ECG abnormalities, and 7% will have new Q waves or ST-segment elevation (the latter often representing myocardial infarction secondary to disruption of coronary flow).<sup>1</sup> An initial chest x-ray is often but not invariably abnormal. The findings of wide mediastinum, abnormal aortic contour and pleural effusion, when present, are not sufficiently sensitive or specific for accurate diagnosis. Magnetic resonance imaging is the most sensitive confirmatory imaging modality, but transesophageal echocardiography, CT or aortography may be appropriate depending on local expertise and resource availability.<sup>2,3</sup>

As this case illustrates, chest pain with ST-segment elevation is not always acute coronary thrombosis. Given the potential hazard of administering fibrinolytic agents to patients with aortic dissection, emergency physicians should proceed with caution when patients present with clinical features that are discordant with acute myocardial infarction.

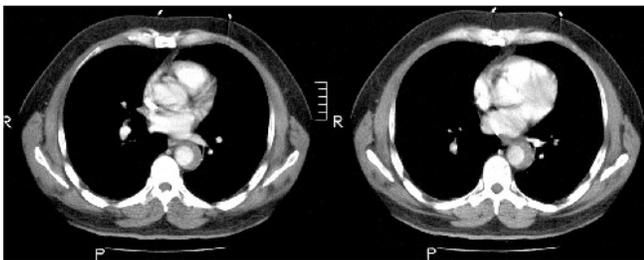


Fig. 1. CT of the chest in a 59-year-old man with a type B aortic dissection.

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**Competing interests:** None declared.

## References

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acute thoracic aortic dissection in the emergency department: time constraints and choice of the optimal diagnostic test. *Ann Emerg Med* 1996;28:278-88.

For the Challenge, see page 283.

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