

RADIOLOGY IMAGES

Cardiac tamponade – presentation of type A aortic dissection

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Acute aortic dissection usually presents with severe chest and/or back pain but may have a varied presentation ranging from syncope, stroke, and heart failure to shock or tamponade. We present classic chest computed tomography images of a case of type A aortic dissection presenting with cardiac tamponade.

Keywords: *aortic dissection; cardiac tamponade; clinical image; chest CT scan*

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An 83-year-old woman with hyperlipidemia and not a known hypertensive presented to the emergency department with a one-day complaint of fatigue, non-postural dizziness, and posterior pulsatile neck pain. Her blood pressure was 172/84 mmHg and heart rate was 76 beats/min. Physical examination revealed normal neurological findings. Brain computed tomography (CT) was negative for acute changes and cervical spine CT showed moderate degenerative joint disease. At the time of evaluation, dizziness had resolved, and she was transferred to the observation unit with a working diagnosis of cervical strain and placed on acetaminophen. About 16 hours later, she became unresponsive with a sudden drop in systolic blood pressure and had a pulseless electrical activity on cardiac monitor. Cardiopulmonary resuscitation was commenced and required three rounds of chest compressions and IV epinephrine before return of spontaneous circulation. She was intubated and placed on mechanical ventilation. Bedside transthoracic echocardiogram (TTE) showed massive pericardial effusion with tamponade. Urgent chest CT angiography confirmed the hemopericardium with suspected tamponade (Fig. 1) and revealed a type A aortic dissection, extending from the ascending aorta to the descending aorta (Figs. 2 and 3, white and black arrows show false and true lumens, respectively). Emergent cardiothoracic surgery consultation was placed, and she was taken to the operating room within 5 hours of unresponsive episode. She underwent operative hemiarch ascending aorta replacement following identification of an intimal tear just superior to the right coronary ostium. She had an uneventful postoperative course. Follow up

TTE 2 days after surgery showed normal aortic valve and resolution of the hemopericardium. She is currently undergoing rehabilitation.

Aortic dissection is an uncommon but life-threatening emergency with case-fatality rate as high as 55% (1). It is commoner in men, usually presenting in the seventh or eighth decade and the most frequently identified risk factor is hypertension (2). The Stanford system classifies aortic dissection into type A (affecting the ascending thoracic aorta) and type B (dissection is distal to the left



Fig. 1. Non-contrast chest CT showing hemopericardium (white arrows).

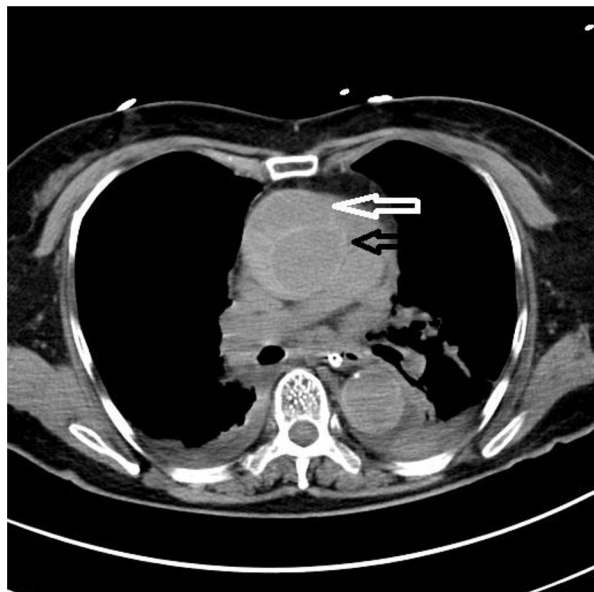


Fig. 2. Non-contrast chest CT showing false and true lumens of the ascending aorta (white and black arrows, respectively).

subclavian artery) (3). Acute aortic dissection usually presents with severe chest and/or back pain but may have a varied presentation ranging from syncope, stroke, and heart failure to shock or tamponade (2). Approximately 6% of a registry population presented with painless dissection and these were noted to be commoner in men and those with type A aortic dissection (4). A key physical finding in the diagnosis of aortic dissection is a pulse deficit, but this was found in less than 20% of cases (2).

Chest CT is the most often used imaging modality as it is widely available as well as having a high accuracy (2). CT findings may include intimal flap (seen in 70% of cases), double aortic lumen, and complications such as hemopericardium may be noted (5). Echocardiograms are particularly useful in unstable patients like the aforementioned case as it can be done at bedside, but its use is limited due to requirement of a skilled personnel. Although MRI has a similar sensitivity and specificity to CT, it is less often used due to non-availability and time delay. Aortography is now rarely used (2).

Acute aortic dissection is a surgical or medical emergency depending on Stanford type. Type A is a surgical emergency and requires prompt cardiothoracic intervention. On the contrary, type B is managed medically with aggressive blood pressure control. However, in the presence of continued hemodynamic instability or end-organ damage, few cases of type B may require surgical intervention (3).

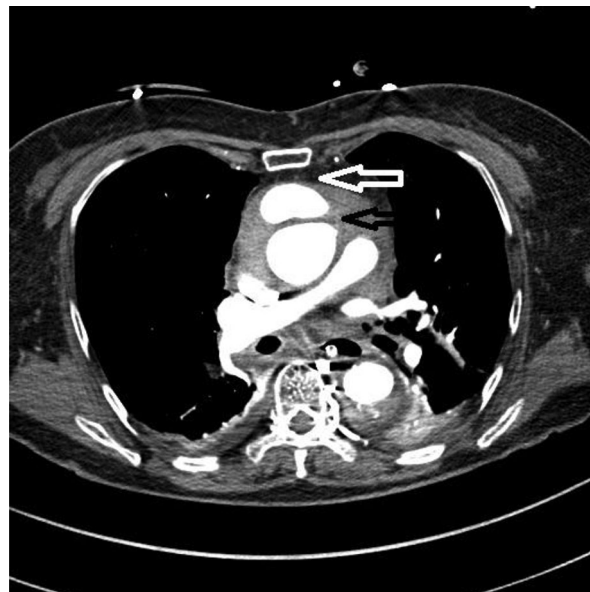


Fig. 3. Chest CTA showing false and true lumens of the ascending aorta (white and black arrows, respectively).

A high index of suspicion is needed for early diagnosis and prompt intervention for this potentially fatal condition.

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