

CLINICAL IMAGES

Acute pleural effusion from aortic aneurysm rupture

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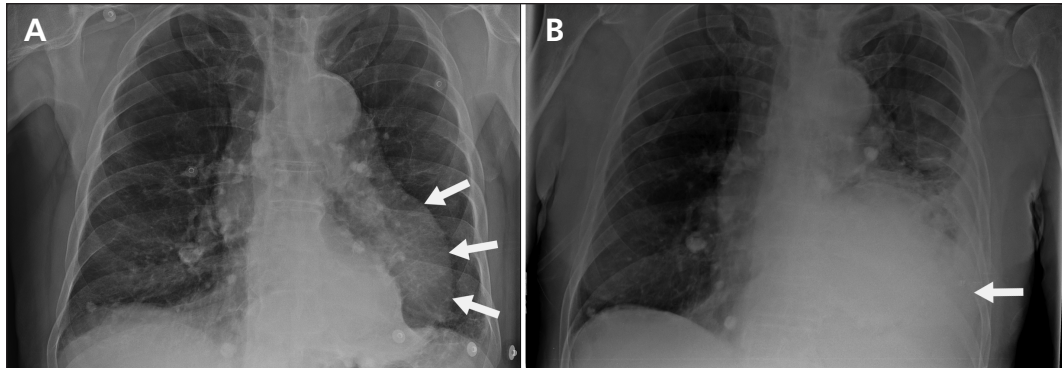


Figure 1: (A) Chest radiograph of a 78-year-old man obtained on admission, showing marked aortic tortuosity (arrows). (B) A chest radiograph obtained within 30 minutes of sudden-onset chest pain and shortness of breath showed a new left pleural effusion (arrow).

A 78-year-old man was admitted to hospital with a urinary tract infection; on the second day of his hospital stay, he experienced a sudden onset of severe nonradiating pleuritic retrosternal chest pain, along with severe shortness of breath. An initial examination showed a blood pressure of 160/90 mm Hg bilaterally, heart rate of 90 beats/min, and oxygen saturation of 82% on room air. His cardiac enzyme levels were normal, and an electrocardiogram showed sinus tachycardia. A radiograph obtained on admission showed marked tortuosity of the thoracic aorta; a new left pleural effusion was seen on a chest radiograph obtained within 30 minutes of the onset of chest pain (Figure 1). Because of nonradiating pleuritic chest pain and respiratory distress, the initial working diagnosis was pulmonary embolism.

However, a computed tomograph of the patient's thorax showed a large lower descending thoracic aortic aneurysm (7.7 × 8.8 cm), with discontinuity of the posterior wall and a large extrapleural fluid collection; these findings were both suggestive of a hemorrhaging ruptured aortic aneurysm (Appendix 1, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.130056/-/DC1). Within an hour, the patient's chest pain became tearing in quality and radiated to his back. Examination showed tachycardia (160 beats/min), a pulse deficit and a large difference in blood pressure between arms (right arm: 160/70 mm Hg; left arm: 70/30 mm Hg). He eventually became hypotensive with blood pressure of 70/30 mm Hg

in his right arm and undetectable blood pressure in his left arm. Emergency endovascular repair of the ruptured aortic aneurysm was successful.

Acute pleural effusions are commonly caused by trauma, malignant disease and pulmonary embolism;^{1,2} however, ruptured descending thoracic aortic aneurysm is an important consideration in the differential diagnosis.^{3,4} Radiographic evidence of a pleural effusion has been found in 19% of aortic dissections, and they occur more commonly among women than men (26% v. 15%).⁵ Risk factors for aortic aneurysm include genetic conditions (Marfan and Ehlers–Danlos syndromes), bicuspid aortic valve, and various inflammatory and infectious processes.^{1,2} Early diagnosis of aortic dissection by computed tomography is essential, because mortality is 40% at presentation and increases by 1%–2% per hour thereafter.^{1,2}

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