Case Report

Silent Rupture of Aortic Aneurysm Mimicking Lung Malignancy

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ABSTRACT

Extra-pulmonary diseases may mimic pulmonary lesions on chest radiography. We report a case of a silent rupture of an atherosclerotic thoracic aortic aneurysm with peripheral thrombus formation, that closely mimicked a complicated lung malignancy. **[Indian J Chest Dis Allied Sci 2013;55:113-115]**

Key words: Aortic aneurysm, Leak, Lung cancer.

INTRODUCTION

Aortic aneurysms can be classified as fusiform or saccular, depending on their morphology. Thoracic aortic aneurysms (TAA) are less common than abdominal aneurysms and 80% of them are fusiform.[1] While an acute rupture of a TAA is often fatal, a slow leak may have a chronic presentation, and may mimick other intra-thoracic lesions, such as a benign cyst, intra-thoracic goitre, or a cardiac tumour.[2-4] We present a case of ruptured, extensive TAA with peripheral thrombus and haemothorax in an active smoker, mimicking a complicated malignant lung disease.

CASE REPORT

A 60-year-old male presented to a local hospital with progressive dyspnoea and hoarseness of voice for two weeks. He had been an active smoker for the last 30 years. There was no other remarkable medical history.

Clinical examination at the primary care unit revealed dullness of the left hemithorax with absent breath sounds and a tracheal shift to the right. Based on clinical examination and chest radiograph, massive pleural effusion was diagnosed and an intercostal drain was inserted. The tube drained frank blood grossly and was clamped after removal of 1000mL. After initial resuscitation and transfusion of a unit of packed red cells, he was transferred within 24 hours to our tertiary care respiratory unit, as his condition remained largely unchanged despite interventions.

On transferring to the respiratory unit, the patient was dyspnoaeic and oxygen dependent. In addition to the available details, a comprehensive history from a family member also revealed that he had a transient fainting episode two weeks back, before the onset of hoarseness and dyspnoea. But as this was a transient symptom, the patient had not sought medical attention until the dyspnoea had progressed.

On examination, his peripheral oxygen saturation on room air was 86 percent. He had a hoarse voice and a mild tracheal deviation to the right side. The left-sided chest movements were diminished with stony dullness on percussion and absent breath sounds. He was mildly pale with weak peripheral pulses and a systolic blood pressure of 100mmHg. There was no lymphadenopathy or finger clubbing and the abdomen was clinically normal.

A review of the initial chest radiograph revealed a left-sided opaque hemithorax with faintly visualised aerated patch in the upper zone. There was an intra-thoracic tracheal narrowing and deviation to the right side, suggestive of external compression (Figure 1). Complete blood count revealed anaemia (haemoglobin 82g%) with mild thrombocytopaenia (platelet count 140 x 10^9 per litre). Arterial blood gas analysis did not show hypoxaemia while on oxygen therapy. Serum calcium, renal and liver chemistries and coagulation profiles were normal.

A chest ultrasonography revealed a left-sided moderate effusion. With a lung malignancy the likely diagnosis, bronchoscopy was performed, that showed a left-sided vocal cord weakness and smooth narrowing of the trachea with mucosal oedema, suggesting an external compression. There was no evidence of an intra-bronchial lesion.

A contrast enhanced computed tomography of chest was performed, that ruled out a malignancy, but revealed a fusiform TAA with a large peripheral thrombus involving the ascending aorta, the arch and

[Received: December 12, 2011; accepted after revision: June 14, 2012]

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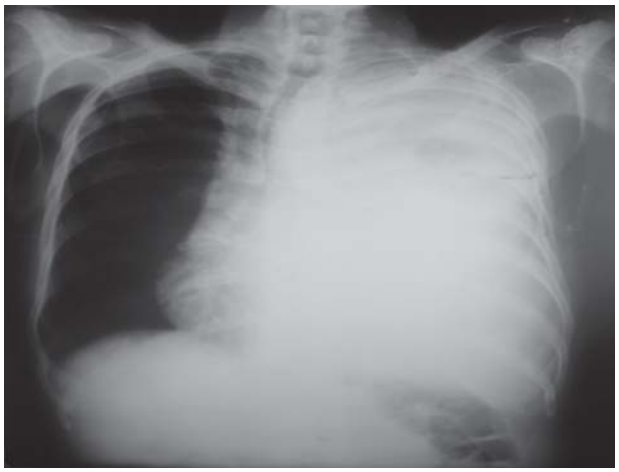

Figure 1. Chest radiograph showing a left opaque hemithorax with lower tracheal compression and mediastinal shift to the right.

the thoracic descending aorta (Figure 2). The intrathoracic trachea was locally compressed with likely left recurrent laryngeal nerve compression (Figure 3). A left-sided moderate fluid collection was evident and the underlying lung was collapsed and consolidated. Pleural fluid was obtained. The haematocrit was suggestive of a haemothorax, although there was absence of contrast in the pleural cavity on CT. A two-dimensional (2D) echocardiography did not show aortic regurgitation, pericardial effusion / tamponade or heart failure.

The patient was referred to the cardiothoracic surgical and anaesthetic team. Due to very high perioperative mortality risk, considering the extensive nature of the aneurysm and general condition of the patient, it was decided not to carry out a surgical exploration. He was closely monitored for further bleeding. The haemodynamic status was optimised

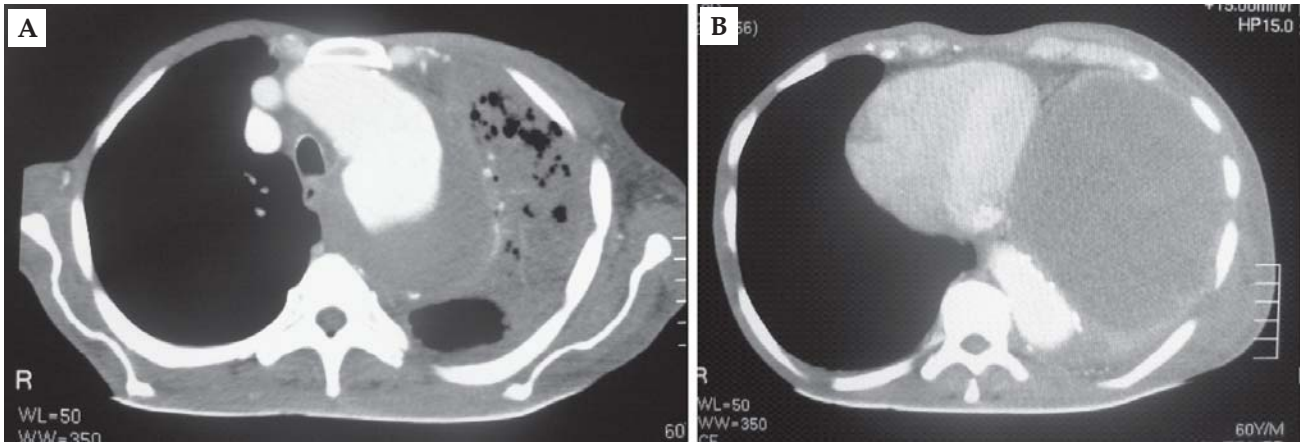

Figure 2. Contrast enhanced computed tomography (CECT) of chest (axial images) showing (A) aneurysm of the thoracic aorta with extensive peripheral thrombus and (B) left-sided haemothorax.

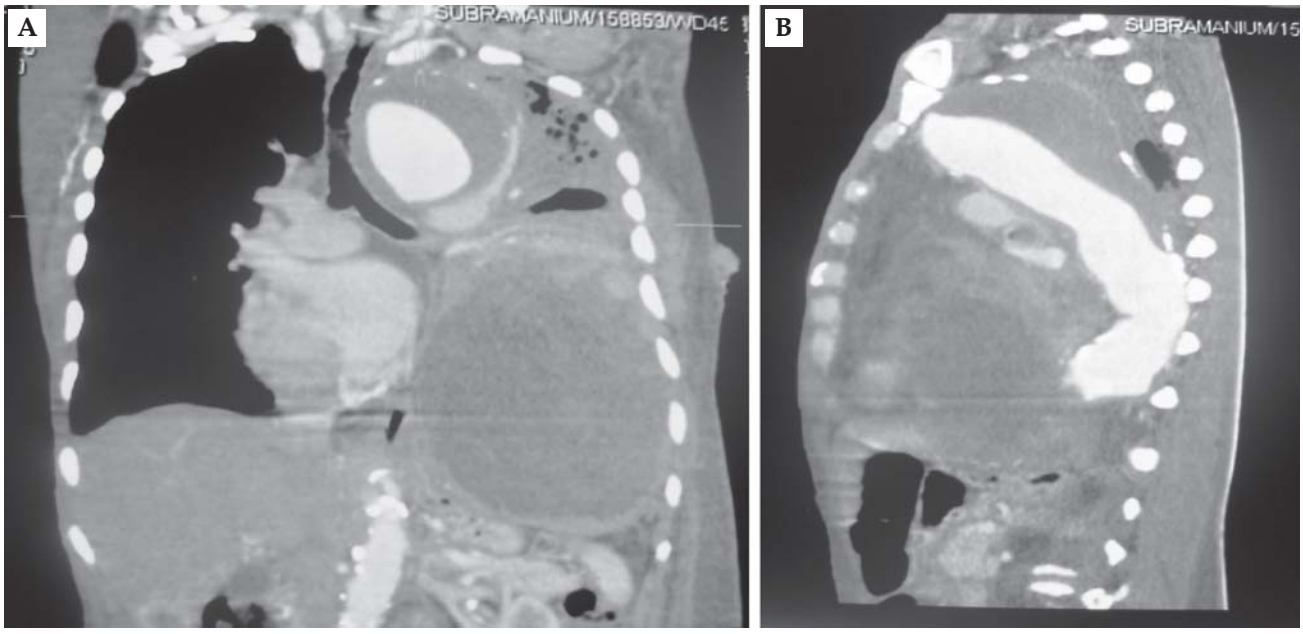

Figure 3. CECT of the chest (reconstructed coronal image) showing (A) lower tracheal compression by the aneurysm, left haemothorax and mediastinal shift to right and (B) extensive involvement of thoracic aorta.

with blood and blood products transfusion, antihypertensives and statins.

The intercostal tube output amounted to 750mL on the first two days and 150mL on the third day. On the fourth day, there was an increase in dyspnoea and the peripheral oxygen saturation and systolic blood pressure started to drop. Haemoglobin level declined by 0.5g/dL from the previous day. He was transferred to the intensive care unit, suspecting further leakage from the aneurysm. He received invasive ventilation, fluid resuscitation, blood transfusion and ionotropic support, but his condition deteriorated and he succumbed to the illness. Post-mortem revealed extensive aneurysmal dilatation of the thoracic aorta with a large surrounding clot and haemothorax, but no evidence of haemopericardium, confirming the aneurysmal leak as the cause of death.

DISCUSSION

An aneurysm is defined as a localised dilatation of the aorta, greater than 50% over the normal diameter, and includes all three layers of the vessel, intima, media, and adventitia.[5] TAA may present as a mediastinal mass or a wide tortuous aorta. Curvilinear peripheral calcification is seen in 75% of cases and there may be circumferential or crescentic mural thrombus.[1] Most aneurysms tend to rupture when the diameter of aorta is more than 60mm to 70mm. Aneurysms located within the middle portion of the descending aorta show the most rapid growth. In a patient with an aorta that has reached a 6cm diameter, there is an annual risk of 14.1% with regard to rupture, dissection, or death. Elective surgery is indicated for an ascending aortic aneurysm of over 5.5cm in diameter and for a descending aortic aneurysm of over 6.5cm in diameter.[6]

A sacular aneurysm of the aortic arch may mimic a localised lung malignancy.[7] However, in the present case, the patient had an extensive fusiform TAA involving the ascending arch and descending parts. As there was neither a history of chest trauma nor evidence of any of collagen vascular diseases, and given the history of heavy smoking, atherosclerosis was the most probable aetiology. Hoarseness of voice due to underlying cardiovascular aetiology is a well described entity, and is termed as Ortner's syndrome or cardiovocal paralysis. Clinicians should keep this in mind when assessing patients with hoarseness, especially of acute or subacute onset. Mild thrombocytopaenia may be attributed to platelet consumption, despite absence of marked consumptive coagulopathy.

Morbidity and mortality in the repair of TAA are high, given the anatomic constraints and operative complexity, especially for aneurysms of aortic arch and the proximal descending to infra-renal aorta, i.e. Crawford type II.[8] The overall peri-operative risk depends on the facilities available for repair, and the post-operative care and the expertise at the tertiary centre. In one series, the 30-day mortality of emergency surgery for thoraco-abdominal aneurysm that had ruptured or dissected was 42%, preceded by serious post-operative complications.[9] However, in another large series form the United States, involving 1773 surgeries,[10] the 30-day survival rate was 94.3 percent. In a third series of 260 patients,[11] the surgical mortality was 8% for elective resection and 33% for emergency operations. The 5-year survival rates for the entire series were 50% for patients treated with elective operation, 30% for combined emergency and elective surgeries, and 21% for non-surgically treated patients.

In conclusion, this case highlights the challenges encountered in management of an opaque hemithorax in a resource-poor setting and emphasises the need for a careful interpretation of chest radiography and suspicion of cause in the clinical context.

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