

X-ray quiz: an elderly man with haemoptysis

X光照片猜謎：一名咳血的老人

CH Chung 鍾展鴻

Case scenario

An 81-year-old man attended the emergency department complaining of cough with blood-stained sputum for one day. There was no chest pain. He stopped smoking four years ago. He had history of chronic obstructive pulmonary disease and hypertension, with regular outpatient follow-up. His blood pressure was 109/48 mmHg, pulse rate 95 bpm,

respiratory rate 16 breaths/min, tympanic temperature 36.3°C, and SpO₂ 95% on room air. The physical examination revealed mild dyspnoea and diffuse wheezing. An erect postero-anterior chest X-ray was taken (Figure 1). A chest X-ray taken 20 months ago was available for comparison (Figure 2).

What are the likely differential diagnoses? What will be the next steps in your management?

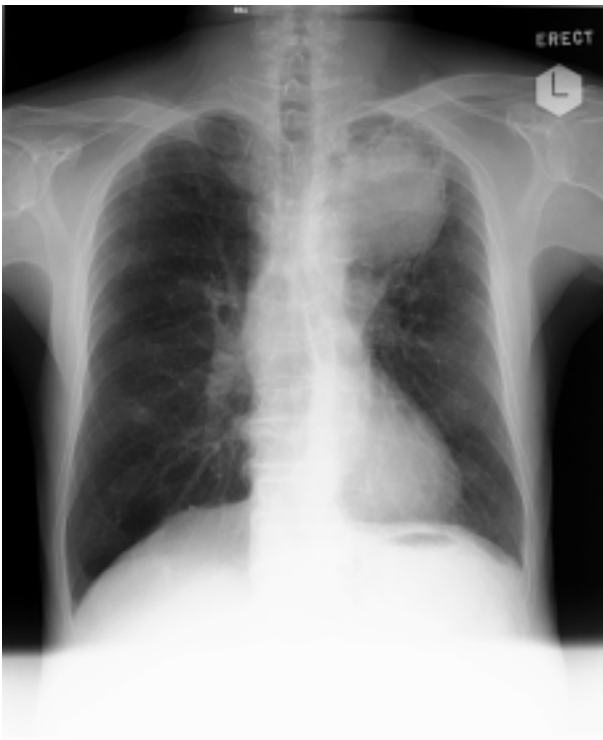


Figure 1. Chest X-ray in February 2004.

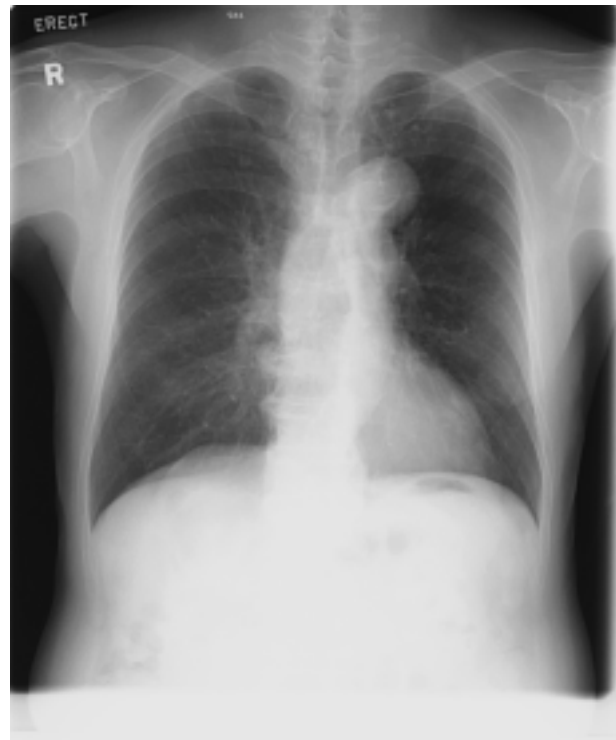


Figure 2. Chest X-ray in June 2002.

Correspondence to:

Chung Chin Hung, FRCS(Glasg), FHKAM(Surgery), FHKAM(Emergency Medicine)

North District Hospital, Accident and Emergency Department,
9 Po Kin Road, Sheung Shui, N.T., Hong Kong

Email: chunch@ha.org.hk

Outcome and discussion

There is a soft tissue density mass in the left apex. The medial margin is inseparable from the mediastinum, including the aortic arch (Figure 1). The most likely differential diagnoses include lung tumour, mediastinal tumour and saccular aortic aneurysm.

The mnemonic "HABIT"^{1,2} may be useful in generating the differential diagnoses of such a mass: -

- Haematoma, traumatic or spontaneous (e.g. traumatic aortic disruption, aortic dissection, bleeding disorder)
- Aneurysm
- Bronchogenic cyst
- Inflammation (e.g. tuberculosis, abscess)
- Tumours, benign or malignant

A lateral chest X-ray may be helpful. However, chest computed tomography (CT) with contrast or magnetic resonance imaging (MRI) would be required for confirmation.

Unfortunately, the patient developed sudden massive haemoptysis shortly after admission. Repeat chest X-ray suggested massive haemothorax (Figure 3). Chest CT showed a 6.3 x 3.8 x 5.0 cm ruptured saccular aneurysm at the aortic arch leaking into the pleural cavity (Figure 4). The patient died three days after admission.

Saccular aneurysms of the aortic arch may simulate a hilar mass on plain chest X-ray, leading to an initial erroneous diagnosis of lung cancer.³ Emergency physicians should be cautious and vigilant with hilar masses, especially those associated with haemoptysis.

Acknowledgement

The author is grateful to Dr. Lawrence Tan, MBBS (S'pore), FRCR, FHKAM(Radiology), Consultant Radiologist, Precious Blood Hospital, for reviewing the manuscript and suggesting valuable advice.

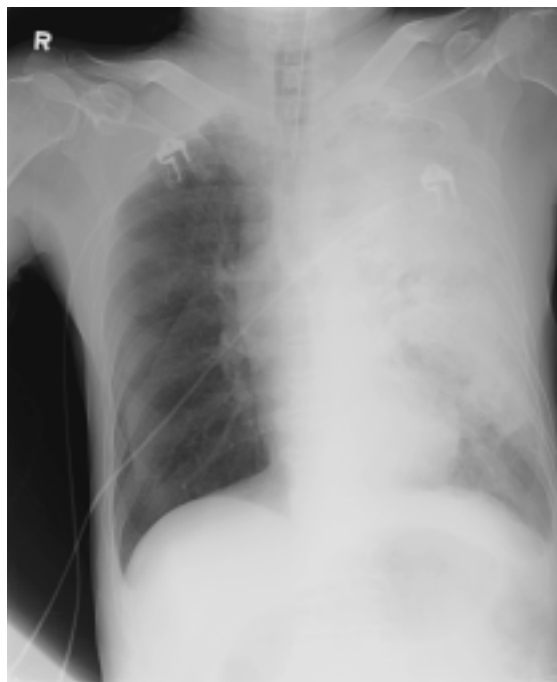


Figure 3. Chest X-ray a few hours after admission.

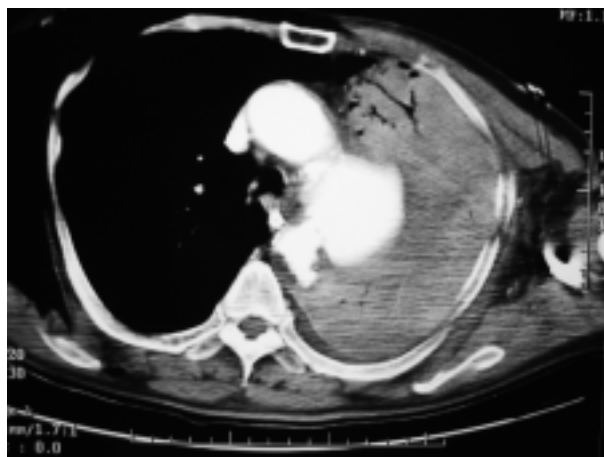


Figure 4. Computed tomogram with contrast showing ruptured aortic arch aneurysm.

References

1. Dahnert W. Radiology review manual. 4th ed. Baltimore, (Maryland): Williams & Wilkins; 1996. p. 359.
2. Reeder MM. Gamuts in radiology. 4th ed. New York: Springer; 2003. p. 562–6.
3. Ogilvie BC. The thoracic aorta. In: Grainger RG, Allison D, Adam A, Dixon AK, editors. Diagnostic radiology: a textbook of medical imaging. 4th ed. London (UK): Churchill Livingstone; 2001;1(43):953–6.