CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Chapter 07

CHEST

Contributors:
K.T. Wong, Edmund H.Y. Yuen, Anil T. Ahuja

Questions

Discussion

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 1

A 35-year-old man presented with fever and productive cough for 3 days. He was febrile, hypoxic and physical examination showed focal decrease in air entry and coarse crepitations over the right lower chest. Laboratory investigations revealed leukocytosis and a CXR was performed (Fig. 1a).

Questions

(1) What abnormalities do you see on this CXR ?
- Area of increased opacity with ill-defined borders
- Faint air bronchogram within the area of opacification

(2) What is the most likely diagnosis ?

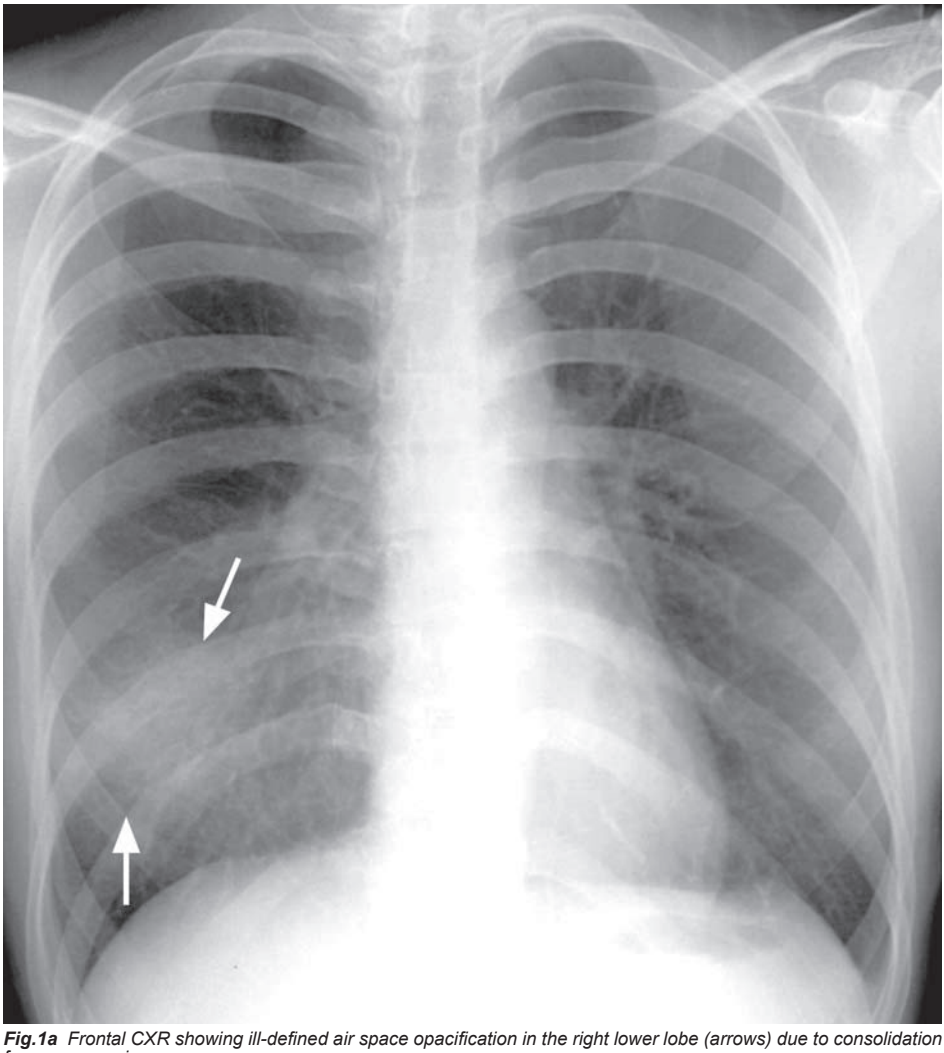


Fig.1a *Frontal CXR showing ill-defined air space opacification in the right lower lobe (arrows) due to consolidation from pneumonia.*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 2

A 70-year-old chronic smoker presented with haemoptysis and weight loss for 2 months. He had no fever, chills or rigor and a physical examination of both hands showed finger clubbing. There was decreased chest wall expansion and air entry over right upper chest.
Laboratory investigations were essentially unremarkable and WCC was within normal limits.
A CXR was performed for further evaluation (Fig. 2a).

Questions

(1) What abnormality can you see on this CXR ?
- Opacity with a sharp well-demarcated lateral border (arrows) in right upper zone with lack of air within the abnormality.
- Focal convex bulge at the apex of the abnormality.
- Hyperinflation of the right lower lobe.
- Elevated right hemidiaphragm.

(2) What is the radiological diagnosis ?

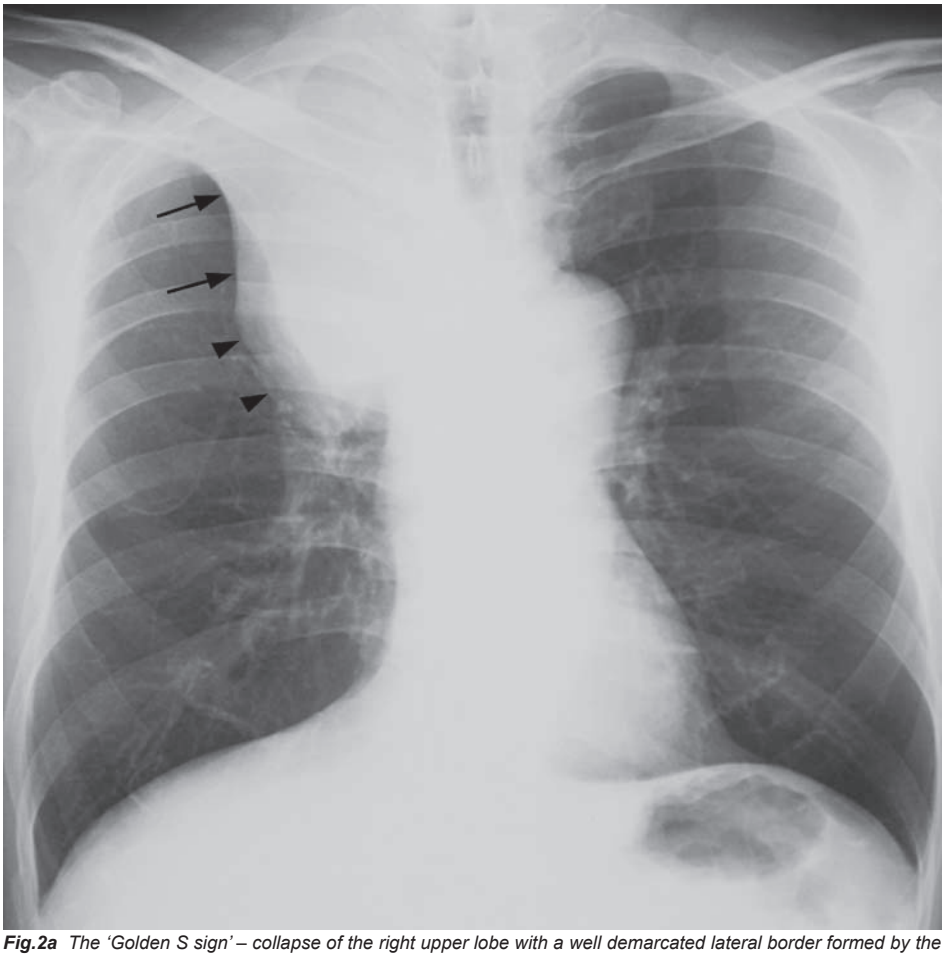


Fig.2a *The 'Golden S sign' – collapse of the right upper lobe with a well demarcated lateral border formed by the elevated horizontal fissure (arrows), and a focal convex bulge at the apex due to the centrally located bronchogenic carcinoma (arrowheads).*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 3

A 23-year-old man with good past health, presented with sudden onset left sided chest pain and shortness of breath. The pain was sharp in nature and more severe on inspiration. Physical examination showed decreased air entry in the left upper chest which was hyperresonant on percussion. Laboratory investigations were essentially normal. A CXR was performed for further evaluation (Fig. 3a).

Questions

(1) What radiological abnormality can you identify ?
- Hyperlucent zone devoid of vascular marking in periphery of left hemithorax.
- Shift of midline to the right.

(2) What is the most likely diagnosis ?

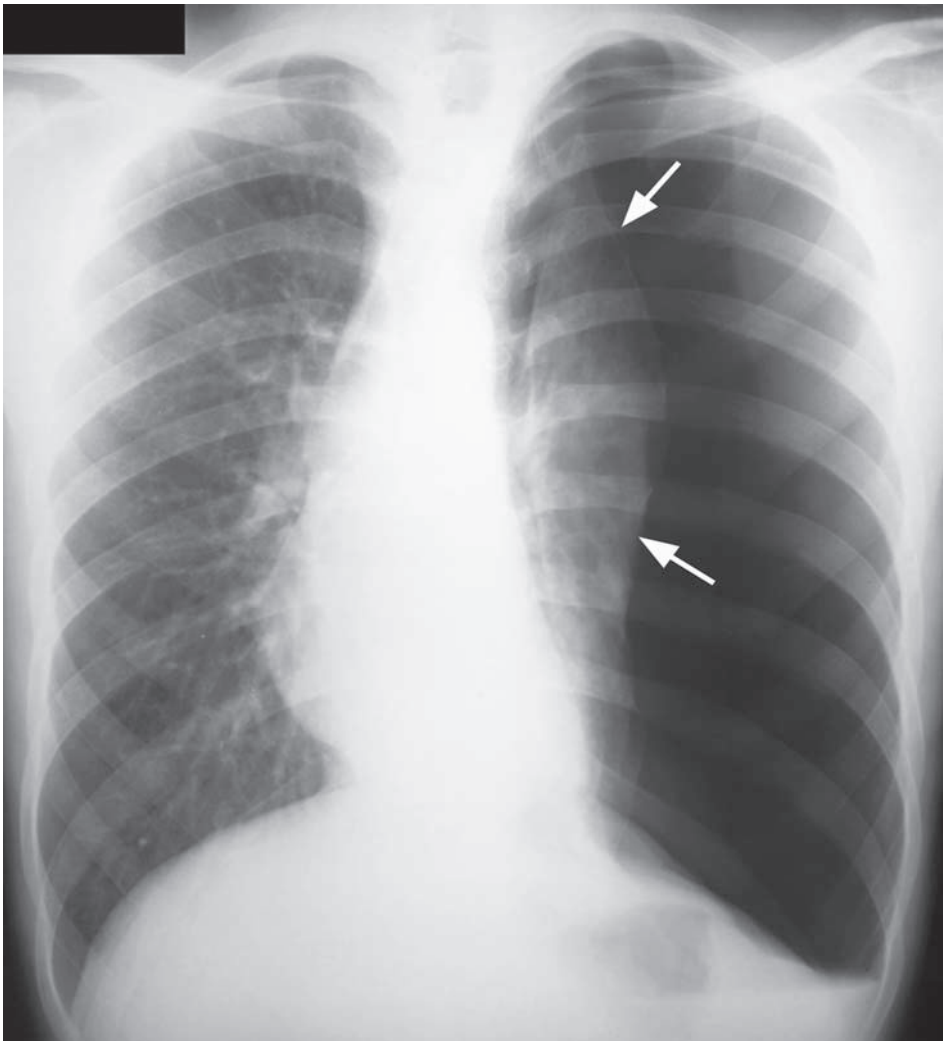


Fig.3a *Large left pneumothorax with mediastinal shift to the right. Note the collapsed left lung (arrows) and the hyperlucent left hemithorax.*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 4

A 30-year-old lady presented with severe retrosternal pain, and pain on swallowing, shortly after accidental ingestion of fish bone 2 days earlier. Physical examination showed the patient was afebrile, haemodynamically stable and examination of respiratory and cardiovascular systems were unremarkable. Blood tests were essentially normal and a CXR was performed for further assessment (Fig. 4a).

Questions

(1) What radiologic abnormality can you identify ?
- Air lucency in mediastinum outlining the left heart border and aortic knuckle
- Subcutaneous emphysema in the lower neck

(2) What is the radiological diagnosis ?

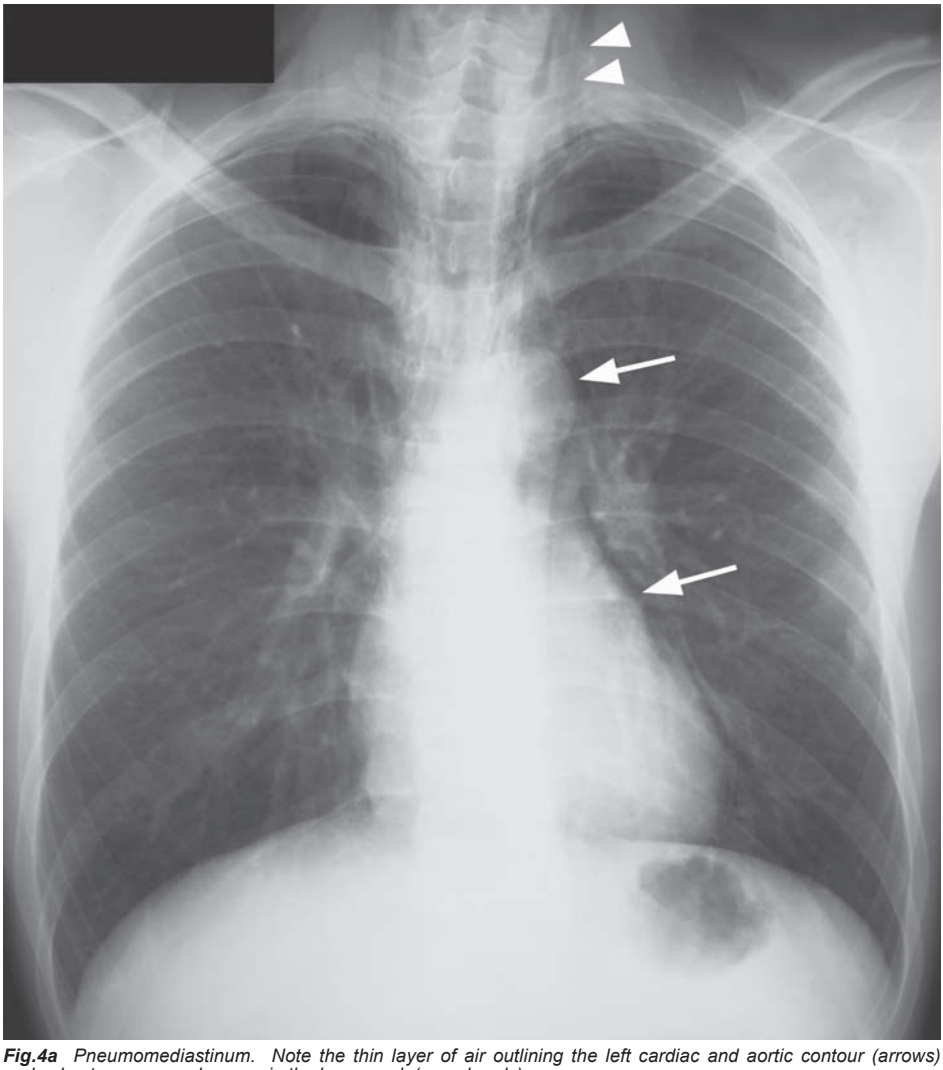


Fig.4a *Pneumomediastinum. Note the thin layer of air outlining the left cardiac and aortic contour (arrows) and subcutaneous emphysema in the lower neck (arrowheads).*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 5

A 75-year-old chronic smoker complained of chronic cough and weight loss of 20 pounds over recent 3 months. On physical examination, he was cachectic with little subcutaneous fat and a 2 cm hard mass was palpable in the right supraclavicular fossa. Examination of respiratory system was essentially normal. Laboratory investigations showed normochromic normocytic anaemia and raised erythrocyte sedimentation rate. White cell count was not raised. A CXR was performed (Fig. 5a).

Questions

(1) What radiologic abnormalities do you see ?
- Soft tissue mass with ill-defined irregular border projected over the right upper zone.
- Enlarged and bulging right hilum.
- Thickened right paratracheal stripe.

(2) What is the radiological diagnosis ?

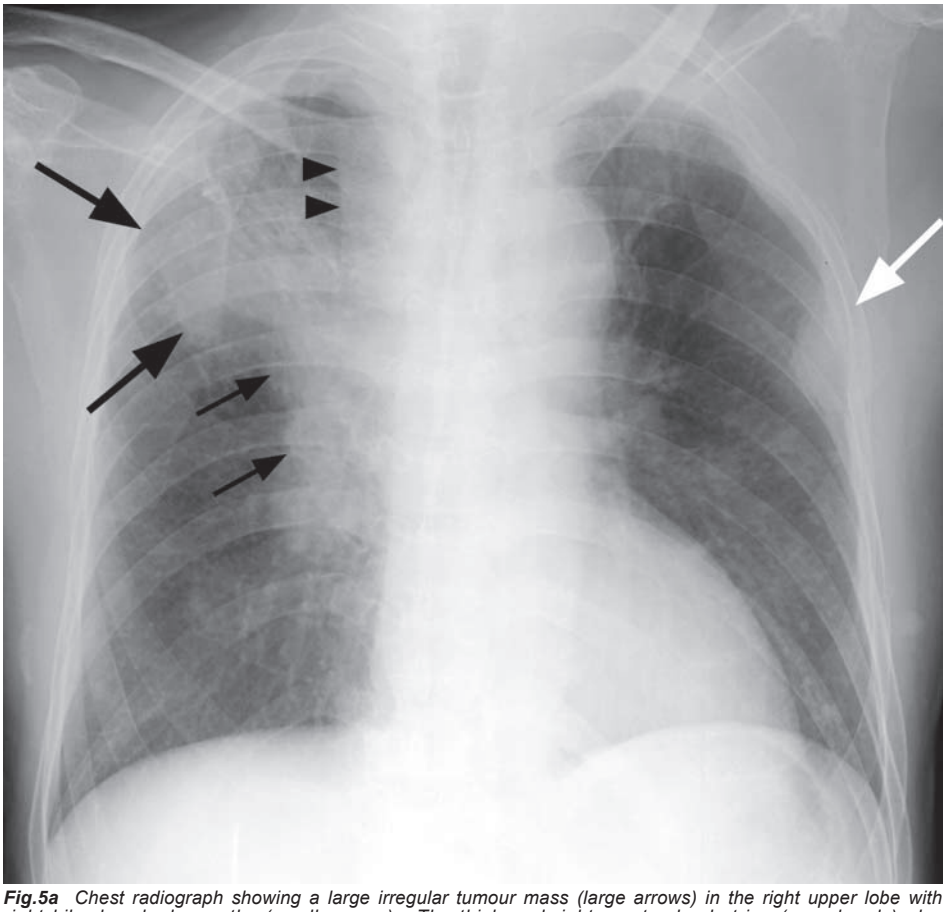


Fig.5a *Chest radiograph showing a large irregular tumour mass (large arrows) in the right upper lobe with right hilar lymphadenopathy (small arrows). The thickened right paratracheal stripe (arrowheads) also indicates enlarged paratracheal nodes. Note the presence of a pleural metastasis in the left mid zone (white arrow).*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 6

A 66-year-old chronic smoker presented with one-month history of cough with blood-stained sputum and right upper chest and arm pain. General examination showed signs of Horner's syndrome on the right and muscle wasting of right hand. Examination of the respiratory system was unremarkable. Laboratory investigations revealed normochromic normocytic anaemia and suspicious malignant cells were detected on sputum cytology. A CXR was performed (Fig. 6a).

Questions

(1) What radiological abnormality can you identify ?
- Mass in right lung apex
- Bony invasion of right upper ribs

(2) What is the working diagnosis ?

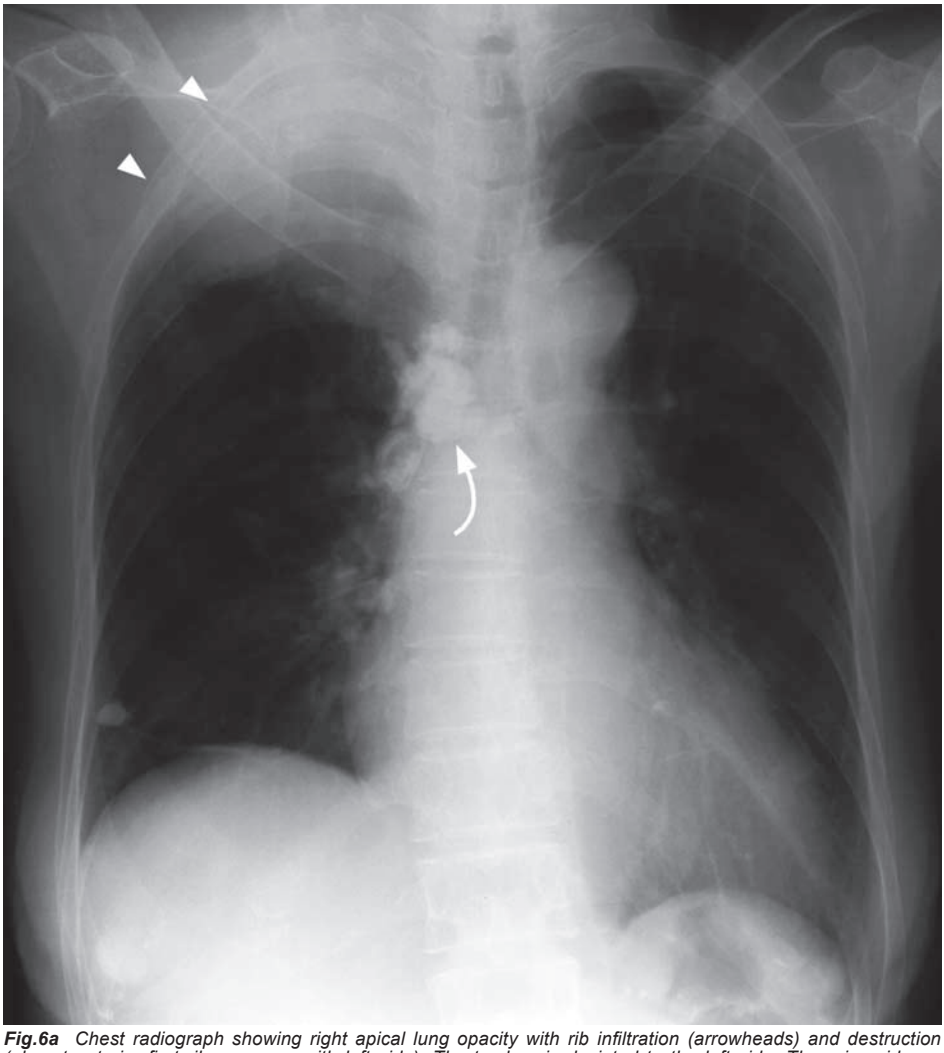


Fig.6a *Chest radiograph showing right apical lung opacity with rib infiltration (arrowheads) and destruction (absent anterior first rib, compare with left side). The trachea is deviated to the left side. There is evidence of previous TB with calcified lymph nodes and granuloma (curved arrow).*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

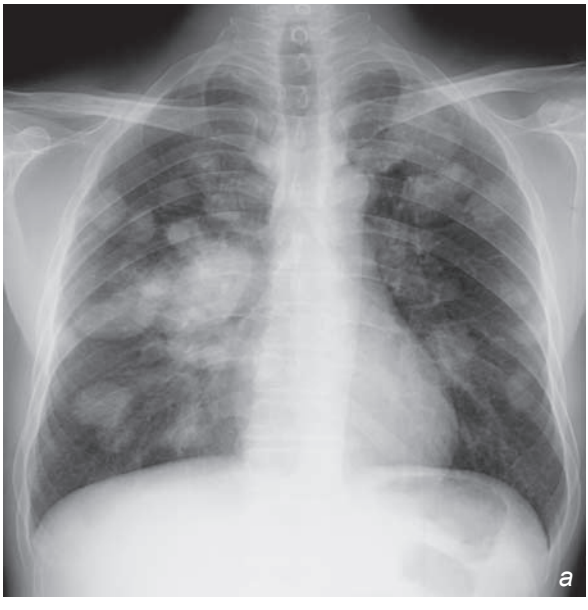
Case 7

A 50-year-old man with a known history of colonic carcinoma, complained of cough with occasional blood-streaked sputum for 2 months, and recent loss of appetite and weight. Physical examination of the respiratory system was normal and abdominal examination revealed hepatomegaly with multinodular edges. Laboratory investigations showed elevated alkaline phosphatase, bilirubin level and markedly elevated CEA. A chest x-ray followed by CT of the thorax (Fig. 7a, b) and abdomen was performed.

Questions

(1) What radiological abnormality is present on this CXR and CT of the thorax ?
- Multiple round well-defined soft tissue masses in both lungs.

(2) What is the working diagnosis ?



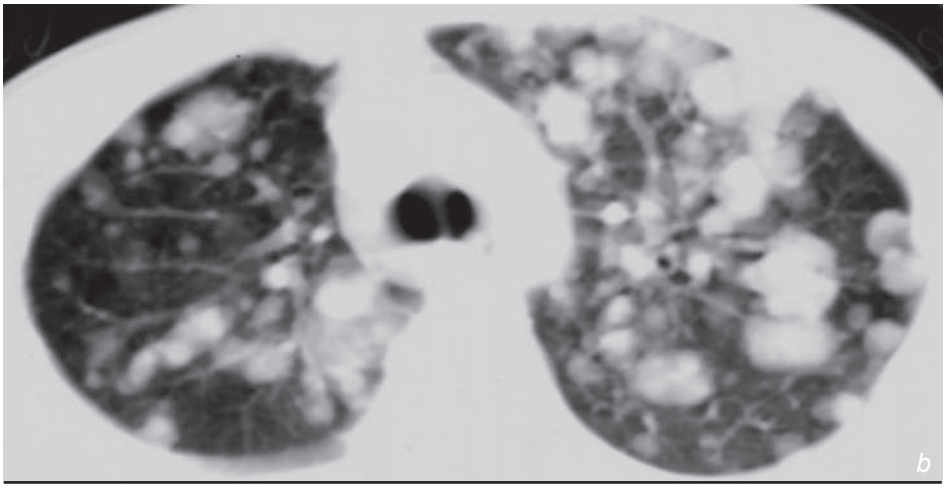


Fig.7a,b
Frontal chest radiograph and axial CT thorax showing multiple round metastases in both lungs.

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 8

A 53-year-old non-smoker presented with fever, dyspnoea and productive cough for 3 days. A physical examination of the respiratory system revealed decreased air entry over the right chest where the percussion note was stony dull in nature. Laboratory investigations showed leukocytosis, sputum culture grew Haemophilus influenzae and a CXR was performed (Fig. 8a).

Questions

(1) What radiological abnormality can you identify ?
- Complete opacification of the right mid and lower zones effacing the right heart border and right hemidiaphragm
- Blunting of the right costophrenic angle
- No evidence of mediastinal shift

(2) What is the radiological diagnosis ?

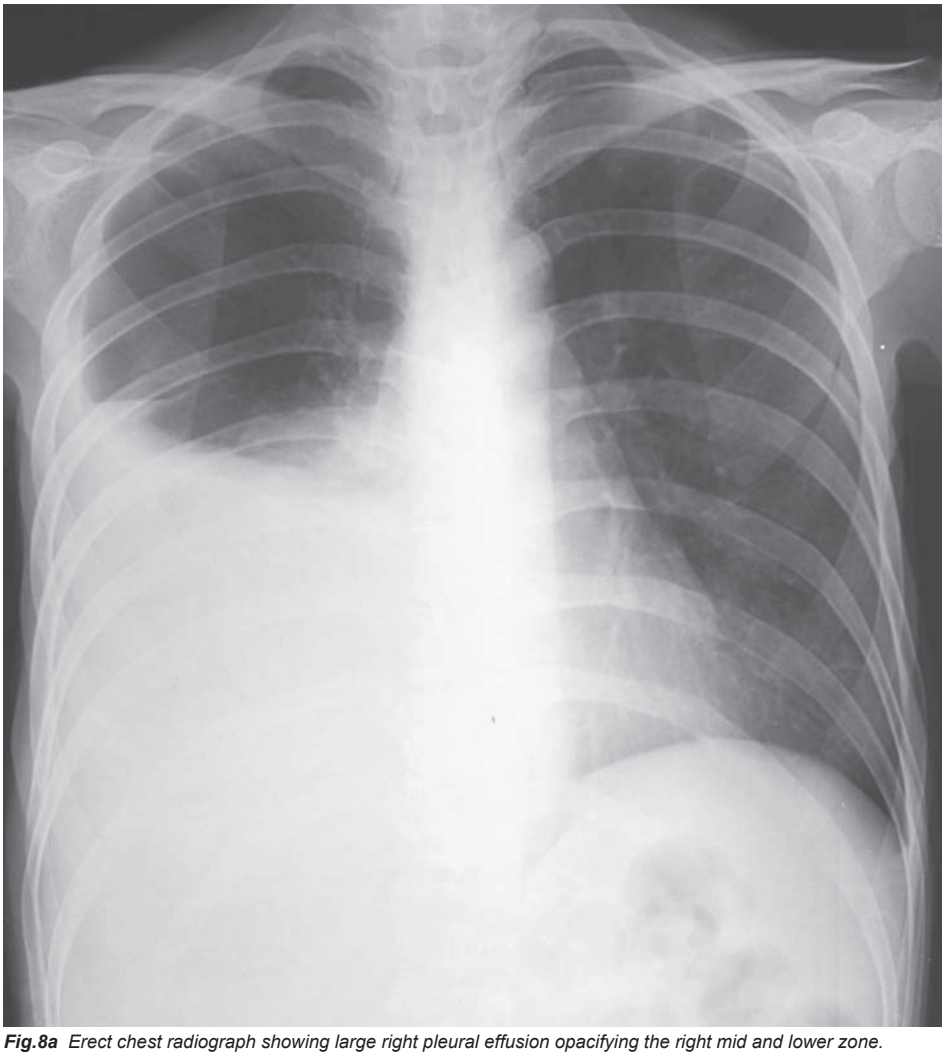


Fig.8a *Erect chest radiograph showing large right pleural effusion opacifying the right mid and lower zone.*

© Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-0-521-68294-7 - Case Studies in Medical Imaging: Radiology for Students and Trainees
A. T. Ahuja, G. E. Antonio, K. T. Wong, and H. Y. Yuen
Excerpt
More information

Case 9

A 75-year-old man presented with productive cough and high swinging fever for 3 days. Physical examination showed he was febrile and there was decreased air entry in right lower chest where the percussion note was stony dull. Laboratory investigations revealed marked leucocytosis and CXR was performed (Fig. 9a).

Questions

(1) What radiological abnormality is identified on the CXR ?
- Complete opacification of the right hemithorax with mediastinal shift to the left

(2) What is the radiological diagnosis ?

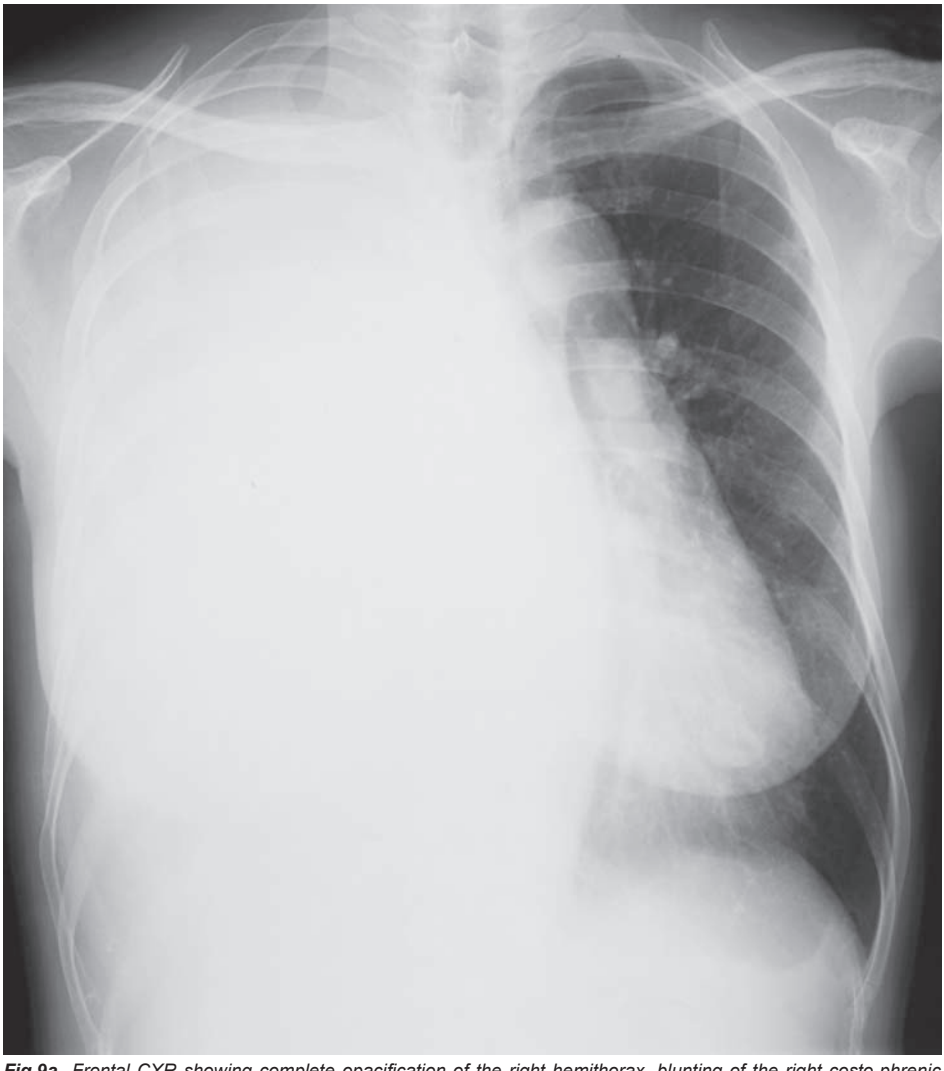


Fig.9a *Frontal CXR showing complete opacification of the right hemithorax, blunting of the right costo-phrenic angle with mediastinal shift to the left due to a large pleural collection.*

© Cambridge University Press www.cambridge.org