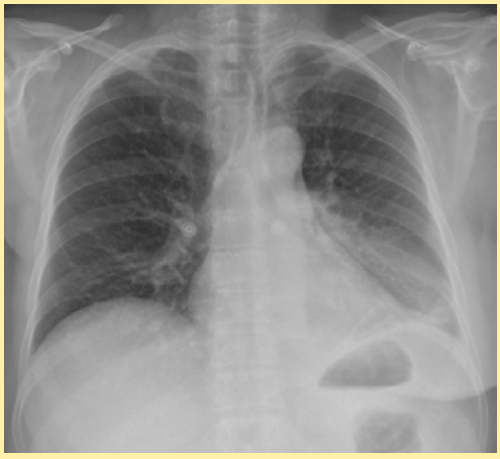
# Radiology corner

## Case 1

A 43-year-old female presents with fever, productive cough and shortness of breath.

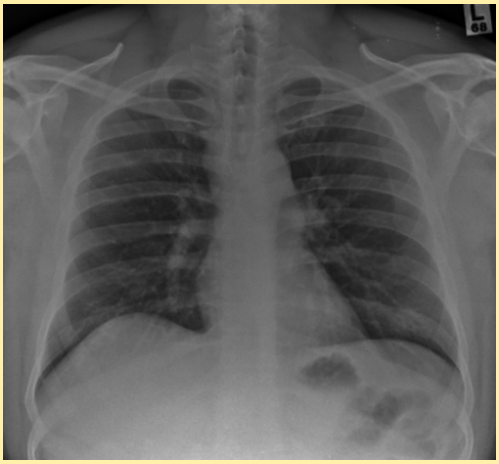
1. What is the main abnormality given the clinical history?
   a) Bronchogenic malignancy
   b) Pleural effusion
   c) Left lower lobe consolidation
   d) Lingular consolidation
   e) Left lower lobe collapse



## Case 2

A 29-year-old male presents with fever and night sweats.

1. What is the main abnormality?
   a) Mediastinal abnormality
   b) Hilar abnormality
   c) Normal appearance
   d) Lung parenchymal abnormality
   e) Pleural abnormality



# Answers

## Case 1

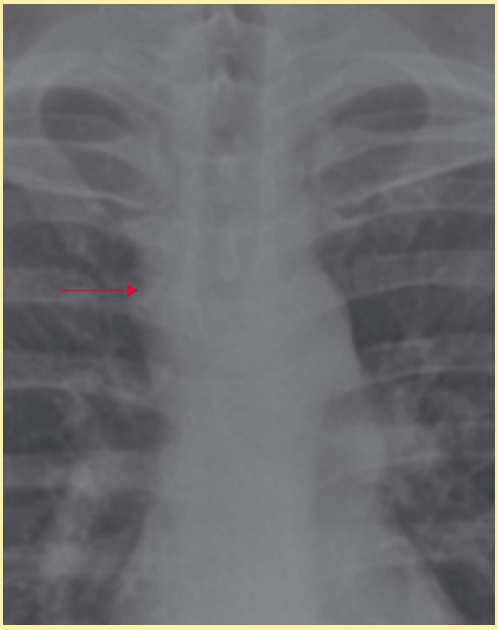
1. c) Left lower lobe consolidation. There is left lower zone opacification with an air bronchogram visible, which confirms that the opacification is based in the lungs. The left hemidiaphragm is partly obscured while the left heart border is visible. This is due to the silhouette sign where, when consolidation or a mass abut an adjacent structure that the X-ray beam crosses at 90º, the margin between that structure and the lung is obscured. However, if a mass or consolidation is behind or in front of that structure, then the border of that structure is still visible. So, in this case, the fact that the heart border is visible tells us that the consolidation is not beside the heart border, so not in the lingula; however, it is beside the diaphragm, which is obscured, so it must be in the lower lobe. As there is no loss of volume, this is consolidation not collapse. Combined with the clinical history, this is likely to be due to an infective process. The asymmetrical appearance with increased opacification in the left lower zone is accentuated by the overlying breast tissue (note the right sided mastectomy).

## Case 2

1. a) Mediastinal abnormality. There is right paratracheal widening which was due to adenopathy (red arrow). The right side of the trachea lies beside the lung and the right paratracheal stipe is usually <3 mm thick, except at the very lower end where the azygous vein is present and where it can measure up to 1 cm in thickness. Right paratracheal widening is usually due to mediastinal masses most commonly lymphadenopathy. This patient was diagnosed with tuberculosis.

   The main differential diagnoses for these appearances would include:

   - Tuberculosis
   - Lymphoma
   - Metastatic disease
   - Sarcoidosis (less likely)

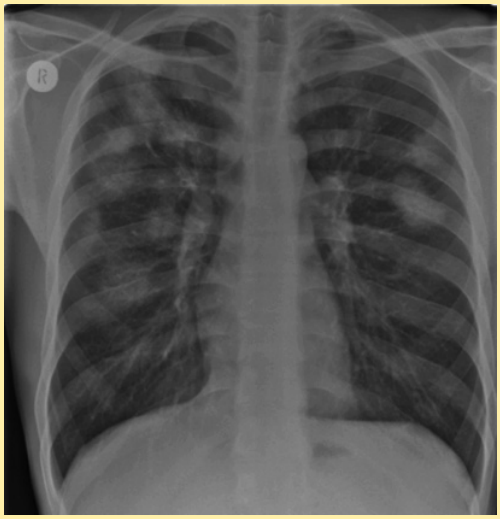


## Case 3

1. A 24-year-old male was admitted following a fall.

   Which of the following is not a diagnostic possibility for this appearance?

   a) Sarcoidosis
   b) Vasculitis
   c) Infective multifocal consolidation
   d) Metastatic disease
   e) Radiation pneumonitis

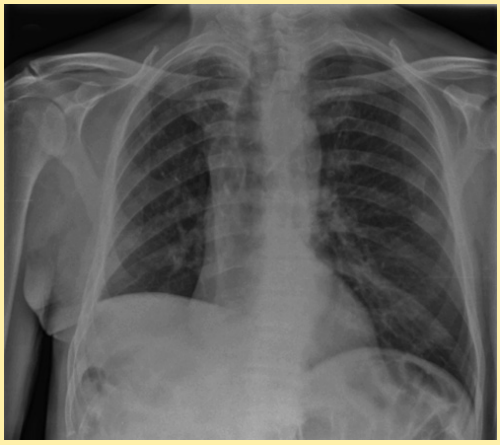


## Case 4

1. A 43-year-old male was recently discharged from hospital but presents with ongoing shortness of breath.

   What is the main abnormality?

   a) Pulmonary consolidation
   b) Soft tissue mass
   c) Lobar collapse
   d) Pleural effusion
   e) Mediastinal abnormality



# Answers

## Case 3

1. e) Radiation pneumonitis. In this case, there are multiple nodular opacities in both the middle and upper zones; some of these have air bronchograms evident. In addition, the left hilum has an abnormal contour as well as the aortopulmonary window. This was due to lymphadenopathy, which was confirmed on cross-sectional imaging. This patient was diagnosed with sarcoidosis following tissue biopsy. The histopathological basis for the alveolar pattern in sarcoidosis is loss of alveolar air because of compression of the alveoli by coalescent granulomas. In addition, the alveoli may be filled with macrophages and/or granulomas. With radiation pneumonitis, air space opacification is usually geographical, corresponding to the radiation field rather than presenting with multiple nodular opacities.

   The differential diagnosis for these appearances would include:

| | |
|---|---|
| **Neoplasia** | Metastases (*e.g.* testicular, sarcoma, melanoma, breast, thyroid or renal primaries)<br>Lymphoma |
| **Infection** | Multifocal abscesses (*e.g. Staphylococcus aureus*)<br>Fungal (*e.g.* histoplasmosis or coccidiomycosis) |
| **Immune mediated** | Granulomatosis with polyangiitis<br>Rheumatoid arthritis |

## Case 4

1. d) Pleural effusion. There is a right-sided subpulmonic effusion. Note the abnormal contour of the right hemidiaphragm and compare it with the normal left side. Subpulmonic effusions generally peak more laterally than is seen with a normal diaphragmatic contour. This patient was treated for community-acquired pneumonia and had developed a parapneumonic effusion as a complication.