CASE 1

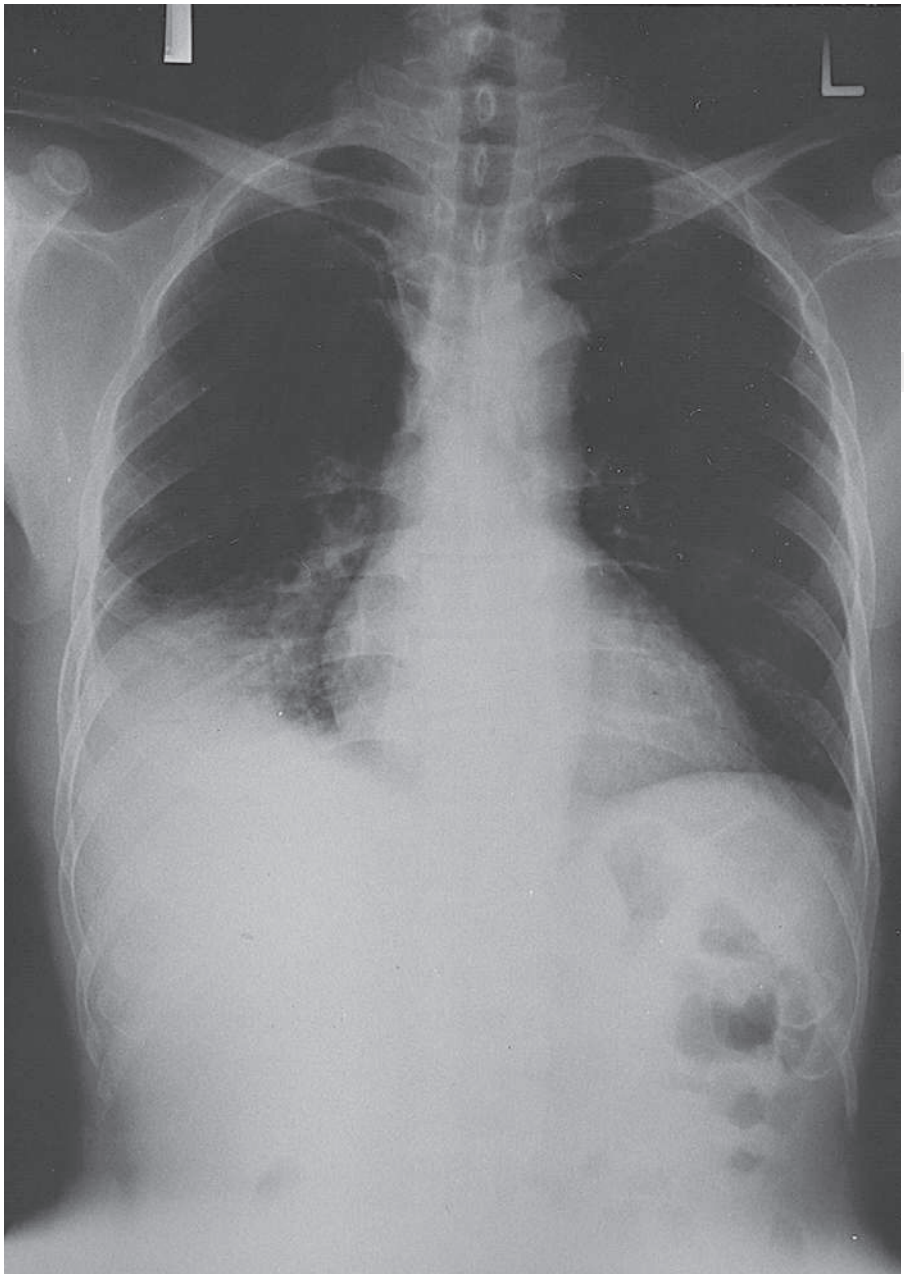

Fig. 1.1

Case 1. A 35-year-old male presented with fever, cough, and purulent sputum for one week. This was his CXR (Fig. 1.1). What is the diagnosis?

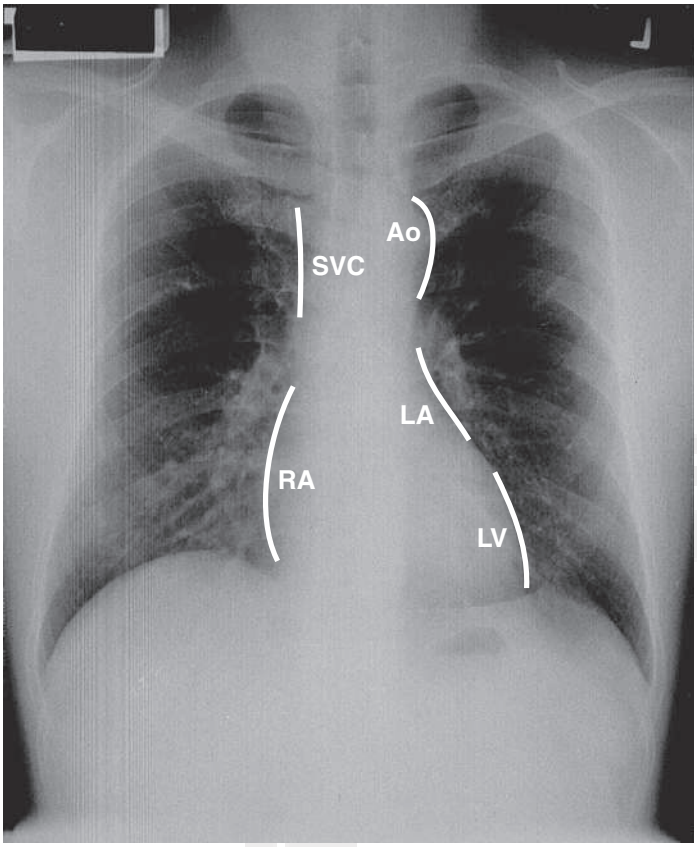

Fig. 1.2

CASE 1 PNEUMONIA

The CXR shows a focal shadow in the right lower lobe with air bronchograms suggestive of pneumonia. It is clearly in the right lower lobe because the right hemidiaphragm is effaced. Right middle lobe shadows would efface the right heart border. The presence of air bronchograms indicates pathology in the alveoli, as the conducting airways remain patent with air. Water or blood can also occupy the alveoli as a result of pulmonary edema or pulmonary hemorrhage respectively. There should be other supporting signs such as cardiomegaly, upper lobe diversion, and Kerley B lines with pulmonary edema. The differential diagnoses of a focal shadow with air bronchograms include bronchoalveolar cell carcinoma and lymphoma. It is important to follow-up the CXR to ensure that total resolution of infection occurs. This may take up to three months in the elderly but generally some improvement usually occurs within a week. The borders of the heart on a PA CXR are shown in Fig. 1.2. SVC – superior vena cava, RA – right atrium, Ao – aortic knuckle, LA – left atrium, LV – left ventricle

CASE 2

Fig. 2.1

Case 2. This 25-year-old had sudden onset of left-sided chest pain. The CXR is shown (Fig. 2.1).

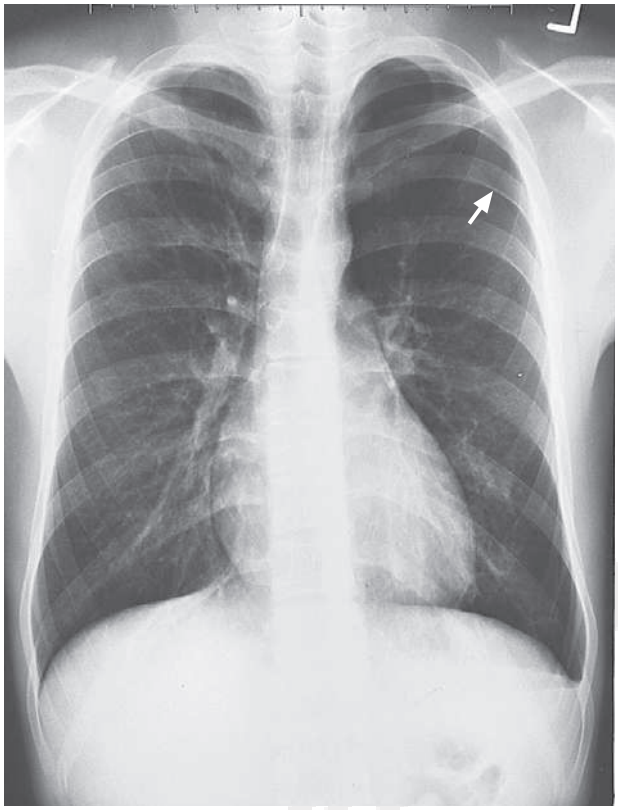

Fig. 2.2

CASE 2 LEFT PRIMARY SPONTANEOUS PNEUMOTHORAX

The CXR shows the visceral pleura (Fig. 2.2) separated from the parietal pleura by air which now occupies the potential space in the pleural cavity. The visceral pleura must not be mistaken for skin-fold shadows which usually occur in supine or obese patient CXR. In addition, the line from skin folds can be seen to cross the chest wall. In the patient above, the lungs appear otherwise healthy and this condition is called primary spontaneous pneumothorax. It occurs classically in young males. This is in contradistinction to secondary pneumothorax which occurs in diseased lungs, e.g. chronic obstructive pulmonary diseases (COPD). Pneumothorax in an erect film is usually seen at the apex. See Case 60.

CASE 3

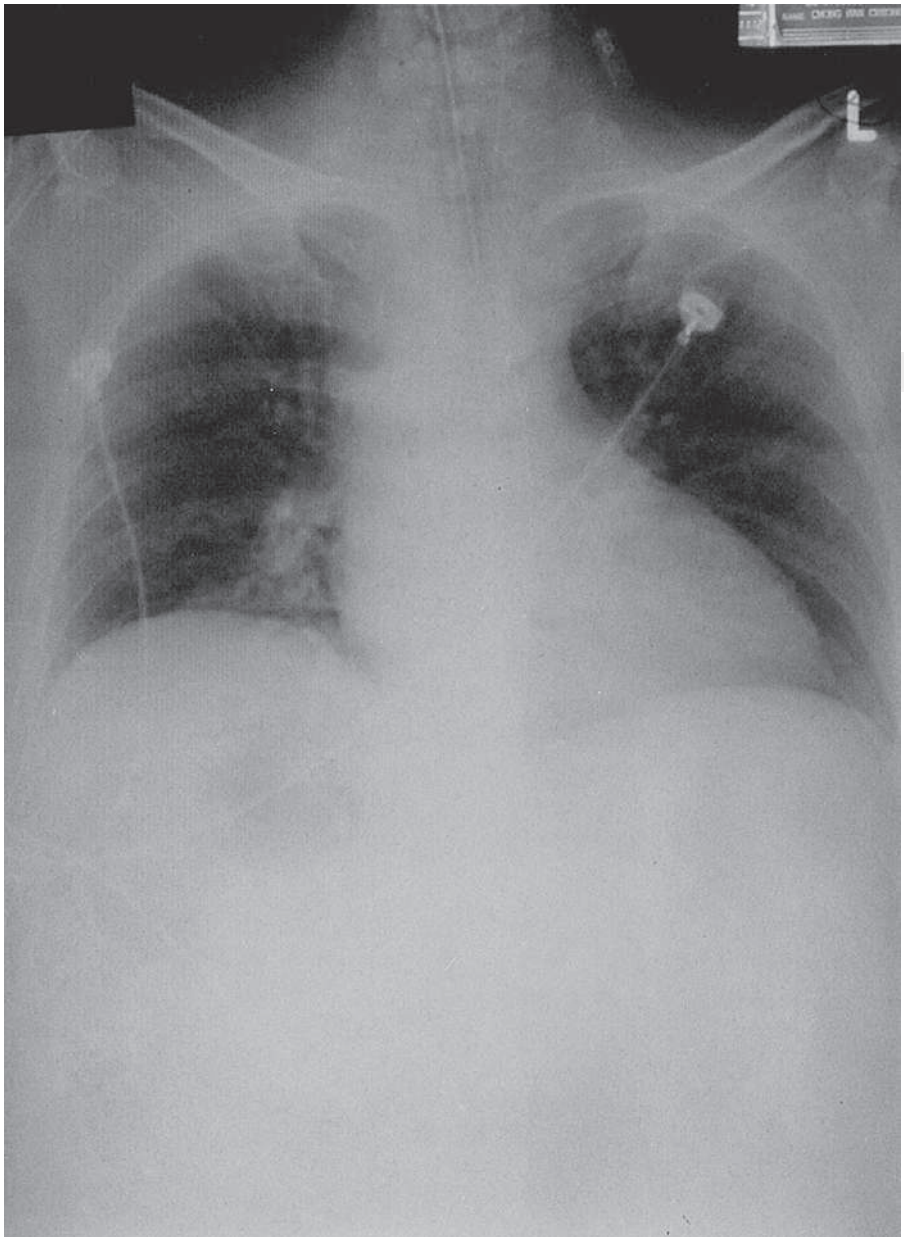

Fig. 3.1

Case 3. 50-year-old male presented to the Emergency Room with shock and a four-day history of a febrile illness. He required intubation and was started on inotropes. This was his CXR (Fig. 3.1).

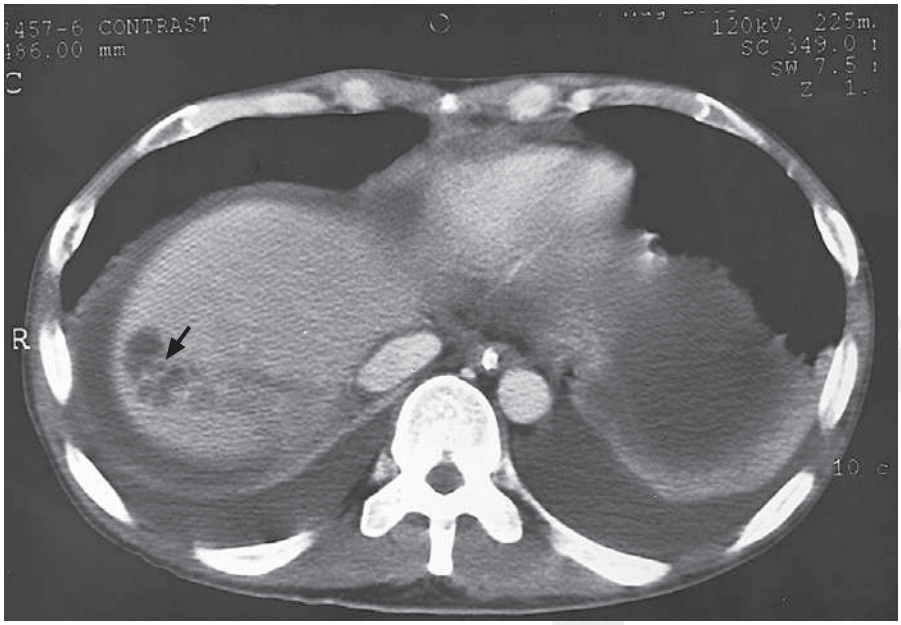

Fig. 3.2

CASE 3 RUPTURED LIVER ABSCESS

It is important to look at the "blind areas" of the CXR in order not to miss important clues. These areas are under the diaphragm, behind the heart, the hilum, and the soft tissues. This CXR shows a lucency over the liver density. The lucency does not conform to the usual bowel configuration. In this clinical context, an important differential diagnosis to be considered is a ruptured liver abscess. This can be confirmed either by bedside ultrasound or CT (Fig. 3.2). Liver abscesses are usually due to organisms like *Klebsiella* or *Amoebiasis*. All patients with *Klebsiella* bacteremia of unknown origin should have imaging studies of the abdomen to rule out a liver abscess.

CASE 4

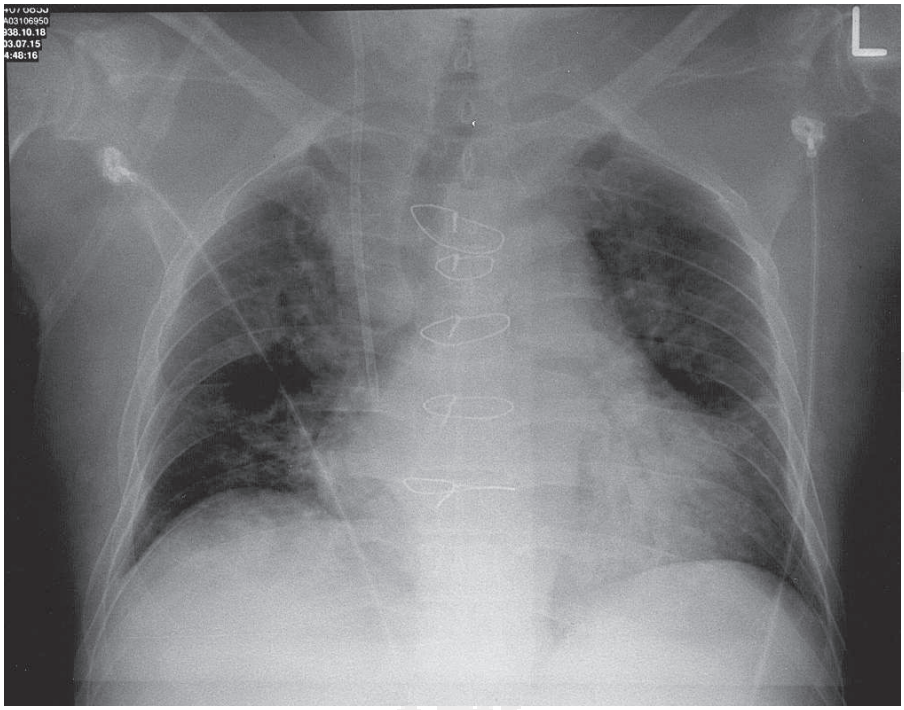

Fig. 4.1

Case 4. This elderly male has exertional dyspnea, orthopnea, and paroxysmal nocturnal dyspnea. His CXR is shown (Fig. 4.1).

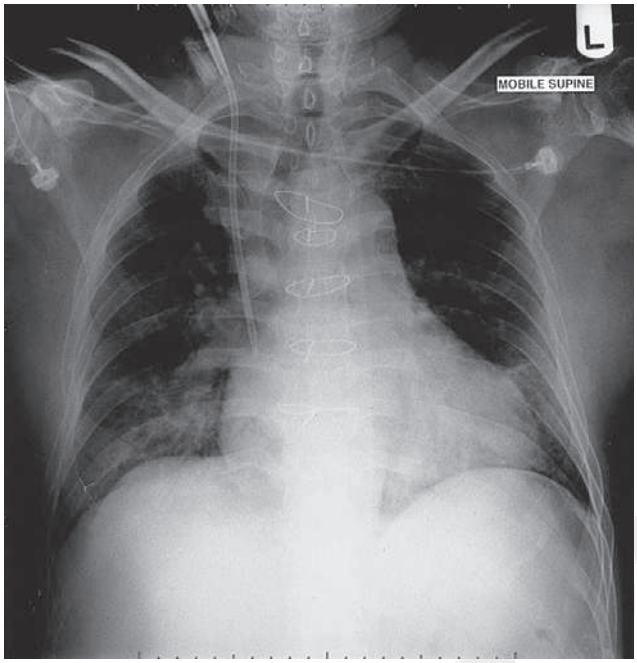

Fig. 4.2

CASE 4 CONGESTIVE HEART FAILURE

The CXR shows classic evidence of left ventricular failure, i.e. cardiomegaly (cardiothoracic ratio >50%), upper lobe pulmonary venous diversion, and Kerley B lines (which indicate distension of lymphatics). In addition, there is evidence of sternotomy wires, suggesting previous coronary artery bypass surgery (CABG). Following diuresis, the pulmonary infiltrates have cleared (Fig. 4.2). Only fluid and blood on the chest radiograph can clear rapidly (within days). This patient also has a right internal jugular central venous line.

CASE 5

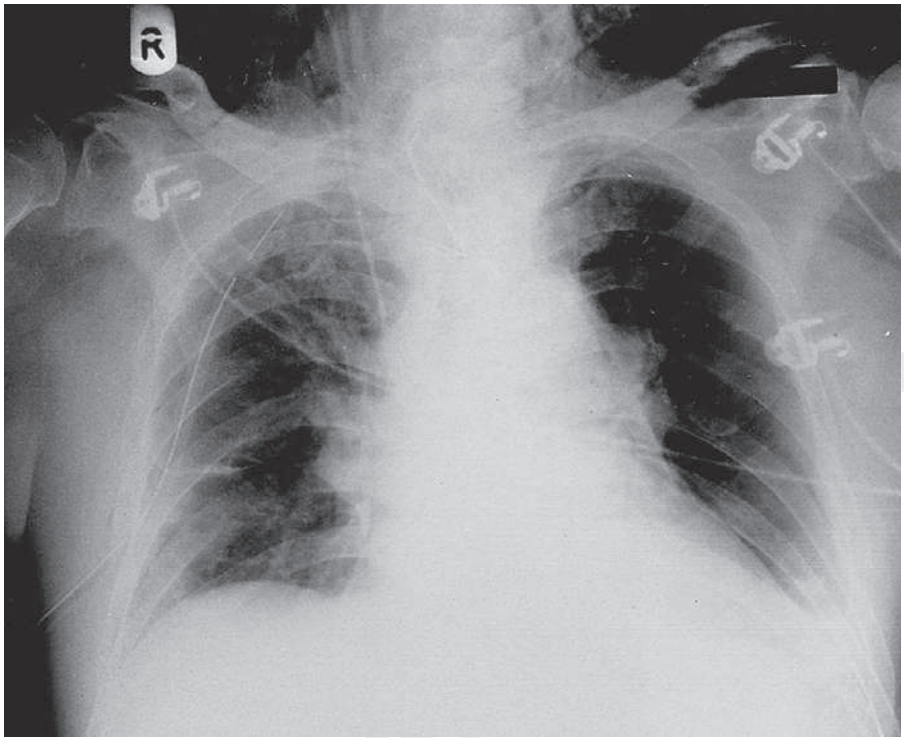

Fig. 5.1

Case 5. A 65-year-old male presented with cardiogenic shock. He had an emergency CABG which was associated with a very stormy peri-operative period. This was his CXR (Fig. 5.1) taken upon arrival at the Intensive Care Unit (ICU). What is the most significant abnormality?

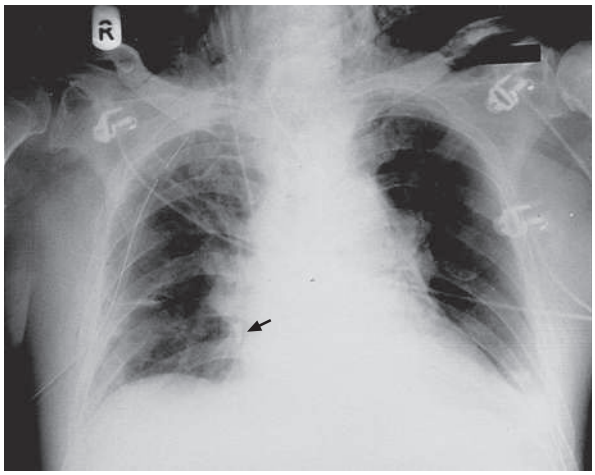

Fig. 5.2

Fig. 5.3

CASE 5 FOREIGN BODY RIGHT LOWER ZONE

The CXR shows an opaque density in the region of the right lower zone (Fig. 5.2). Each lung field on an erect CXR is divided into three zones. The upper zone is an area which lies above a horizontal line drawn from the medial end of the second rib anteriorly. The middle zone lies below this and is bordered inferiorly by a line drawn similarly from the fourth rib. The lower zone lies below this. This opaque density is similar in configuration to a tooth which was dislodged during emergency intubation of this patient. Foreign bodies are not as common in adults compared with children. It can occur silently in patients with decreased conscious level. The typical site is in the right main stem bronchus, as this has a more vertical course than the left. An example is seen in this CT (Fig. 5.3). Bronchoscopic removal is the usual initial treatment of choice.