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PHOTO QUIZ

A 44-year-old man with cavitary pneumonia and shock

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CASE REPORT

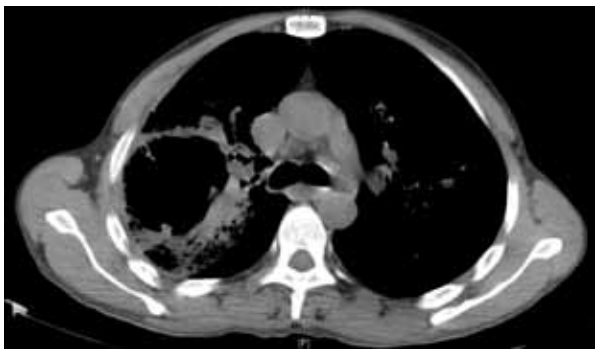
A 44-year-old man presented to the emergency department with a four-day history of dyspnoea, productive cough and haemoptysis. His past medical history was significant for asthma, smoking, and chronic alcohol abuse. Two weeks prior to presentation he had an episode of protracted vomiting, followed by a fall, head contusion and subsequent transient loss of consciousness.

The patient appeared neglected, with moderate respiratory distress. He was conscious and afebrile, with a respiratory rate of 32 breaths/min, a pulse rate of 120 beats/min, and blood pressure of 58/44 mmHg. Pulse oximetry showed an oxygen saturation of 96% at room air. Chest examination revealed reduced air entrance to both lungs, with rhonchi heard at the right lung base. Significant laboratory findings were a white blood cell count of 19,000 cells/μl with 93% neutrophils, haemoglobin level 11.6 g/dl, platelet count 217 platelets/μl, serum creatinine level 335 μmol/l, sodium 131 mmol/l, albumin 28 g/l and C-reactive protein 60 mg/dl (normal values 0 to 1). Liver-associated enzyme levels were normal. Blood gases showed pH of 7.26 with PCO2 49 mmHg and HCO3 21 mmol/l.

Antero-posterior chest X-ray (*figure 1*) and chest computed tomography (*figure 2*) showed diffuse bilateral infiltrates in both lung bases with a 6 cm cavitation in the upper segment of the right lower lobe.

Figure 1. *Chest X-ray of a 44-year-old man with haemoptysis and respiratory distress*

Figure 2. *High resolution computed tomography imaging of the chest of a 44-year-old man with haemoptysis and respiratory distress*



WHAT IS YOUR DIAGNOSIS?

See page 406 for the answer to this photo quiz.

ANSWER TO PHOTO QUIZ (PAGE 402)

A 44-YEAR-OLD MAN WITH CAVITARY PNEUMONIA AND SHOCK

DIAGNOSIS

Cavitary pneumonia and septic shock caused by *Pseudomonas aeruginosa*.

Anteroposterior chest X-ray and chest computed tomography at presentation showed diffuse alveolar infiltrates with a large cavitary lesion in the right lower lobe. In view of the uncertainty of the diagnosis and the patient's clinical condition, intravenous ceftriaxone, azithromycin and metronidazole were administered. Soon after, intubation and mechanical ventilation were instituted due to respiratory failure and shock and the patient was admitted to the intensive care unit. Despite intensive antibiotic and supportive treatment, multi-organ failure supervened and the patient died within two days of admission. *Pseudomonas aeruginosa* was recovered from blood and sputum cultures.

While *P. aeruginosa* is a common aetiological agent of nosocomial pneumonia, community acquired pneumonia (CAP) caused by *P. aeruginosa* is uncommon. In a recent prospective study of 5130 patients, the overall incidence of CAP caused by *P. aeruginosa* was only 0.4% with an 18% mortality rate.[1] The proportion of *P. aeruginosa* is higher among patients presenting with rapidly progressive pneumonia which necessitates intensive care treatment.[2] Most reports of CAP caused by *P. aeruginosa* are in patients with pulmonary comorbidity, immune suppression, following hospitalisation or within 30 days of antimicrobial therapy.[3]

Figure 1. *Chest X-ray showing alveolar infiltrates in the right middle lobe and left lower lobe (black arrows) and a large cavitary lesion in the upper segment of the right lower lobe (white arrows)*

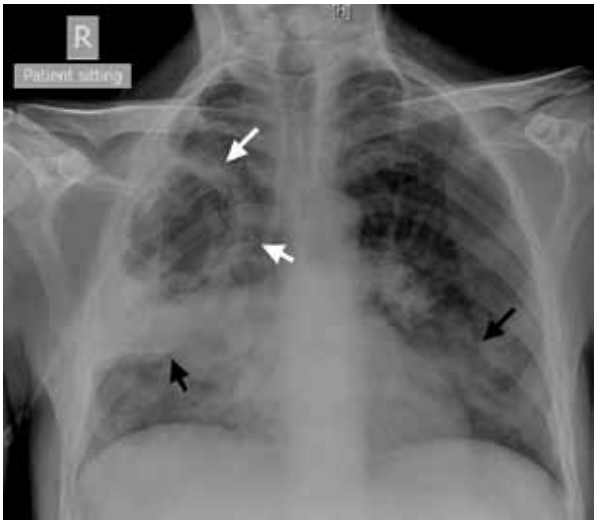


Figure 2. *High-resolution computed tomography imaging of the chest showing a 6 cm cavitary lesion in the upper segment of the right lower lobe (white arrows)*

P. aeruginosa CAP can be rapidly progressive, presenting as necrotising pneumonia with cavitary lesions on chest radiography with predilection for lower lobes.[4] The high mortality rate is partly due to inadequate empirical antimicrobial treatment.

Our patient had chronic lung disease and chronic alcohol abuse as predisposing risk factors and the possibility of *P. aeruginosa* CAP could be suggested by the severity of his disease and its rapid progression. When a patient presents with severe rapidly progressive necrotising pneumonia and relevant risk factors, a high index of suspicion for *P. aeruginosa* CAP is required and empirical anti-pseudomonas antimicrobial treatment should be considered.

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