

patients with minor degrees of clouding should be admitted for investigation of the underlying lesion. This may seem a little over cautious, but a missed diagnosis of underlying organic illness may easily have fatal consequences.²⁵

3. Provided due account is taken of somatic and behavioural manifestations, the diagnosis of depression would seem to be fairly straightforward. Most patients can be managed on an outpatient basis, and only the severely retarded or actively suicidal require admission.

4. In general, very few patients require admission after outpatient treatment.

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Haemophilus influenzae Lobar Pneumonia with Underlying Multiple Myeloma

A Case Report

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SUMMARY

Haemophilus influenzae is an uncommon but important cause of lobar pneumonia, specifically in patients whose host defence mechanisms are impaired by unrecognized underlying diseases. A case of *H. influenzae* lobar pneumonia in a patient with underlying multiple myeloma is presented. The clinical features, treatment and procedures which aid in making the diagnosis are briefly discussed.

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Haemophilus influenzae is a well-known cause of meningitis and respiratory tract infections in childhood. Fifteen years ago it was virtually unknown as a pathogen associated with lobar pneumonia, but it has been recognized as an increasingly important cause of this disease in recent years.¹⁻⁵ Until January 1978 only 167 cases had been reported in the world literature, but the true incidence may be greater than these figures suggest. The apparent rise in the incidence of this condition over the past decade can probably be attributed to increased awareness, improved diagnostic procedures and increased life-expectancy of susceptible hosts. To our knowledge, this report is the first of its kind in South Africa.

CASE REPORT

A 75-year-old White woman was admitted with recurrent pneumonia. Despite smoking 30 cigarettes per day for 45 years, she had been completely well with no respiratory

complaints before her present illness. Three weeks before admission she had been admitted to a rural hospital with fever and a left-sided pleuritic chest pain. A diagnosis of left lower lobe pneumonia was made and confirmed on radiographic examination. She was treated with intravenous antibiotics for 7 days, and discharged on the 10th day after a good symptomatic response and apparent resolution of the pneumonia. During the following 10 days she was asymptomatic, but then developed left-sided pleuritic chest pain and a fever of increasing severity; additionally, she had been aware of malaise and a cough of increasing intensity during the preceding month. No history of excessive alcohol intake was obtained.

On examination the patient was found to have an atrial fibrillation of 170/min, blood pressure of 90/60 mmHg and a temperature of 36,7°C. She was dehydrated, and her extremities were warm. Examination of the chest revealed coarse crepitations and signs of consolidation over the left lower lobe. No further abnormalities were present on systemic examination. The side-room investigations showed the haemoglobin concentration to be 11,5 g/dl and the white cell count to be 6 800/ μ l. The erythrocyte sedimentation rate (Westergren) was 50 mm/1st h, an ECG confirmed the atrial fibrillation, but was otherwise unremarkable, and a chest radiograph revealed left lower lobe consolidation (Figs 1 and 2). The plasma urea level was 14,6 mmol/l, and the electrolyte pattern was normal.

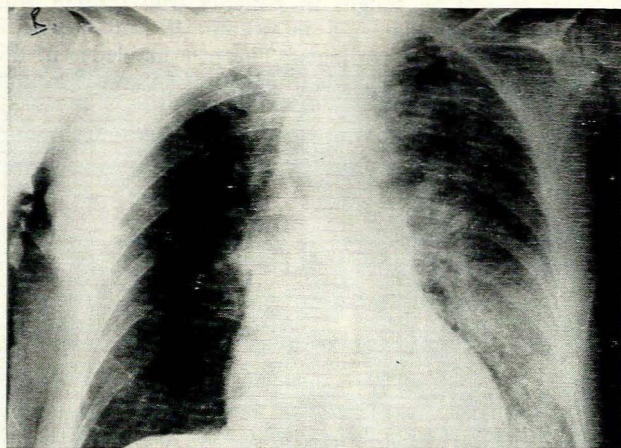


Fig. 1. Postero-anterior radiograph of the chest.

Initial treatment consisted of penicillin G 4 million units intravenously at 4-hourly intervals. Digitalis was administered and the patient rehydrated during the first 24 hours. After this treatment she reported feeling better, and this was supported by her clinical condition, and the return of sinus rhythm and a normal blood urea level. The patient's response to the infection was characterized by an apyrexial course, with a relatively mild leucocytosis of 12 000/ μ l on the 2nd day. Four days after admission a pure culture of *H. influenzae*, sensitive to penicillin, carbenicillin, chloramphenicol and co-trimoxazole, was obtained from three blood samples taken before initiation of therapy. No

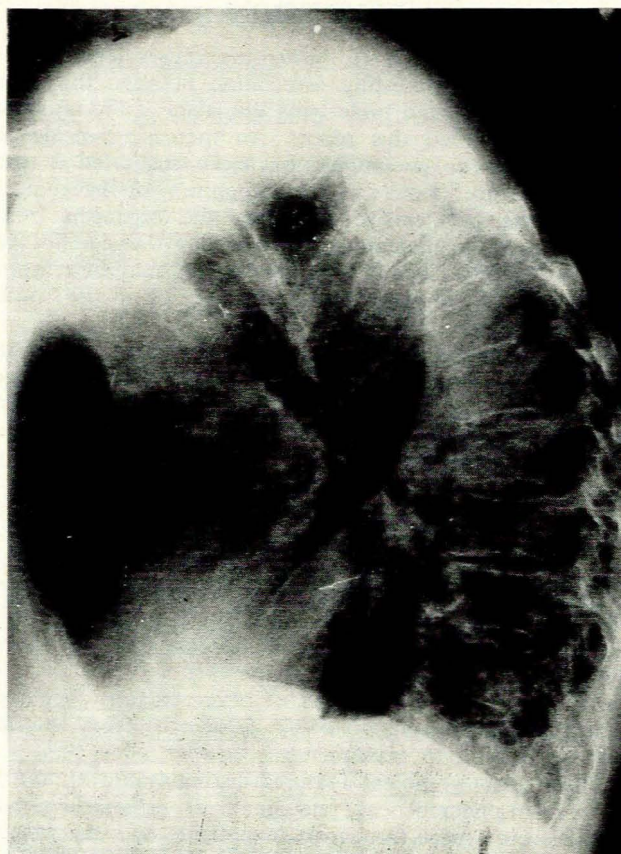


Fig. 2. Lateral radiograph of the chest.

growth of *H. influenzae* was obtained from the sputum. Despite the good clinical response and the sensitivity of the organism to penicillin, amoxycillin was added to the treatment regimen.

An underlying cause for the recurrent pneumonia was sought. A mild macrocytic anaemia and a normal differential count were reported. Initial and subsequent plasma glucose estimations revealed the presence of diabetes mellitus, which was controlled by diet. The serum protein value was 78 g/l, with albumin 20 g/l and globulin 58 g/l, and the results of liver function tests were normal. A monoclonal peak, specific for IgG, was demonstrated by immuno-electrophoresis; serum IgM and IgA levels were decreased. On bone marrow aspiration and trephine biopsy a predominance of atypical plasma cells was found which was compatible with a diagnosis of myeloma. Multiple small osteolytic lesions were evident on skull radiography but the results of the rest of the skeletal survey were normal. No free light chains were detected in the urine.

The clinical signs of consolidation had resolved after 5 days, and no radiological evidence of pneumonia could be detected 14 days after admission. The penicillin and amoxycillin were continued for a total of 7 days each, and the patient was discharged after 16 days, to be followed up at the haematology clinic for treatment of her myeloma.

DISCUSSION

The rarity with which *H. influenzae* causes lobar pneumonia and the interesting association between this type of lung infection and underlying disorders of the immune response prompted this report. An increasing incidence of *H. influenzae* pneumonia has been suggested in the world literature.³ Errors in the recognition of the clinical picture, the problems of isolating the organism from sputum, and the difficulty of interpreting the significance of *H. influenzae* isolated from the sputum may be reasons for the paucity of reports on this condition in the South African literature.

H. influenzae is a Gram-negative pleomorphic organism found as encapsulated and unencapsulated strains. The encapsulated strain can be subdivided into six different serotypes on the basis of their polyribose-phosphate capsular antigens. Type b is most frequently isolated during invasive infections, type f being the second most prevalent strain. Non-encapsulated strains are frequently isolated from the sputum of normal people and from patients with respiratory tract infections, but are usually regarded as part of the normal flora. The failure to isolate *H. influenzae* from sputum specimens does not exclude this organism as a cause of infection, because failure may be due to sampling error, death of the organism in transit to the laboratory or overgrowth of other bacteria. Without stereotyping, the isolation of *H. influenzae* from sputum may be difficult to assess.⁵

There are no clinical features distinguishing *H. influenzae* from pneumococcal pneumonia. *H. influenzae* pneumonia occurs more frequently in patients over the age of 50 years. The clinical picture¹⁻⁵ includes fever, chills, a cough with or without haemoptysis, dyspnoea and pleuritic chest pain. Leucocytosis is usually present, but, as in our patient, pyrexia and leucocytosis may be absent.^{3,4} Involvement is usually lobar or segmental, single or multiple, although reports of a predominantly broncho-pneumonic picture exist.^{3,6} Frequent involvement of the lower lobes, especially the right lobe, has been noted. Involvement of the pleura is common,^{3,5,6} but *H. influenzae* is not often cultured from pleural aspirates.⁵ Empyema and isolated cases of lung abscesses⁵ have been reported as complications. Microscopic examination and culture of the sputum are often not helpful in confirming the diagnosis. The problem of differentiating clinically between pneumococcal and *H. influenzae* pneumonia emphasizes the need for blood cultures and transtracheal or bronchial

aspirates in suspected cases. Blood cultures are positive in 5-30% of cases, and examination of transtracheal aspirates, which yield a bacteriological diagnosis in the majority of patients, represents a positive advance in the diagnosis of this condition.^{4,5}

In our patient the clinical and radiological picture prompted the selection of penicillin as the antibiotic of choice. In spite of the known resistance of *H. influenzae* to this drug, a good clinical response was initially recorded. This response to penicillin has been noted in previous reports.²⁻⁵ The routine use of penicillin for this type of pneumonia should not be advised, since ampicillin, chloramphenicol, cephalothin and erythromycin have been used with greater success. In view of the increasing resistance of *H. influenzae*, sensitivity testing of the organism is advisable when ampicillin is used.³

In adults an association has been shown to exist between *H. influenzae* pneumonia and underlying pulmonary and extrapulmonary disorders. Among the disorders mentioned are alcoholism, specifically among individuals under the age of 50 years, chronic pulmonary disease, diabetes, immunoglobulin defects and previous viral chest infections.^{1,2,3} *H. influenzae* has been isolated in patients with recurrent pneumonia.⁷ Recently, however, a number of cases have been reported in which the above disorders were not found.¹ In our patient diabetes might have contributed to the development of the pneumonia, multiple myeloma being the major underlying contributing factor. This case emphasizes the fact that an underlying disorder should be sought in patients who present with recurrent pneumonia and in whom *H. influenzae* is isolated as the major pathogen. The true incidence of this condition will be revealed when serotyping of sputum specimens, pleural cultures, blood cultures and transtracheal aspirates is employed, and these techniques should lead to more cases of *H. influenzae* pneumonia being recognized.

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