*Postgrad Med J* (1991) **67**, 764 – 766





## Missed Diagnosis

# Melioidosis in a patient from Bangladesh

C.C. Kibbler[1], C.M. Roberts[2], G.L. Ridgway[1] and S.G. Spiro[2]

*Departments of [1]Clinical Microbiology and [2]Respiratory Medicine, University College Hospital, London WC1E 6AU, UK.*

**Summary: A 54 year old Bangladeshi man presented with a history and chest X-ray appearances suggestive of pulmonary tuberculosis. Following deterioration 4 weeks later, he required ventilation. Although a blood culture isolate was subsequently found to be *Pseudomonas pseudomallei*, it was initially misidentified and dismissed as a contaminant. Further cultures demonstrated the organism, but the patient died, despite treatment with ceftazidime.**

**The case illustrates the importance of taking a detailed travel history and having a high index of suspicion in patients from South East Asia and the Indian sub-continent, including Bangladesh, where the disease has not previously been considered endemic.**

## Introduction

Melioidosis is a rare disease in the UK and is only seen in those who have travelled or lived in areas where the condition is endemic. Early diagnosis requires a high level of clinical suspicion, especially as symptoms may occur many years after the initial infection and may masquerade as other conditions, notably tuberculosis.

We present the case of a man who had emigrated from Bangladesh, a country not generally considered endemic for melioidosis, who presented with a clinical history suggestive of pulmonary tuberculosis.

## Case report

A 54 year old Bangladeshi man presented to medical outpatients with a 3 month history of cough, night sweats and weight loss. He had been resident in the United Kingdom since 1963 but had returned to Bangladesh on several occasions, the last being 6 months previously. He was a diet controlled diabetic with a 35 pack year smoking history. Examination was unremarkable. The chest radiograph demonstrated cavitation within the anterior segment of the right upper lobe (Figure 1). A provisional diagnosis of tuberculosis was made, sputum sent for acid-fast bacilli (AFB) and follow-up arranged. On return to the clinic 4 weeks later, he had deteriorated considerably and was admitted.

He was now unwell, with a temperature of 39°C, respiratory rate 24/min, and inspiratory crackles throughout the right side of the chest. Sputum examination was negative for AFB, the chest radiograph showed confluent right upper lobe consolidation. Blood analysis yielded haemoglobin 9.3 g/dl, white cell count $11.2 \times 10^9$/l, platelets $43 \times 10^9$/l, AST 102 IU/l, alkaline phosphatase 467 IU/l, sodium 130 mmol/l.

Intravenous cefuroxime was commenced but the patient deteriorated, developing hypotension and respiratory failure requiring mechanical ventilation. An admission blood culture isolated a *Pseudomonas* species provisionally identified as *Pseudomonas fluorescens* and thought to be a contaminant, but in view of the clinical deterioration gentamicin was added to the treatment. A second *Pseudomonas* species was later isolated from blood and bronchoscopic washings, and the antibiotic changed to ceftazidime. Unfortunately the patient failed to respond and died 7 days after admission. These organisms were subsequently identified as *Pseudomonas pseudomallei*. Using an ELISA technique, he was found to have a serum antibody titre of 1 in 16 000 to this organism.

Correspondence: C.C. Kibbler, M.A., M.R.C.P., M.R.C.Path., Royal Free Hospital, Pond Street, London NW3 2QG, UK.

Accepted: 7 January 1991

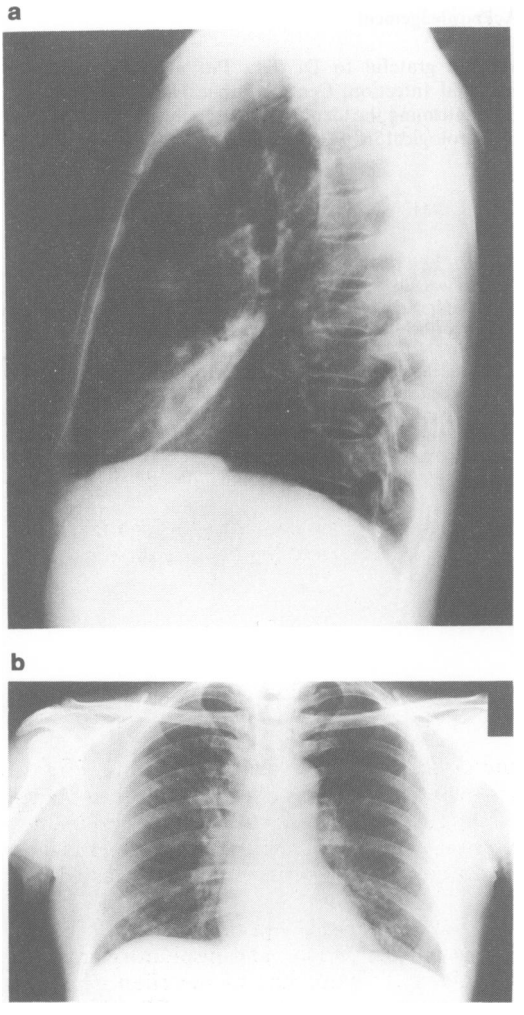

**Figure 1** (a) Right lateral chest radiograph illustrating cavitation within the anterior segment of the right upper lobe. (b) P.A. chest radiograph.

## Discussion

Although melioidosis is well recognized as occurring on the Indian sub-continent and throughout South East Asia,[1] the first case of melioidosis from Bangladesh was reported as recently as 1988.[2] It may well be more prevalent in Bangladesh than has been appreciated as the environmental and farming conditions responsible for its dissemination are similar to those of India.

*Pseudomonas pseudomallei*, the causative organism, is found in the soil and water of endemic areas. Infection in man results from contamination of wounds, skin abrasions or via inhalation. People with diabetes mellitus or renal failure are especially predisposed to this infection.[3] The disease has many presentations, varying from asymptomatic carrier status to overwhelming septicaemia, as in this case. The infection may remain latent for over 25 years[4] necessitating a detailed history of foreign travel to detect past exposure. The acute form of the disease most commonly presents with pulmonary infection. There may be sudden or gradual onset of fever, rigors, headache, myalgia and anorexia accompanied by cough sometimes associated with haemoptysis. If septicaemia develops, a rapid deterioration with high fever, headache, pharyngitis, diarrhoea and the appearance of skin pustules may occur. Less commonly, tender, swollen joints and signs of meningitis are seen.[5] In chronic disease, patients are usually afebrile and symptoms are referable to the affected organ.

The most likely diagnosis of cavitating lung disease in a patient of this geographic origin is tuberculosis. However, it is important to consider melioidosis in the differential diagnosis especially in the presence of fulminant pneumonia and septicaemia. The organism is typically resistant to many first line antibiotics including gentamicin.[1] Treatment with ceftazidime should be instituted at an early stage in order to reduce the high mortality associated with the condition.[6]

In this patient the radiological features were not typical of tuberculosis, occurring, as they did, in the anterior segment of the upper lobe (Figure 1). As AFB were not seen in the initial sputum specimens, further investigations were carried out to isolate an organism but the diagnosis of melioidosis was not considered because of the geographical origin of the patient.

Pseudomonads are common isolates in the sputum of intubated patients and are often dismissed as colonizing organisms. This case highlights the need for full identification of these organisms in such patients. The initial blood culture isolate was mis-identified using the API 20E kit (API Laboratories, La Balme-les-Grottes, France) and was considered a contaminant. Subsequently the blood culture isolates were correctly identified using the API 20NE system, and confirmed by the reference laboratory.

There has been concern about the risks to staff caring for patients with melioidosis and laboratory workers handling contaminated specimens. Although tetracycline has been given to staff in such cases[7] we believe that this therapy is unwarranted as documented person-to-person transmission of infection is extremely rare.[1] Serological follow-up of staff concerned with this case has been negative for antibodies to the organism at one month or more after contact.

Although the mortality of melioidosis has been reduced considerably in endemic areas through early recognition and prompt treatment, this pattern has not been repeated in the UK, where

diagnosis is often delayed. The threshold of awareness of this condition must be raised to include it in the differential diagnosis of cavitating pneumonia in those from, or who have travelled in, South East Asia and the Indian sub-continent including Bangladesh.

**Acknowledgement**

We are grateful to Dr T.L. Pitt at the Division of Hospital Infection, Central Public Health Laboratory, for confirming the identity of the organism and performing serological investigations.

**References**

1. Sanford, J.P. Pseudomonas species (including melioidosis and glanders). In: Mandell, G.L., Douglas, R.G. & Bennett, J.E. (eds) *Principles and Practice of Infectious Disease*, 2nd Edition. John Wiley, New York, 1988, pp. 1250–1254.
2. Streulens, M.J., Mondol, G., Bennish, M. & Dance, D.A.B. Melioidosis in Bangladesh: a case report. *Trans R Soc Trop Med Hyg* 1988, **82:** 777–778.
3. Leelarasmee, A. & Bovornkitti, S. Melioidosis: review and update. *Rev Infect Dis* 1989, **11:** 413–425.
4. Mays, E.E. & Ricketts, E.A. Melioidosis: recrudescence associated with bronchogenic carcinoma twenty-six years following geographic exposure. *Chest* 1975, **68:** 261–263.
5. Chaowagul, W., White, N.J, Dance, D.A.B. *et al.* Melioidosis: a major cause of community acquired pneumonia septicaemia in Northeastern Thailand. *J Infect Dis* 1989, **159:** 890–899.
6. White, N.J., Dance, D.A.B., Chaowagul, W., Wattangoon, Y., Wuthiekanun, V. & Pitakwatchara, N. Halving of mortality of severe melioidosis by ceftazidime. *Lancet* 1989, **ii:** 697–700.
7. Sheppard, M.J., Marriott, R.M. & Brown, T.J. Long latency pneumonia: a case of melioidosis. *J Infect* 1990, **20:** 83–84.