

Endobronchial Mass in a Patient with *Burkholderia pseudomallei* Infection

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Abstract

Introduction: *Burkholderia pseudomallei* infection, the great mimicker of infectious diseases, has protean clinical manifestations. **Clinical Picture:** A 37-year-old man who presented with community-acquired pneumonia affecting the right upper lobe had unremitting fever. Bronchoscopy showed an endobronchial mass in the right upper lobe bronchus. **Treatment:** Intravenous ceftriaxone and oral erythromycin, with empiric antituberculous treatment added later. This was subsequently switched to intravenous ceftazidime and oral doxycycline after the diagnosis was made. **Outcome:** There was resolution of the endobronchial mass. **Conclusion:** This case illustrates a unique and unreported presentation of melioidosis.

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Key words: Endobronchial mass, Melioidosis

Introduction

The diagnosis of *Burkholderia pseudomallei* infection is based on culture of clinical specimens such as blood or other body fluids, or serology using indirect haemagglutination (IHA) test and various antigen detection tests.¹ Gram stain shows a bipolar “safety-pin” pattern or small gram-negative rods. It usually occurs in patients who have compromised host immunocompetence from underlying illnesses such as diabetes mellitus, liver cirrhosis, systemic lupus erythematosus and chronic alcohol abuse. This infection has been reported to present as an upper lobe infiltrate mimicking pulmonary tuberculosis.² To date, there are no reports on this infection causing an endobronchial mass.

Case Report

A 37-year-old man presented with a five-day history of fever associated with chills and rigors. He gave a history of non-insulin dependant diabetes for 10 years which was controlled with glibenclamide. He worked as an electrician in construction sites and had stopped smoking for 3 years. Clinical examination showed that he was febrile (39°C). Breath sounds were slightly diminished over the right upper chest. His Mantoux test showed an induration of 12 mm and the chest radiograph showed an infiltrate in the right upper lobe (Fig. 1). The initial sputum and blood cultures were negative as were serologies for mycoplasma

and legionella. The melioidosis serology done using the IHA test was also negative.

The patient was treated as for community-acquired pneumonia with intravenous ceftriaxone and oral erythromycin. Despite this, he continued to remain febrile after 3 days and was then started on empiric treatment for melioidosis with intravenous ceftazidime and oral doxycycline as well as initiated on anti-tuberculous therapy. Bronchoscopy showed a 1.5-cm endobronchial mass in the right upper lobe bronchus (Fig. 2). Computed tomographic scan of the thorax demonstrated a soft tissue swelling in the right upper lobe causing obstruction with distal collapse and consolidation. There were surrounding small densities suggestive of possible metastases but the lymph nodes appeared normal. His fever settled over the next 2 days. The provisional histopathological report was highly suggestive of tuberculosis with the endobronchial biopsy consisting of mainly caseating material and he was discharged with anti-tuberculous therapy.

Two days post-discharge, the culture from the bronchoalveolar lavage grew *Burkholderia pseudomallei*. The formal histology report concluded that the biopsy specimen consisted mainly of necrotic material. The patient was recalled for readmission for further therapy with intravenous ceftazidime and oral doxycycline. A repeat bronchoscopy done after 3 weeks of these antibiotics was

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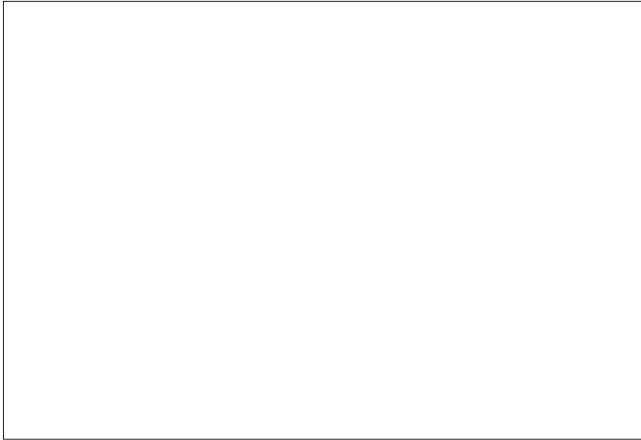


Fig. 1. Right upper lobe consolidation.

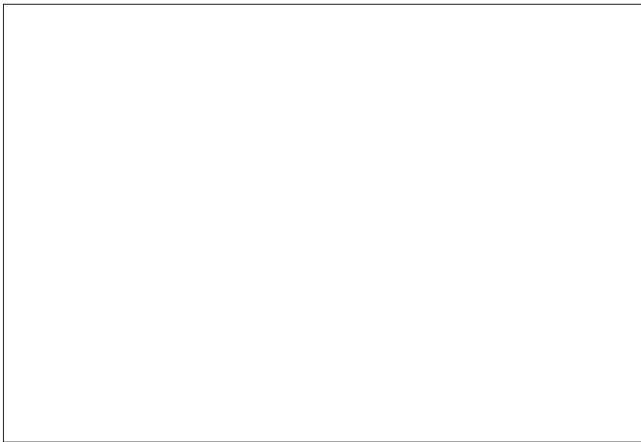


Fig. 2. Endobronchial mass at the right upper lobe.

normal. The chest radiograph also showed resolution of the right upper lobe consolidation. A repeat melioidosis IHA titre done during the second admission was positive at 1:32. He was discharged with a six-month course of oral bactrim and doxycycline.

Discussion

Our patient was initially diagnosed to have community-acquired pneumonia. As such, treatment was instituted in accordance to the guidelines from the American Thoracic Society.³ When his fever failed to resolve after three days, other differential diagnoses such as pulmonary tuberculosis and melioidosis were considered and empiric treatment for these organisms was instituted. At the time when the preliminary histology report of caseous necrosis was made

available, the fever had settled for 2 days and he was discharged with anti-tuberculous treatment.

In IHA tests, an antibody titre of $\geq 1:40$ is generally considered to be serologic evidence of infection. However, antibody titres ranging from 1:40 to 1:160 are frequently found in healthy people and in patients with other illnesses living in endemic areas.¹ In Thailand a cutoff of 1:80 yielded 90% sensitivity and 88% specificity in the diagnosis of active melioidosis.⁴ A single titre of $\geq 1:640$ is highly suggestive of active melioidosis while a four-fold increase in the IHA titre may be found in people with active infection.¹ It is interesting to note that our patient's melioidosis serology at first presentation was negative, but became positive 2 weeks later.

To date, there have not been any reports of melioidosis presenting with an endobronchial mass. Our patient's endobronchial mass was initially thought to be due to a tumour or tuberculous endobronchitis. The provisional histopathological report was highly suggestive of tuberculosis with the biopsy sample consisting of mainly caseating material, but the final histology was revised to be that of necrotic material. This is consistent with other reports of infected tissue revealing either necrotising suppuration or granuloma formation in chronic cases.⁵ This serves to caution us regarding the possibility of melioidosis when we have histology specimens showing caseating granulomas without the presence of acid-fast bacilli in the appropriate clinical setting. Further support that the endobronchial mass was due to *Burkholderia pseudomallei* infection was its resolution bronchoscopically after 3 weeks of appropriate antibiotics.

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