CASE REPORT

PULMONARY MELIOIDOSIS PRESENTING WITH RIGHT PARATRACHEAL MASS

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Abstract. A rare case of pulmonary melioidosis is reported. The patient was a 62-year-old man presenting with subacute fever, dry cough, and significant weight loss. A chest x-ray revealed a right paratracheal mass. The findings from fiberoptic bronchoscopy were a blunt carina and normal tracheobronchial tree. The patient had an underlying disease of poorly controlled diabetes mellitus, heavy smoking, and heavy alcoholic drinking. One of the two cultured blood specimens grew *B. pseudomallei*. The pathological finding of transbronchial biopsy at the apical segment of the right upper lung showed lymphocytic infiltrates. He was treated with two weeks of intravenous ceftazidime plus cotrimoxazole followed by 5 months of oral doxycycline plus cotrimoxazole. Clinical symptoms significantly improved and the right paratracheal mass disappeared.

Pulmonary melioidosis is a common and well-known pulmonary infection in the northeast of Thailand (Chaowagul *et al*, 1989; Charoenratanakul, 1997; Maneechotesuwan, 1999). Diabetes mellitus and renal insufficiency are common underlying diseases for *B. pseudomallei* infection (Suputtamongkol *et al*, 1999). The clinical features of pulmonary melioidosis may be acute, subacute, or chronic. Subacute and chronic forms may mimic pulmonary tuberculosis making differentiation difficult. Patchy alveolar infiltration with and without cavitation, and mottled and streaky infiltrates are common radiographic findings in the subacute and chronic forms (Dhiensiri *et al*, 1988). A lung mass or paratracheal mass is a rare radiographic finding. We report a rare case of pulmonary melioidosis presented with right paratracheal mass mimicking bronchogenic carcinoma.

A 62-year-old male, government employee from Khon Kaen Province, presented with a 6-week history of fever with cough. He had low-grade fever in the evenings. His sputum was scanty, mucoid, and free of blood. His appetite was poor and he had lost 8 kg in one month. He smoked 50 pack of cigarettes/year and consumed large amounts of alcoholic beverages. Before coming to Srinagarind Hospital, he went to a regional hospital, Phuwiang Hospital. The investigation there revealed three negative AFB staining of sputum and a chest radiograph showing a right paratracheal mass, suggestive of bronchogenic carcinoma. He had a 2-year history of poorly-controlled diabetes mellitus.

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On admission, his vital signs were: temperature 36.8°C, blood pressure 160/80 mmHg, pulse 100/minute, and respiration 20/minute. He was slightly pale; his cervical lymph nodes were not palpable; the trachea was in midline. The anteroposterior diameter of the chest wall was increased. Auscultation of the chest revealed normal breath sounds, and increased vocal resonance at the right upper lung. Percussion of the right upper chest wall was dullness. The liver was 2 fingerbreaths below the right costal margin, a 12 cm span. The spleen was not palpated. Clubbing of fingers was not detected. Examination of other systems was unremarkable.

The initial hemoglobin concentration was 10.8 g/dl, and the white blood cell count 6.5×10^9/l comprising 75% neutrophils, 18% lymphocytes, and 7% monocytes. The FBS level 70 mg/dl; the BUN level 10.9 mg/dl, and the creatinine value 1.1 mg/dl. The uric acid level was 3.6 mg/dl, and electrolyte levels were within normal limits. Liver function tests were abnormal: cholesterol 218 mg/dl, albumin 2.4 g/dl, globulin 4.6 g/dl, total bilirubin 1.7 mg/dl, directed bilirubin 1.0 mg/dl,

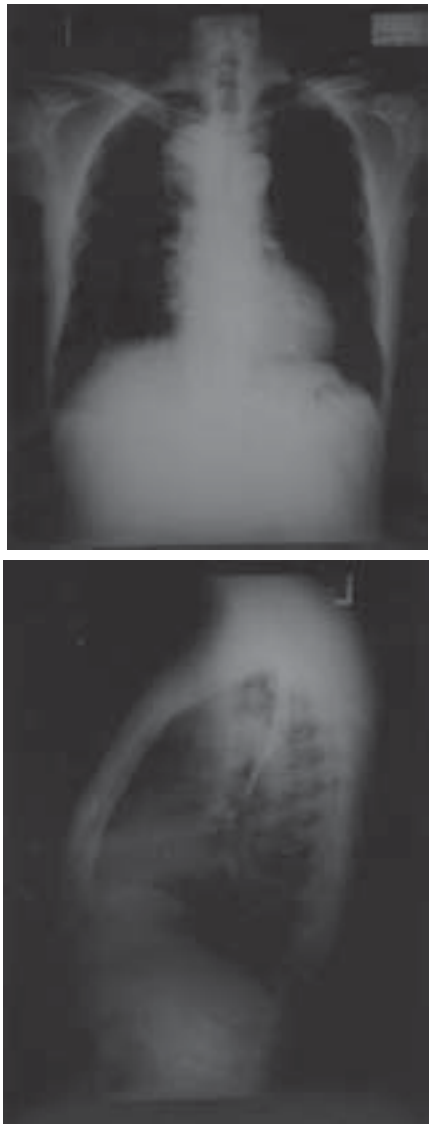

Fig 1–Chest x-ray on admission showed a mass-like lesion at the right tracheobronchial tree and mild cardiomegaly.

ALT 38 U/l, AST 115 U/l, and alkaline phosphatase 429 U/l. A chest x-ray revealed a soft tissue mass at the right tracheobronchial region with mild cardiomegaly (Fig 1). Gram-staining of the patient's sputum showed inadequate specimen and AFB staining was negative.

Bronchoscopy was done on the day of admission. Vocal cord movement was normal; the carina was blunt; the right and left tracheobronchial trees were normal, and no endobronchial lesion was found. Transbronchial biopsy at the

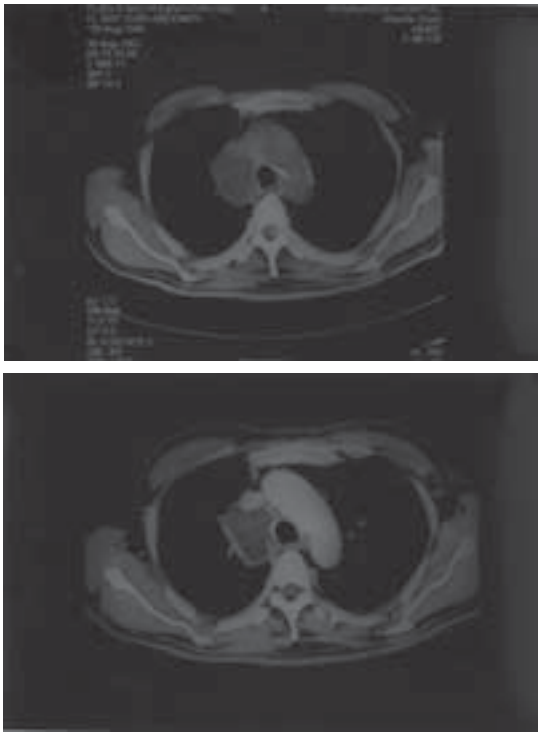

Fig 2–Computed tomographic (CT) scan revealed a soft tissue density mass 3.9 x 4.8 cm at the right tracheobronchial region, likely an intrapulmonary mass.

apical segment of the right upper lung was performed and bronchoalveolar lavage fluid sent for staining, culture, and cytology. Gram-staining indicated a few neutrophils but no organism, while AFB staining was negative.

For the first two days in hospital, the patient had a fever (38ºC). The result of hemoculture came back on the third day, revealing *B. pseudomallei* on one of two specimens. At that time, it was thought the patient might have underlying bronchogenic carcinoma as well as *B. pseudomallei* infection. Antibiotics for *B. pseudomallei* were started: ceftazidime 2 g intravenous every 8 hours plus cotrimoxazole 2 ampules intravenous every 8 hours. The diabetes mellitus was controlled using multiple subcutaneous injections of intermediate- and short-acting insulin.

After three days of antibiotics, the fever was resolved. An ultrasound of the abdomen was requested, because of a high level of alkaline phosphatase enzyme, which revealed mildly prominent liver, without focal mass lesion. CT scan revealed a soft tissue density mass 3.9x4.8 cm at

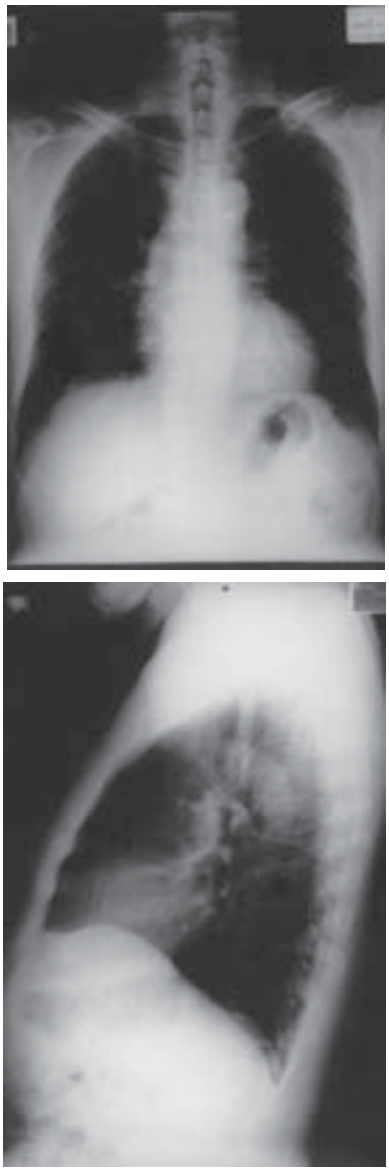

Fig 3–Follow-up chest x-ray 5 months after treatment showing significant improvement. The mass at the right tracheobronchial tree was disappeared.

the right tracheobronchial region, likely an intrapulmonary mass (Fig 2). The mass effacement of the nearby pulmonary marking caused a pressure effect on the adjacent trachea. The rest of the lung was clear and mild cardiomegaly was noted. A malignancy process, such as bronchogenic carcinoma (central type) was suggested.

Culture of the bronchoalveolar lavage fluid was negative. Cytology showed normal respiratory cells and no malignant cells. The pathology

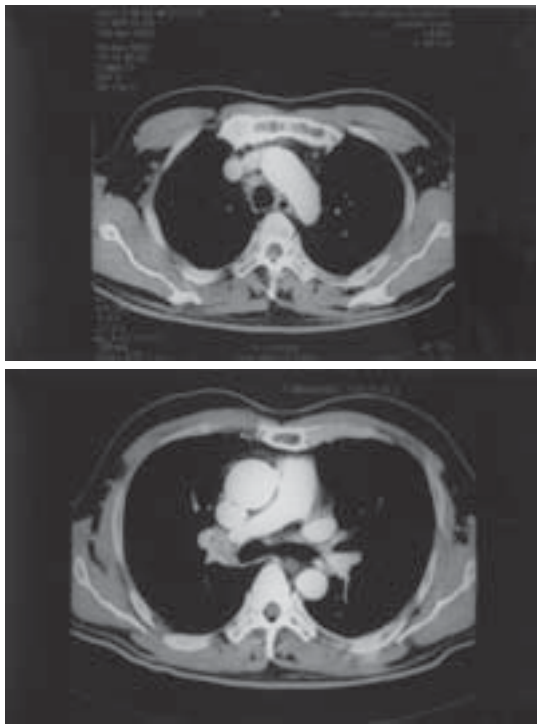

Fig 4–Repeated CT chest scan after complete treatment revealed no right tracheobronchial mass and only small right paratracheal nodes.

of the transbronchial biopsy revealed fragments of bronchial tissue and lung parenchyma with focal lymphocytic infiltration at the interstitium. Acid-fast and Gram staining identified no organism. Intravenous antibiotics were continued for two weeks, followed by a combination of oral doxycycline and cotrimoxazole. Importantly, the melioid titer level at admission was 1:1280 and 1:10 at discharge.

I planned to treat the *B. pseudomallei* bacteremia until the patient was clinically stable, and then investigate the lung mass. However, at the two weeks' follow-up at the outpatient clinic, overall clinical symptoms were improved: no fever, no cough, and appetite improved. Notwithstanding, the lung signs had remained unchanged and oral antibiotics and oral antihypoglycemic drugs were continued. After five months' treatment, the patient had gained 5 kg and a follow-up chest x-ray showed no mass lesion (Fig 3). Repeated CT chest scan showed significant improvement, no right tracheobronchial mass and only small right paratracheal nodes (Fig 4). The patient was followed up to help him better control the diabetes mellitus.

Melioidosis is an important public health problem in northeast Thailand. It can manifest clinically with either disseminated or localized features. In the disseminated form, patients develop acute and progressive septicemia. In contrast, patients with the localized form usually present with a prolonged fever and involvement of one or more organs, particularly the lungs or liver (Chaowagul *et al*, 1994). Radiographic findings depend on the form of infection (Dhiensiri *et al* 1988). Disseminated nodular lesions, lobar consolidation and cavitation are common in the acute form, while mixed patchy, mottled, and streak infiltrates are common in the chronic form. Encountering a lung mass on the radiograph accurs in 3.6% of reported cases (Sookpranee *et al*, 1989).

The clinical clues alerting me to the possibility of *B. pseudomallei* infection in this patient were prolonged fever and a history of poorly-controlled diabetes mellitus, although the presence of a right paratracheal mass is not a common radiographic finding for this infection. The patient had risk factors for malignancy, such as age and heavy smoking. So, tissue diagnosis by transbronchial biopsy was performed to exclude co-incidence of bronchogenic carcinoma and melioidosis infection. A previous report of the risk of *B. pseudomallei* was low in malignancy, odd ratio 0.4 (95% CI, 0.1-0.9) (Suputtamongkol *et al*, 1999). In my patient, the clinical symptoms, chest x-ray, and CT chest scan improved after treatment of the melioidosis infection.

Another subacute infection that can present with prolonged fever, chronic cough, and weight loss is pulmonary tuberculosis (Rossman *et al*, 1999); however, a mass-like lesion is not a common radiographic finding. Histopathology of the lung may be caseous granuloma or lymphocytic infiltration. Acid-fast staining and mycobacterium culture will confirm the diagnosis, and this is also a more common infection in diabetes mellius, renal insufficiency, ageing, and patients with cell-mediated immune deficiency. Sometimes, it is difficult to differentiate the two subacute infections; tuberculosis and melioidosis (Ip *et al*, 1995; Perret *et al*, 1998; Rossman *et al*, 1999).

In conclusion, when patients with underlying diabetes mellitus present with a lung mass, the possibility of melioidosis should be considered in endemic areas. Diagnosis still relies on culture: sputum and/or blood and/or bronchoalveolar lavage fluid. Tissue histopathology may mimic tuberculosis, but be negative by acid-fast staining. Intravenous ceftazidime plus cotrimoxazole reduce mortality, and a long course of at least 20 weeks oral doxycycline plus cotrimoxazole is needed to prevent relapse (Samuel and Ti, 2001). The patient did not need surgery in addition to antibiotics. Awareness allows early diagnosis and treatment, thus decreasing morbidity and mortality.

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