A 52-year-old Woman Presented with Subacute Pneumonia and Erythema Nodosum-like Lesion

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A 52-year-old woman was referred to Ramathibodi Hospital because of progressively worsening pneumonia with clinical sepsis. The patient is a farmer in Chaiyaphum province in the Northeastern Thailand. She had been in good health until 2 weeks before admission. She developed fever with chill, non productive cough and malaise. After 5 days of symptoms, she went to a private hospital. The diagnosis of pneumonia was given. The patient received penicillin G sodium 1 million units intravenously every 6 hours and gentamicin 80 mg every 8 hours for 4 days. With worsening of fever and cough, antibiotics were changed to doxycycline for 2 days. Finally chloramphenicol was given 1 day before admission to Ramathibodi Hospital.

The patient had no travelling history during 1 month before her illness. There was no history of tuberculosis in her family. Systemic review was unremarkable.

On admission, the patient complained of high grade fever, frequent cough with scanty sputum, dyspnea and pain with deep inspiration at the left side of chest. Physical examination revealed temperature of 38.5°C, pulse rate of 100/min, blood pressure of 120/80 mmHg and respiratory of 36/min. She was not pale, no icteric sclera. Chest examinations showed fine crepitation with increased vocal resonance at left upper lung field. The liver was 1 cm below right costal margin with 12 cm span. There was no splenomegaly by percussion. A 1.5 × 3 cm tender erythematous nodule was found at right forearm and the other two smaller lesions (1 × 0.5 cm in size) were found at left arm and left forearm (Fig. 1, 2).

Fig. 1 Erythematous nodule at right forearm.

Fig. 2 Two similar lesions of left arm, forearm.

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Laboratory results were: CBC — hematocrit 35 percent, white blood cell count 9,200 cells/mm³ (PMN 84%, lymphocyte 14%, monocyte 2%), platelet 219,000 cells/mm³; blood chemistry: blood sugar 288 mg/100 ml, sodium 131 meq/L, potassium 2.4 meq/L, bicarbonate 28 meq/L, chloride 94 meq/L, liver function test: total bilirubin 2.1 mg/dl, direct bilirubin 1.7 mg/dl, alkaline phosphatase 339 μL, cholesterol 124 mg/dl, SGOT 58 μL, SGPT 42 μL, albumin 22 G/L. Chest X-ray showed patchy infiltration at left upper lung field. Spumum gram stain showed numerous PMN but no organism. Small volume of serosanguinous fluid was obtained from aspiration of right forearm lesion, result of fluid gram stain was few polymorphonuclear leukocyte with suspicious of gram-negative rod. Skin biopsy was also performed for tissue culture and pathology. Ultrasound of upper abdomen revealed slightly increased parenchymatous echo of the liver without space taking lesion; spleen, pancreas, gall-bladder and kidneys appear normal. Result of IHA for melioidosis was 1:80 at initial and 1:160 at later week. Cefazidime was given 2 g every 8 hours with trimethoprim-sulfamethoxazole (160/800) every 8 hours. Blood sugar was controlled with insulin.

The patient had persisted high fever and non productive cough. Blood cultures were no growth and sputum culture were not obtained. Subsequent result of culture from the skin lesion revealed growth of *Burkholderia pseudomallei*, sensitive to augmentin, cefazidime, imipenem, ciprofloxacin, chloramphenical, trimethoprim-sulfamethoxazole, tetracycline; intermediately sensitive to ampicillin, ciprofloxacin and resistant to aminoglycoside, cefoxitin. We continued treatment with cefazidime and trimethoprim-sulfamethoxazole. Microscopic result of tissue from right forearm was mild to moderate infiltrate of lymphocytes and neutrophils along fibrous septum of subcutaneous tissue and the diagnosis was erythema nodosum (Fig. 3). The fever and other systemic symptoms gradually abated during 14 days of treatment.

**DISCUSSION**

Melioidosis, an infectious disease caused by *Burkholderia pseudomallei* is a disease that has been well established in Southeast Asia and Northern Australia. It is a major cause of bacterial septicemia in many parts of the world, particularly Thailand. In Ubon Ratchathani Hospital, Northeastern Thailand, septicemic melioidosis accounted for 19 percent of community acquired pneumonia in a 1 year period from 1986-1987.

Melioidosis is a disease of rice farmers, who are the majority of the rural population in this region. The prevalence is highest in rainy season (June-November). It is associated with underlying predisposing conditions: diabetes mellitus, preexisting renal diseases, thalassemia and occupations classified by the soil and water risk assessment were confirmed to be sign risk factors for melioidosis and septicemic melioidosis. Only diabetes mellitus is a significant factor associated with septicemic melioidosis when compared to non-septicemic patients. Clinical presentations varies from a fulminant septicemic illness to an indolent local infection.

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**Fig. 3 A.** Skin biopsy from right forearm: mild to moderate infiltrate of lymphocytes and neutrophils along fibrous septum of subcutaneous tissue.

**B.** The same picture at high magnification (× 100).
Septicaemic illness is the most common manifestation and the most common organ, system involvement is lung, followed by skin and soft tissue, skeletal, hepatobiliary and genitourinary. *Borrelia股份* is also the most common cause of community-acquired pneumonia in Northeastern Thailand. Clinical entities of pulmonary meliodiosis include lobar pneumonia, lung abscess, bronchiectasis, pleural effusion and empyema. The clinical presentations of pulmonary meliodiosis are high fever, dyspnea, cough, pleuritic chest pain and hemoptysis. Chest roentgenogram findings are patchy infiltration, interstitial infiltration, effusion. In this paper we report a case of severe meliodiosis with pulmonary involvement. The patient came from endemic area. Diabetes mellitus was her first diagnosis at this admission. The patient’s history of subacute fever, cough, dysnea concomitant with consolidation signs on physical examination loaded us the diagnosis of subacute pneumonia that confirmed by chest roentgenogram, however, we could not detect the causative organism from blood cultures and sputum culture. Looking for skin lesion, most often cutaneous abscess in septic patient is important, diagnosis usually come from staining and culture of lesion; in this patient we differentiate between early cutaneous abscesses and erythema nodosum. Subsequent pathologic result from skin lesion is compatible for erythema nodosum, as we are not aware EN is not previous reported about association with meliodiosis but can found in tuberculosis. The causative organism of pneumonia at that time could be *B. pseudomallei* or *M. tuberculosis*, however, the lesions were too superficial and distribution were not common for erythema nodosum.

Because clinical sepsis is more common in meliodiosis than tuberculosis, then initial treatment were cefazidime and trimethoprim-sulfamethoxazole. Finally the definite diagnosis was confirmed by growth of *B. pseudomallei* from skin lesion at right forearm, the same area that result of skin histopathology was EN. We cannot explain this unexpected result, may be another immunologic response to meliodiosis that present like EN. Other laboratory work up in this patient revealed elevated of alkaline phosphatase that can be interpreted liver involvement although ultrasound showed no liver abscess. Immunologic test was performed by IHA at initial showed titre of 1:80 and 1:160 at the next week may not significance in the patient who come from endemic area. We have not done PCR for meliodiosis because of one primer set could not cover all *B. pseudomallei* strains then specificity and sensitivity of the test are lower than conventional bacterial culture, so it is impractical for use as clinical diagnostic tool.

**References**