

Case Report

รายงานผู้ป่วย

# The Melioidosis Cases Report of Lao People's Democratic Republic Patients in Nakhon Phanom Hospital, Northeastern Thailand

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**Abstract** Melioidosis had the highest incident rates in the Northeast of Thailand; relatively few cases have been reported in adjacent Lao PDR. For six years, a review of cases was conducted at Nakhon Phanom hospital and data on the culture-proven 340 patients with melioidosis were collected, of which nineteen cases were Laotians. The clinical presentations of these cases were four with pneumonia, four with sepsis and bacteremia, four with parotid abscess, three patients with soft tissue abscess, each of and the other four with pyelonephritis, septic arthritis of knee joint, splenic abscess, or chronic leg ulcer. Six patients died while thirteen survived. The report suggested that there is a possibility for Lao PDR and Northeast of Thailand to be an endemic area of melioidosis.

**Key words:** melioidosis; case report; Lao PDR

## Introduction

Melioidosis, which is infection with the gram-negative bacterium *Burkholderia pseudomallei*, is an important cause of sepsis in Southeast Asia and Northern Australia, corresponding approximately to the tropical latitudes between 20°N and 20°S.<sup>(1)</sup> In Northeast of Thailand, Melioidosis incidence accounted for 20 percent of all community-acquired bacteremias and causes of death in 40 percent of treated patients.<sup>(2)</sup> *B. pseudomallei* has also been considered to be a poten-

tial agent for biological warfare and biological terrorism. Melioidosis primarily occurs in people with underlying comorbidities, such as diabetes, renal insufficiency, cirrhosis, alcoholism, or thalassemia, who have direct exposure to contaminated moist soil.<sup>(3)</sup> Despite the fact that the highest incident rates of melioidosis found in the Northeast of Thailand, relatively few cases have been reported in adjacent Lao People's Democratic Republic (Lao PDR).<sup>(4)</sup> Mahosot hospital in Vientiane recognized a handful of cases each

year, constituting 2 percent of blood culture isolates at this referral center between 2000 and 2002 (Newton P, personal communication)<sup>(1)</sup>, despite recovery of *B. pseudomallei* from soil isolates (40 of 110 qualitative samples, 36%) in the Vientiane region.<sup>(5)</sup> Outside of Vientiane, the microbiological facilities are limited and the epidemiology of melioidosis is undefined.<sup>(1)</sup>

Nakhon Phanom province (the Northeast of Thailand, adjacent to the Lao PDR and separated by the Mekong River) is the endemic area of melioidosis and has approximately 600,000 populations. Nakhon Phanom hospital (The secondary care, 300 beds and only one referral hospital for the patients in Nakhon Phanom province) had admitted many Laos patients (approximately 60 cases per month). Therefore, some of the patients with melioidosis were admitted and treated in Nakhon Phanom hospital. But melioidosis has not been recognized previously in Lao PDR. In this report was presented the large cluster of 19 patients with melioidosis from Lao PDR in Nakhon Phanom hospital.

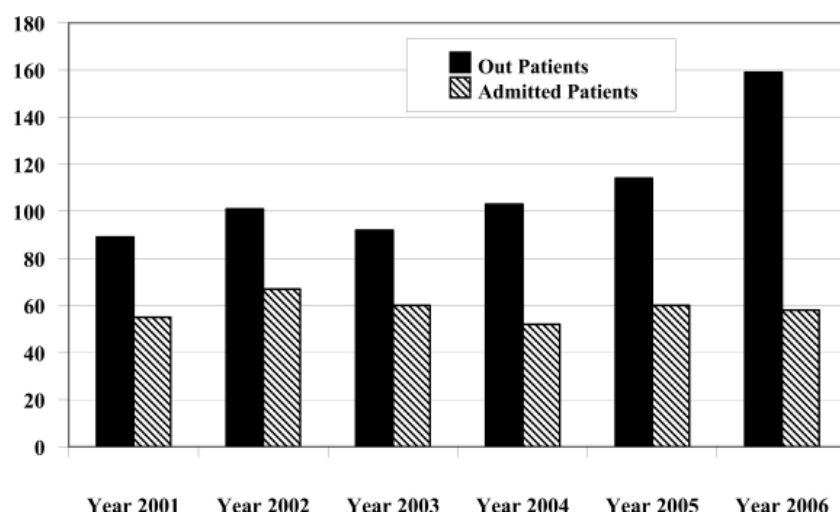
### Case Report

For 6 years, a cases review study was conducted at Nakhon Phanom hospital by using a systematic hos-

pital record. Data on the culture-proven of all patients with melioidosis in central microbiological laboratory between January 2001 and December 2006 were collected and the recorded charts of the Laotian patients were reviewed for the important clinical data and investigations. The important clinical data was analyzed and described as exhaustive as possible in this report.

### Results

For 6 years, there were 340 admitted patients with melioidosis in Nakhon Phanom hospital, with an average annual prevalence of 9.97/100,000 in Nakhon Phanom province. Nineteen cases were Laotian patients. All of them crossed the Mekong River and were admitted in Nakhon Phanom hospital. The important clinical characteristics of the patients are summarized in Table 1. There was one patient in 2001, two patients in 2002, one patient in 2003, two patients in 2004, three patients in 2005 and a cluster of ten patients particularly in the 2006 rainy season. In all, 73.68 percent of cases were admitted in the rainy season (June to November). The patients aged 3-87 years (male: female = 9:10). The nine of nineteen cases were children. Four cases had diabetes mellitus while one case had diabetes mellitus with chronic renal fail-



**Figure 1** Number of Laotian patients in Nakhon Phanom hospital during 2001-2006

**Table1: clinical characteristics of the patients**

Date of admission	Duration of admission (day)	Age (year)	Gender	Occupation	Underlying diseases	Department of admission	Duration of symptom, clinical presentation and complication	Site of culture positive	Antibiotic treatment	Surgical treatment	Result of treatment
17/11/2001	1	10	Male	Student	-	ICU Pediatric	2 days of fever, sepsis, septic shock and acute respiratory failure	Blood	Non proper	-	Died
31/5/2002	7	48	Female	Farmer	-	Medicine	5 days of fever, sepsis and acute renal failure	Blood	Chloramphenicol +Doxycycline	-	Survived and loss follow up
9/6/2002	1	58	Male	Farmer	Diabetes mellitus and chronic renal failure	ICU Medicine	2 days of fever, sepsis, septic shock and acute respiratory failure	Blood	Non proper	-	Died
28/2/2003	5	32	Male	Farmer	Diabetes mellitus	Medicine	3 days of fever, abdominal pain and had splenic abscess	Blood	Ceftazidime	-	Survived and loss follow up
4/4/2004	5	28	Female	Farmer	Diabetes mellitus	ICU Surgery	1 month of fever with abscess at inguinal area, sepsis, septic shock, acute renal failure and acute respiratory failure	Blood	Ceftazidime	-	Died
25/8/2004	17	8	Female	Student	-	Pediatric	5 days of fever and had abscess at cheek	Pus	Ceftazidime+Co-trimoxazole	Incision and drainage	Survived, complete follow up
1/2/2005	15	5	Female	-	-	Surgery	3 months of chronic abscess at face	Pus	Amoxicillin-clavulanic acid	Debridement	Survived and loss follow up
6/7/2005	1	6	Male	-	-	Pediatric	9 days of fever with parotid abscess, sepsis, septic shock and acute respiratory failure	Pus	Ceftazidime+Co-trimoxazole	Incision and drainage	Died
13/11/2005	20	20	Female	Farmer	-	Medicine	14 days of fever, cough, dyspnea and had pneumonia with pregnancy 24 weeks	Blood	Amoxicillin-clavulanic acid	-	Survived and loss follow up
28/5/2006	12	40	Male	Farmer	-	Medicine	4 months of fever, chronic cough and had chronic pneumonia	Sputum	Ceftazidime	-	Survived and complete follow up
8/6/2006	10	45	Male	Farmer	Diabetes mellitus	Medicine	14 days of fever, cough and had pneumonia	Sputum	Ceftazidime	-	Survived and loss follow up
24/6/2006	2	3	Female	-	-	ENT	7 days of fever with parotid abscess	Pus	Non proper	Incision and drainage	Survived and loss follow up
16/7/2006	8	4	Male	-	-	ENT	10 days of fever with parotid abscess	Pus	Co-trimoxazole	Incision and drainage	Survived and loss follow up
17/7/2006	12	87	Male	Monk	-	Surgery	4 months with chronic ulcer of leg	Pus	Co-trimoxazole+ Doxycycline	Excision and skin graft	Survived and loss follow up
31/7/2006	0.25	30	Female	Farmer	-	ICU Medicine	10 days of fever, cough, dyspnea and had pneumonia with sepsis, septic shock and acute respiratory failure	Sputum	Non proper	-	Died
27/7/2006	12	46	Female	Farmer	Diabetes mellitus	Orthopedic	5 days of fever with septic arthritis of knee joint	Blood, pus	Ceftazidime+Co-trimoxazole	Incision and drainage	Survived and loss follow up
22/8/2006	8	5	Female	-	-	ENT	5 days of fever with parotid abscess	Blood, pus	Ceftazidime	Incision and drainage	Survived and loss follow up
19/8/2006	9	4	Male	-	-	Pediatric	1 month of prolong fever	Blood	Amoxicillin-clavulanic acid	-	Survived and loss follow up
16/8/2006	11	8	Female	Student	-	ICU Pediatric	5 days of fever with acute pyelonephritis, sepsis, septic shock and acute renal failure	Urine	Ceftazidime+Co-trimoxazole	-	Died

ure. The fourteen of nineteen cases had no underlying disease but one of them had manifested subacute pneumonia and was 24 week pregnant. Almost 50 percent of cases were rice farmers. Their clinical presentation included pneumonia, sepsis with bacteremia, parotid abscess, soft tissue abscess, pyelonephritis, septic arthritis, splenic abscess and chronic ulcer. Six patients died and most of them died after a short admission (< 24 hours) while thirteen patients survived. Only two of the survivors had completely been followed up and treated.

### Discussion

This report describes nineteen patients with melioidosis from Lao PDR who were admitted to Nakhon Phanom hospital during 2001-2006. It is very important due to the fact that the disease is endemic and contagious in the Northeast of Thailand and the highest number of cases were described<sup>(6)</sup> but little was known of from the adjacent Lao PDR.<sup>(1)</sup> Melioidosis in the Lao PDR was first reported in 1999 with the description of two cases who presented with supraclavicular lymphadenitis and the other had septicemia and septic arthritis.<sup>(4)</sup> This report suggested that Lao PDR could be an endemic area of melioidosis as the Northeast of Thailand. However, this report could not represent all melioidosis patients from Lao PDR in general because it is difficult and more expensive to cross the Mekong River to the Nakhon Phanom hospital. It took about 60-100 \$US for a large ferryboat and cost even more for the treatments in the hospital. Therefore, many patients from Lao PDR could not be admitted to Nakhon Phanom hospital and the patients with melioidosis might not be diagnosed as the microbiological facilities are limited in places apart from Vientiane.<sup>(1)</sup> However, in 2001-2006, there was increasing number of Laotian out-patients in Nakhon Phanom hospital reported by a systematic hospital record review, approximately 110 cases/month as

shown in the figure 1.

It is difficult to explain a sudden increase in number of cases in the rainy season of the year 2006 without any cross-border epidemiological investigation in the neighbouring country.<sup>(1)</sup> Yet it is worth noted that about half of cases were children. Most of the fatal cases died a short cases admission from severe sepsis and septic shock without previous proper antibiotic treatments. Only two of the thirteen survivors had completely been followed up and treated as they might be financially strapped.

Finally, rapid diagnosis, improvement of the microbiological laboratory facilities, proper management of high risk cases depicted for melioidosis by diabetes mellitus, chronic renal failure and farmers, can decrease the morbidity, the mortality and the burden of the disease in the Northeast of Thailand and Lao PDR. It is strongly suggested that a cross-border co-operation on a prospective study to explore the epidemiology of melioidosis in Lao PDR may be one of many life-saving measures.

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**บทคัดย่อ** รายงานผู้ป่วยmelioidosis จากสาธารณรัฐประชาธิปไตยประชาชนลาวที่เข้ารับการรักษาในโรงพยาบาลนครพนม ภาคตะวันออกเฉียงเหนือของประเทศไทย  
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วารสารวิชาการสาธารณสุข 2551; 17:SIV1193-7.

melioidosis เป็นโรคที่พบสูงที่สุดในภาคตะวันออกเฉียงเหนือของประเทศไทย แต่มีรายงานผู้ป่วยน้อยรายจากสาธารณรัฐประชาธิปไตยประชาชนลาว ซึ่งมีพื้นที่ติดกัน จากการศึกษารวบรวมผู้ป่วยmelioidosis ที่เข้ารับการรักษาในโรงพยาบาลนครพนมเป็นระยะเวลา 6 ปี พบผู้ป่วยmelioidosis ซึ่งวินิจฉัยจากการเพาะเชื้อทั้งหมด 340 ราย พบว่าเป็นผู้ป่วยจากสาธารณรัฐประชาธิปไตยประชาชนลาวทั้งหมด 19 ราย ได้แก่ ผู้ป่วยปอดอักเสบจำนวน 4 ราย ผู้ป่วยติดเชื้อในกระแสเลือดจำนวน 4 ราย ผู้ป่วยเป็นฝีที่ต่อมน้ำลายพาโรติดจำนวน 4 ราย ผู้ป่วยเป็นฝีที่เนื้อเยื่อผิวหนังจำนวน 3 ราย ผู้ป่วยกรวยไตอักเสบจำนวน 1 ราย ผู้ป่วยติดเชื้อในข้อเท้าจำนวน 1 ราย ผู้ป่วยเป็นฝีที่ม้ามจำนวน 1 ราย และผู้ป่วยเป็นแผลเรื้อรังที่ขาจำนวน 1 ราย ผู้ป่วยเสียชีวิตทั้งหมด 6 ราย ขณะที่ผู้ป่วย 13 รายรอดชีวิต รายงานนี้ชี้ให้เห็นความเป็นไปได้ว่า สาธารณรัฐประชาธิปไตยประชาชนลาว และในภาคตะวันออกเฉียงเหนือของประเทศไทย เป็นแหล่งระบาดของโรคmelioidosis เช่นเดียวกัน

**คำสำคัญ:** melioidosis, รายงานผู้ป่วย, สาธารณรัฐประชาธิปไตยประชาชนลาว