Splenectomy is an infectious disease caused by *Burkholderia pseudomallei*, a Gram-negative bacillus with bipolar staining. It is often described as having a “safety pin” appearance [5]. Melioidosis is regarded as endemic to Southeast Asia and Northern Australia, corresponding approximately to the tropical latitudes between 20°N and 20°S. Melioidosis is known for its propensity to cause abscesses, and may cause liver abscesses with or without concomitant splenic abscesses [6].

In Thailand, *B. pseudomallei* is an important pathogen causing splenic abscess [7]. However, this organism has been rarely reported to cause splenic abscess in Taiwan. Here, we report a case of melioidosis presenting with isolated splenic abscesses without concomitant liver abscess.

**CASE PRESENTATION**

A 54-year-old male building security guard, who lived and worked in Ling-Ya district, Kaohsiung city and had never traveled overseas, presented with intermittent fever and shaking chills associated with poor appetite and malaise since April 2, 2005. He had diabetes mellitus diagnosed 3 years earlier and hypertension diagnosed 2 years earlier. He had received regular medical treatment, and had received anti-tuberculosis agents for 6 months for pulmonary tuberculosis 2 years earlier.

He visited a regional hospital on April 6, 2005, due to persistent fever and chills. At the emergency department, he was febrile, diaphoretic, and hypotensive. Abdominal examination revealed a tender, painful mass in the left upper quadrant, without a palpable mass. Laboratory investigations revealed a white blood cell count of 20,000/cmm with a left shift, and an international normalized ratio of 1.5. He was treated with empirical antibiotics and fluids.

**Key Words:** *Burkholderia pseudomallei*, melioidosis, splenic abscess (Kaohsiung J Med Sci 2007;23:417–21)
department, his tympanic membrane temperature was 39.2°C. The physical examination was grossly normal. Laboratory examination showed leukocytosis with a white blood cell (WBC) count of $11.2 \times 10^9$ L with differential count of segment, 78%; band, 2%; lymphocytes, 20%. Hemoglobin was 13.6 g/dL and platelet count was $237 \times 10^9$ L. The other laboratory results showed abnormal liver function test: aspartate transaminase (AST), 69 U/L; alanine transaminase (ALT), 75 U/L; high C-reactive protein (CRP) concentration, 183 µg/mL; blood urea nitrogen (BUN), 21 mg/dL; and serum creatinine, 1.55 mg/dL. Chest radiograph on arrival at the regional hospital was grossly normal.

After blood sampling for bacterial culture, he received antimicrobial agents including intravenous cephalexin and gentamicin. Both abdominal sonography and computed tomography (CT) scan revealed multiple splenic abscesses of various diameters, but no space-occupying lesion over liver parenchyma (Figures 1 and 2). Echo-guided fine-needle aspiration of splenic abscesses was done on April 9, 2005 and 5 mL viscous yellowish pus was obtained. Gram’s stain of pus showed Gram-negative bacilli. Blood culture (BACTEK-9240) reported *Serratia marcescens* on April 11, 2005. The susceptibility test showed resistance to cefazolin and gentamicin but sensitivity to ceftazidime. The antimicrobial agents were shifted to ceftazidime and isepamicin, but the fever did not subside.

He was transferred to our hospital on April 21, 2005. On arrival at the emergency department, his tympanic membrane temperature was 38.2°C. The laboratory data showed WBC count, $11.03 \times 10^9$ L; hemoglobin level, 10.7 g/dL; platelet count, $374 \times 10^9$ L; AST, 40 U/L; ALT, 49 U/L; CRP, 74.2 µg/mL; BUN, 20 mg/dL; and serum creatinine, 1.3 mg/dL. Two grams of meropenem were given every 8 hours.

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**Figure 1.** (A,B) Multiple splenic abscesses of various diameters (arrows).

**Figure 2.** (A,B) Multiple splenic abscesses (arrowheads) without space-occupying lesion over liver parenchyma.
because of the possibility of polymicrobial infection. Fever subsided 5 days after the beginning of meropenem administration.

Following abdominal sonography on the 15th day after initiation of meropenem treatment, non-resolution of splenic abscesses was noted and fine-needle aspiration was performed again. The pus culture yielded B. pseudomallei. An extended antimicrobial therapy course was planned according to previous therapeutic experience [5] but the patient refused. The patient was followed up 3 months later by telephone and neither fever nor malaise developed. We suggested that he come back to our outpatient department and receive further imaging study; however, he refused. Hence, there is no follow-up sonography or CT scan of the spleen available.

**DISCUSSION**

Splenic abscess is a rare condition of intra-abdominal abscesses, with a reported frequency in autopsy series between 0.2% and 0.7% [2,3]. In Taiwan, the common causative pathogens of splenic abscesses are K. pneumoniae, E. coli, Salmonella species, Pseudomonas species, Proteus species, Staphylococcus species, Streptococcus species, Enterococcus species, Propionibacterium acnes, Bacteroides fragilis, Mycobacterium tuberculosis, and fungi [4,8]. These pathogens may cause solitary splenic abscess, multiple splenic abscesses with or without extrasplenic abscess. Lee et al [6] had once reported B. pseudomallei as causing splenic abscess associated with concomitant liver abscess in Taiwan. However, B. pseudomallei has never been reported as causing isolated splenic abscess (without extrasplenic abscess) in Taiwan.

A series in Thailand reported 60 patients with splenic abscess and the most common pathogen was B. pseudomallei. Furthermore, it disclosed that multiple splenic abscesses were more commonly found in the melioidosis group than in the non-melioidosis group [7]. Another series in Singapore reported 28 patients with splenic abscess and the causative organisms were Staphylococcus aureus, mycobacteria, Streptococcus species, fungi, and B. pseudomallei [9]. The risk factors of splenic abscesses in these series included diabetes mellitus, leukemia, human immunodeficiency virus infection, intravenous drug abuse, and steroid therapy exposure.

Melioidosis is common in Southeast Asia. Recently, it has also been increasingly recognized in Taiwan [10,11]. The pathogen, B. pseudomallei, is an aerobic Gram-negative bacillus distributed in moist soil and water in endemic areas. It is the leading cause of community-acquired pneumonia, liver and splenic abscesses, and sepsis in northeastern Thailand [12]. The clinical manifestation of melioidosis is diversified. Although it is characterized by granulomatous disease, its clinical presentation ranges from subclinical infection to severe and fatal disease. The most frequently involved sites include lung, blood stream, liver, spleen and so on. Melioidosis should be considered as a possibility when abscesses are encountered at unusual sites in an endemic area [13].

We report on a middle-aged man suffering from splenic abscesses who was finally diagnosed as a case of melioidosis based on microbiological evidence in Taiwan. The initial blood culture reported S. marcescens, which was resistant to ampicillin, cefazolin, cefmetazole, ceftiraxone, gentamicin, amikacin, co-trimoxazole, and levofloxacin, and only sensitive to ampicillin/sulbactam, ceftazidime, and imipenem. The clinical presentation did not improve 9 days after the administration of ceftazidime. This may have been due to the slow response of melioidosis to ceftazidime (median time to abatement of fever about 9 days) [14]. His fever did not subside after the first percutaneous splenic abscess aspiration. This finding suggested that appropriate antimicrobial therapy plays an important role in the management of splenic abscesses. On the other hand, fever subsided after the second splenic abscess aspiration. It also suggested that defervescence may be partially attributed to percutaneous splenic abscesses aspiration. In addition to antimicrobial agent therapy, no conclusive recommendations about percutaneous splenic aspiration or splenectomy were made because there is a lack of well-designed studies demonstrating the superiority of any therapy over others [4].

Several beta-lactams, such as meropenem, reduce the mortality of melioidosis, and long courses of co-trimoxazole-containing regimens are needed to prevent relapse [15]. This patient received meropenem as intensive-phase therapy and showed clinical improvement. However, he did not receive a long course of co-trimoxazole-containing regimens as an eradication-phase therapy. Hence, relapse may occur in the future.

In the laboratory setting, B. pseudomallei may be misidentified as Klebsiella species, Pseudomonas aeruginosa,
**REFERENCES**


以單純脾臓膿瘍作為臨床表現的
類鼻疽個案

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在台灣地區，脾臓膿瘍鮮少被報導由 Burkholderia pseudomallei 造成。在這裡我們報導一位中年男性，呈現連續數天之發燒、寒顫及全身倦怠。腹部超音波檢查發現單純脾臓膿瘍。起初的血液培養結果為 Serratia marcescens，這位病患也據此接受了 ceftazidime 的治療。然而，發燒並無緩解。此後，這位患者被轉診到本院。我們投予 meropenem 五天後發燒緩解。後續經脾臓膿瘍抽吸出的膿液培養出 Burkholderia pseudomallei，因此我們根據微生物學的證據，診斷這位患者是一個類鼻疽的個案。在台灣，當臨床醫師發現脾臓膿瘍時，必須考慮類鼻疽的可能性。

關鍵詞：Burkholderia pseudomallei，類鼻疽，脾臓膿瘍

(高雄醫誌 2007;23:417－21)