Atypical Presentations of Melioidosis in North India: Report of Two Cases

G Garg¹, N Chawla¹, K Chawla², P Khosla³, S Jain⁴

Abstract
Melioidosis is an infection caused by Gram-negative bacterium, Burkholderia pseudomallei. This is a rare disease in India, more so in North India. We present two cases of melioidosis with unusual sites of infection. The first patient was a young diabetic male presenting to us with history of prolonged fever and upper abdominal discomfort, subsequently diagnosed as a case of pyogenic liver abscess. The second patient was a middle aged diabetic complaining of prolonged fever and headache and found to have right frontal lobe brain abscess. The pus cultured from the lesion in both cases showed growth of Burkholderia pseudomallei. These two cases are described to consider melioidosis as a differential diagnosis amongst pyrexia of unknown origin cases.

Introduction
Melioidosis is endemic to Southeast Asia and Tropical Australia and has a high mortality rate in these regions. Sporadic cases reported in different parts of the world suggest that the disease has potential to spread to non-endemic regions and unrecognized endemic zones may exist. Low index of suspicion among physicians may be contributing to the underreporting of cases in our country.

Case 1
A 24 year old male, a type 1 diabetic was admitted with three weeks history of high grade fever and mild upper abdomen discomfort. Fever was intermittent, high grade, associated with chills. The abdominal discomfort was continuous and present in the epigastric region. On general examination, the patient was febrile with tachycardia. On systemic examination, he had tender hepatomegaly with the lower border of liver palpable 3 cms below the right costal margin.

On laboratory investigations, his total leukocyte count was 16000/ cumm. Alkaline phosphatase was 566 IU/L, GGT 158 IU/L, total bilirubin 0.50 mg/dl and albumin 2.6 gm/dl. Glycosylated hemoglobin was 9.6%. Ultrasound abdomen showed hepatomegaly with two right lobe abscesses located in segment 5 and segment 7 and an abscess in the lower pole of the spleen. The pus obtained from diagnostic aspiration was sent for microbiological analysis. The pus culture grew Gram-negative bacteria, Burkholderia pseudomallei on Blood Agar and MacConkey’s Agar, having a typical metallic surface sheen. It was found sensitive to piperacillin+tazobactum and resistant to carbapenems and ceftazidime. Diagnosis of melioidosis was thus made and he was started on combination of piperacillin+ tazobactum and co-trimoxazole therapy whereupon he showed signs of clinical recovery and the patient was discharged in stable condition with advice to continue injectable antibiotic and oral co-trimoxazole.

Case 2
A 47 years old diabetic male presented with complaints of fever and headache for one month. Fever was intermittent, high grade, associated with chills. Headache was localized to right fronto-parietal region, mild in intensity, with no focal neurological deficit. He had travelled to Thailand one month before the symptoms developed. On physical examination patient was febrile and tachycardiac. Systemic examination was unremarkable.

All laboratory investigations were normal except for glycosylated haemoglobin which was 11.50%. Chest radiograph and ultrasound abdomen were also unremarkable. MRI brain showed altered marrow signal in the right frontal diploic space with epidural collection in right frontal space. Neurosurgical intervention was done for abscess drainage, osteomyelitic frontal bone part was removed and pus was sent for microbiological examination. Pus for acid fast bacilli and fungal stain were negative, but showed Gram-negative bacilli which was confirmed on culture as Burkholderia pseudomallei. The organism was found to be sensitive to ceftazidime, co-trimoxazole, levofloxacin and meropenem. The patient was given injectable meropenem and co-trimoxazole.
a couple of days patient became afebrile and was discharged with the advice to continue meropenem injections and co-trimoxazole.

Discussion

Melioidosis is an emerging infectious disease in India and can also cause isolated abscesses. Vidyalakshmi et al\(^1\) reported 25 cases of culture proven melioidosis from the western coastal region of Kerala and Karnataka. The cases of central nervous system melioidosis reported from India are very few.\(^2\) A human infection is mostly acquired through direct inoculation during contact with contaminated water or soil. Inhalation is also an established route for acquiring the infection. Environmental factors in our first case are not clear, but the second case gave history of travel to Thailand where this disease is endemic. Our first patient is a resident of Uttar Pradesh, which is an unfamiliar area for this disease suggesting a somewhat unique epidemiological niche, which may require further investigation. Diabetes, excess alcohol intake, chronic renal disease, chronic lung disease, cirrhosis and malignancy are independent risk factors for melioidosis.\(^3\) Diabetes Mellitus is the most common predisposing factor for melioidosis. Both of our patients had uncontrolled diabetes mellitus.

Though most of *Burkholderia pseudomallei* infections are subclinical, the disease can present as an acute febrile illness ranging from septicemic shock to localized abscess of virtually any organ in the body. The most common clinical presentations are pneumonia and localized skin infections. Melioidosis can manifest as focal encephalitis, encephalomyelitis, abscess and primary meningitis in brain. In our cases it presented as liver abscess in one and brain abscess in the other. Unlike other pyogenic causes of liver abscesses, splenic involvement often occurs in melioidosis. In Thailand, the most common cause of splenic abscess is *Burkholderia pseudomallei*\(^4\) whereas in India, tuberculosis is the predominant cause of splenic abscess. The definitive diagnosis is made by culturing the organism from any clinical sample.

Ceftazidime is the preferred antimicrobial agent for melioidosis. Carbapenems are also found to be effective against this rare organism. A recent randomized trial didn’t find much reduction in mortality from acute melioidosis with a combination of ceftazidime and co-trimoxazole.\(^5\) The median time of resolution of fever in *Burkholderia* septicemic patients is nine days. In patients with abscesses, the resolution can take more than a month, necessitating an initial parenteral treatment for 2 weeks followed by oral therapy with co-trimoxazole and doxycycline for another 20 weeks. Despite adequate treatment, the mortality rate reported in Thailand is as high as 50%.

These cases highlight the diagnostic challenge posed by melioidosis. It is a great masquerader and should be considered as a one of the possible etiologies of prolonged fever. High index of clinical suspicion and timely communication with microbiologists could facilitate early diagnosis and treatment. It is important to consider melioidosis as a differential diagnosis amongst pyrexia of unknown origin cases even in areas considered to be traditionally non-endemic for this disease.

References