Burkholderia pseudomallei presenting with appendicular abscess: A great mimicker

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Abstract
We present an atypical presentation of melioidosis, which was an appendicular abscess in a man with newly diagnosed Type 2 diabetes mellitus, which has never been reported before worldwide.

Keywords
B. pseudomallei, appendicular abscess, great mimicker

Introduction
Burkholderia pseudomallei is a causative agent for melioidosis. This infection is endemic in South East Asia, mainly Thailand, Malaysia, Vietnam, and Northern Australia. Melioidosis can cause multisystemic infection in a susceptible patient. Contaminated soil and water surface is the primary source of infection, with human-to-human transmission very rare. We present an atypical presentation of melioidosis, which was an appendicular abscess in a man with newly diagnosed Type 2 diabetes mellitus, which has never been reported before worldwide.

Case report
A 48-year-old farmer, recently diagnosed with Type 2 diabetes mellitus, presented with right iliac fossa pain and fever for 3 weeks' duration. He also noticed the presence of right iliac fossa mass since the onset of fever. He sought treatment at private clinics and completed two courses of antibiotics but claimed his condition worsened. Upon arrival to the casualty, he looks mildly dehydrated, febrile with the presence of a firm, tender right iliac fossa mass on abdominal palpation measuring 6 × 3 cm. He had leucocytosis with high C-reactive protein (CRP) (176.4 mg/l).

He was started on a combination of IV amoxicillin-clavulanate and IV metronidazole. Abdominal X-ray showed faecal loading with no signs of bowel obstructions. Abdominal ultrasound revealed the presence of multiloculated collection with internal moving debris in the right iliac fossa region measuring 6.8 × 6.2 × 7.2 cm with possibility of appendicular abscess. Abdominal CT-scan was done to confirm the diagnosis. A sealed perforated retroperitoneal appendix with a formation of retroperitoneal collection measuring 6.9 × 6.2 × 9.7 cm was seen. Ultrasound-guided percutaneous drainage of the retroperitoneal collection was done and about 160 ml of pus was drained. Pus aspirate was sent for culture and sensitivity testing.

Pus aspirate sent was inoculated on blood agar and MacConkey agar. Metallic sheen colony was seen on blood agar, and non-lactose fermenter colony was seen on MacConkey agar after 48 hours of incubation. Gram staining showed Gram-negative bacilli with safety pin appearances, as seen in Figure 1. This organism showed positive reaction with cytochrome oxidase. It was identified as Burkholderia pseudomallei with 87% probability using Vitek II (GN card). Antimicrobial susceptibility testing was done using E-test strips and interpreted according to CLSI M45, 3rd Edition (August 2016). The organism was susceptible to imipenem (MIC: 0.25 µg/ml), ceftazidime (MIC: 0.75 µg/ml) and tri...
methylprednisolone. Risk factors for our patient were occupation, renal disease, chronic lung disease, thalassemia and immunodeficiency, which can be either from ingestion, inoculation or inhalation. Probable mode of transmission in our patient was hematogenous dissemination, which was evidenced by a reducing total white cell count from 14 × 10^9/l to 5.9 × 10^9/l and reducing CRP from 176.4 mg/l to 18.1 mg/l. He was then transferred to a district hospital for continuation of antibiotics.

**Discussion**

*Burkholderia pseudomallei* can cause disease in both humans and animals. Mortality among humans was reported as high as 15.5%, with the vast majority resulting from under diagnosis. People working in the agricultural field, especially farmers, are at a higher risk of being infected, as the bacteria is commonly found on the surface of water and soil. Risk factors for infection are diabetes mellitus, heavy alcohol consumption, renal disease, chronic lung disease, thalassemia and immunocompromised patients on chemotherapy or prolonged corticosteroid used. Risk factors for our patient were occupation as a farmer and diabetes mellitus. We believe that the most probable mode of transmission in our patient was hematogenous dissemination, which can be either from ingestion, inoculation or inhalation.

Pneumonia is the most common presentation of melioidosis. Other clinical forms of melioidosis are acute localized skin infection, bacteraemia, genitourinary infection, joint infection and neurologic involvement. In our patient, there was a delay in diagnosis and starting the melioidosis regimen, as there was no clinical suspicion of melioidosis because of its atypical presentation.

Definitive diagnosis of melioidosis is via positive culture only. Positive polymerase chain reaction for *B. pseudomallei* or *B. pseudomallei* only. Positive polymerase chain reaction for *B. pseudomallei* or *B. pseudomallei* only. Positive polymerase chain reaction for *B. pseudomallei* or *B. pseudomallei* only. Positive polymerase chain reaction for *B. pseudomallei* or *B. pseudomallei* only. Positive polymerase chain reaction for *B. pseudomallei* or *B. pseudomallei* only.

A study on bacteria isolated from gangrenous and perforated appendicitis showed that *Escherichia coli* and *Bacteroides fragilis* are the most common bacteria isolated. To our knowledge, *B. pseudomallei* as a cause of appendicular abscess has never been reported before in Malaysia or worldwide. Percutaneous drainage and culture of the bacteria played an important role to establish the diagnosis. This case is unique, as our patient was the first case of appendicular abscess ever reported in Malaysia and worldwide caused by *B. pseudomallei* and successfully treated with high-dose ceftazidime with percutaneous drainage.

**Declaration of Conflicting Interests**

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