Case Report

Burkholderia pseudomallei infection in the genitourinary tract: a case report

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Abstract

Melioidosis, caused by the gram-negative bacillus *Burkholderia pseudomallei*, is an infectious disease which is endemic in areas like Southeast Asia and Northern Australia. Urogenital involvement is less common in Thailand. This is a case study of a 60-year-old Thai male who had no underlying diseases and developed a renal abscess from melioidosis. He presented with a high grade fever for about 2 weeks. Physical examination disclosed costovertebral angle tenderness but otherwise was unremarkable. Laboratory and imaging investigations revealed leukocytosis in the complete blood count. White blood cells and red blood cells were detected in urinalysis. There was no growth in either the hemoculture or urine culture but melioidosis antibody level was positive (1:5, 120). Computerized tomography of the whole abdomen showed multiple areas of hypodensity lesions at mid and lower pole extended to the right perirenal space indicating likely renal abscesses. The final diagnosis was melioidosis with renal abscesses.

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Introduction

Melioidosis is an infectious disease, caused by the gram-negative bacillus *Burkholderia pseudomallei*. This disease is usually endemic in specific areas including Southeast Asia and Northern Australia[1]. However, there are increasing numbers of reported cases from many countries. Risk factors for this disease are diabetes mellitus, thalassemia, chronic renal disease, chronic lung disease and excessive alcohol use[2] and involve many organ systems including the respiratory tract, skin and soft tissue, intraabdominal organs, and the skeletal system. The genitourinary tract could be affected but there have been few reported cases worldwide.

Case Report

A 60-year-old healthy Thai male, a farmer from a Northeastern part of Thailand, presented with high grade fever and dysuria for 2 weeks. He also had right flank pain and nausea for 3 days. He denied any underlying diseases. His personal history included social alcohol drinking. The history of steroid use was negative. At Buriram hospital, he was febrile (38.9 °C) and exhibited tachycardia with a pulse rate of 120 beats per minute. His blood pressure was 127/90 mmHg. He had right costovertebral angle tenderness. His urine output was 2,400 ml/day, the remainder of the physical examination was unremarkable.

Due to the clinical findings, it was suspected that he had a urinary tract infection. His complete blood count showed anemia (hemoglobin 9.3 g/dl) and neutrophil leukocytosis (white blood cell 23,400/ul, neutrophils 95%). Fasting blood sugar was normal (97 mg%). Urinalysis showed many red and white blood cells in the urine. Both hemoculture and urine culture were negative. Due to the history of the subacute fever, melioidosis antibody levels were investigated and were found to be positive for a titer of 1:5, 120.

A computerized tomography (CT) scan of the whole abdomen was used to find the affected organs. The scan detected multiple areas of hypodensity lesions, involving the fat strand of the right kidney, perinephric collection (mid and lower pole of right kidney) and extending to the right perirenal space. These findings indicated potential right renal abscesses, there was no evidence of renal stones (Figure 1). From the clinical findings and laboratory investigations, the patient was diagnosed with melioidosis with renal abscesses and received high dose intravenous 2 gm meropenem every 8 hours for 21 days, continuing with oral trimethoprim/sulfamethoxazole (80/400 mg) 3 tabs per oral every 12 hours for 3 months in the eradication phase.

Discussion

Renal abscess is the one of the resulting complications from urinary tract infection[3]. The organisms commonly causing the infection are aerobic bacteria such as *Escherichia coli*, *Klebsiella* spp., *Proteus* spp., and also gram-positive bacte-

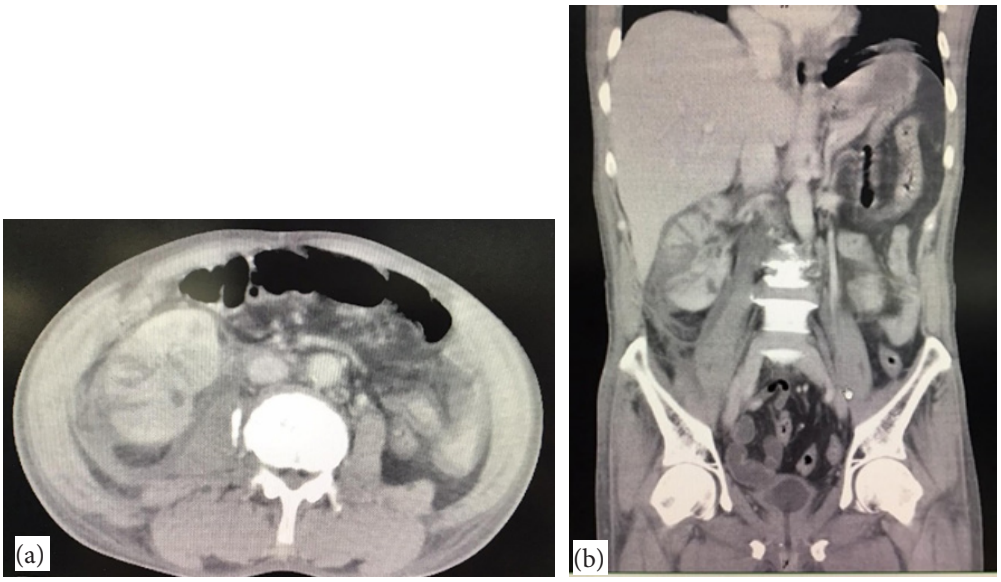

Figure 1. The coronal view (a) and sagittal view (b) of computerized tomography of the whole abdomen detected multiple areas of hypodense lesions involving the fat strand of the right kidney, perinephric collection (mid and lower pole), extending to the right perirenal space. Right renal abscesses were suspected.

ria such as *Enterococcus spp*. and *Staphylococcus aureus*. It is a difficult-to-treat condition and serious complications may develop including septic shock. The treatment is dependent on abscess size. Antibiotic administration, depending on the type of organism, is indicated in small abscesses of a diameter less than 3 cm. Drainage (percutaneous or surgical) is recommended in the case of large abscesses (diameter more than 5 cm). Both approaches can be applied in medium-sized abscesses (3-5 cm)[4].

Melioidosis may infect the genitourinary tract mostly involving the prostate and kidney. Renal abscess from melioidosis is a rare condition. Predisposing factors in adults are diabetes mellitus and urinary tract abnormalities (mainly lithiasis and ureteral obstruction). Currently few cases have been reported cases[5]. The isolation and identification of cultures from the infected site remains the gold standard for diagnosis. However, melioidosis titers which have a sensitivity of 73% and specificity of 64% with a cut-off point = 1:160 could be used as alternative investigations for diagnosis[6]. Treatment of melioidosis consists of 2 phases; an intensive phase and eradication phase.

To the best of our knowledge, this is the first Thai case of renal abscess from melioidosis in a patient who was healthy. Although, hemoculture and urine culture which are the gold standard for diagnosis were negative, melioidosis was still a possibility due to his risk factors, which included living in an endemic area and exposure to soil. The outcome of the melioidosis antibody titers revealed a high positive titer (1:5,120) added weight to the diagnosis. The CT scan, the tool for diagnosis and assessment of the severity of the complications, detected findings compatible with renal abscesses[7]. The abscesses were not collected in this case due to their small size. Thus, melioidosis was diagnosed in this patient. The patient received meropenem for the intensive phase of treatment for 21 days and then oral trimethoprim/sulfamethoxazole (80/400 mg) 3 tabs per oral every 12 hours for 3 months in the eradication phase.

In summary, the genitourinary tract may be affected in cases of melioidosis. A high level of clinical suspicion of clinicians from the personal history, risk factors and physical examination is mandatory. Early diagnosis could reduce the complications and mortality. Despite the negative cultures for melioidosis, the other laboratory investigations should be further studied such as melioidosis antibody titers. A CT scan may also help diagnosis and can be used to assess the severity of this disease.

Conflict of Interest

The authors declare no conflict of interest.

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