

Primary Prostatic Melioidosis Manifesting as Multiple Abscesses with Urinary Retention

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Abstract

Primary prostatic melioidosis is an uncommon manifestation of *Burkholderia pseudomallei* infection, often underdiagnosed in endemic regions. We describe a 43-year-old male presenting with progressive lower urinary tract symptoms and acute urinary retention. Imaging demonstrated a markedly enlarged prostate with multiple multiloculated abscesses confined to the gland. Culture of aspirated pus yielded *B. pseudomallei* and *Pseudomonas aeruginosa*. The patient was successfully managed with transrectal ultrasound-guided aspiration, a four-week course of intravenous meropenem with oral co-trimoxazole, followed by three months of oral co-trimoxazole eradication therapy. This case highlights the importance of considering melioidosis in the differential diagnosis of prostatic abscesses, particularly in endemic regions.

Keywords: Melioidosis, prostate abscesses, *Burkholderia pseudomallei*

Introduction

Melioidosis is identified as a disease of the tropics. It is caused by the soil and water-dwelling Gram-negative bacterium *Burkholderia pseudomallei*, which is transmitted mainly through inoculation and less frequently by ingestion or inhalation. While the disease can manifest as soft tissue infections, pneumonia, or septicemia, primary genitourinary infections including prostate abscesses are uncommon and often underdiagnosed.

Case presentation

A 43-year-old male who was otherwise well, experienced intermittent dysuria for four months, accompanied by progressive voiding and storage lower urinary tract symptoms (LUTS). He subsequently developed low grade fever with worsening LUTS and treated at primary care for a urinary tract infection. A few days later he became

unwell with spiking temperature and perineal pain, subsequently admitted to the local hospital, started on intravenous antibiotics and transferred to the urology unit of Teaching Hospital, Anuradhapura for specialized care. He was afebrile on admission and per rectal examination revealed a tender prostomegaly with features of acute urinary retention needing catheterisation. Investigations revealed neutrophil leukocytosis and pyuria with sterile urine and blood cultures. Abdominal and transrectal ultrasonography (TRUS) revealed multiple abscesses in the prostate. Contrast CT of pelvis revealed a significantly swollen prostate with multi-loculated abscesses, largest being 2.6×1.6 cm in size in the right prostatic lobe (Figure 1). TRUS guided aspiration of the prostate abscesses was carried out, and the culture of aspirated pus grew *Burkholderia pseudomallei* and *Pseudomonas aeruginosa*. Contrast CT chest and abdomen confirmed no evidence of infection in other organs.

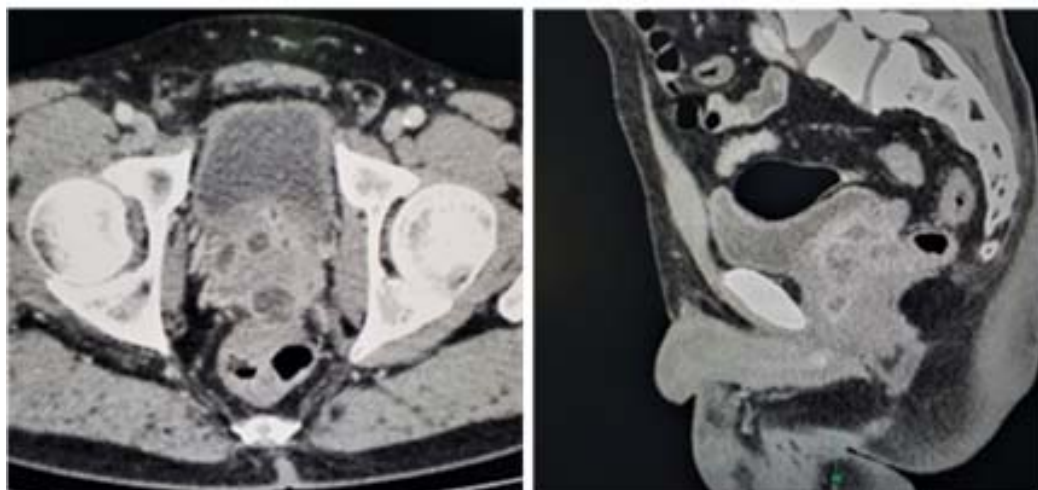


Figure 1. Axial and sagittal CT images demonstrating multifocal prostatic abscesses.

Treatment was initiated with intravenous meropenem and oral co-trimoxazole with folic acid supplementation based on the microbiological guidance of pus culture. Following clinical improvement and completion of a 4-week combined antimicrobial regimen, the patient underwent a successful trial without catheter and was discharged. Extended therapy with high-dose oral co-trimoxazole continued for three additional months to ensure complete eradication. He was monitored with regular hematological parameters, hepatic function tests and prostatic ultrasonography. The eradication protocol concluded successfully with complete symptomatic resolution and prostatic imaging confirming absence of residual abscess.

Discussion

Melioidosis is primarily endemic to Southeast Asia and northern Australia, with emerging cases documented worldwide (1). Sri Lanka, a tropical country residing within the melioidosis belt can be considered an endemic area with a rising number of cases (2). It is a clinically diverse disease having acute, subacute, and chronic phases and involving almost any part of the body.

In Sri Lanka, melioidosis is seen in all nine provinces with the highest prevalence in Western, North-Western, and Eastern provinces (2). Though many cases are reported in the agricultural community, this patient was a bus driver. There was notable

incidence among drivers, most being three-wheel drivers and motorcyclists implying dust exposure (2). Although diabetes, chronic lung disease, chronic renal disease, immunosuppression, malignancy, and alcohol abuse are risk factors for melioidosis (3) this patient was immunocompetent.

A twenty-year prospective study in Australia has identified pneumonia as the principal clinical manifestation (51%) while genitourinary symptoms were seen in 14% with prostate abscesses in 20% of males (3). In contrary, genitourinary involvement is recorded as 4% in Sri Lanka (2) with only two case reports of a melioidotic prostate abscess (4,5).

According to a series of melioidotic prostates abscesses by Morse et al. fever and urinary symptoms were present in the majority, with urinary retention seen in 53%. Dysuria and frequency had been identified in a significant proportion of patients, with enlarged tender prostate glands in half of the subjects (6). This patient developed acute urinary retention after a prodromal period of dysuria, frequency and LUTS suggestive of prostatitis. This is consistent with the findings of Tan et al. who reported obstructive urinary symptoms to be more frequent with melioidotic prostate abscesses, since they seem to be larger than abscesses from non-melioidotic organisms (7).

TRUS, CT or MRI remain the mainstay of diagnosis of prostate abscesses with TRUS being equally

effective to the latter two (7). CT is 99% sensitive for melioidotic prostate abscesses (6). Moreover, several studies have shown that melioidotic prostate abscesses tend to be characteristically multiloculated (6) as observed in this case, each measuring more than 1 cm in size (8).

Isolation of the organism in clinical samples is the main diagnostic modality of melioidosis. Morse et al. demonstrated 95% of prostatic pus culture and 89% of urine culture positivity for *B. pseudomallei* in patients with prostatic melioidosis (6). This patient had a positive prostatic pus culture though urine culture was sterile, probably due to prior antibiotic treatment.

Treatment for melioidosis primarily consists of an antimicrobial regime administered in two phases as initial intensive therapy and oral eradication therapy. Intravenous ceftazidime or meropenem for four weeks are considered as the intensive therapy in patients with melioidotic organ abscesses and oral co-trimoxazole for 3-6 months is considered as the eradication therapy (9,10). According to Currie et al. early treatment with ceftazidime or meropenem is thought to be a cause of reduced mortality in patients with melioidosis (3). In addition to antimicrobial therapy, studies recommend aspiration of melioidotic prostate abscesses, especially if they are larger than 1 cm and suggest TRUS guided aspiration as the first line (6). However, this could be challenging as abscesses being multiloculated (7). Clinical improvement was seen in this patient with the combination of antimicrobial therapy and TRUS guided aspiration.

In conclusion, melioidosis is a diverse disease affecting almost any organ in the body. Melioidotic prostate abscesses are uncommon, and they can present with obstructive urinary symptoms or symptoms of acute prostatitis. A high index of suspicion is needed for accurate diagnosis of the condition, especially in endemic areas.

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