



## An Unusual Case of Melioidotic Prostatic Disease Complicated with Thrombocytopenia

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### Abstract

Melioidosis is a fatal infectious disease caused by *Burkholderia pseudomallei* (BP). We report a case of primary melioidotic prostatic disease complicated with thrombocytopenia in a 66-year-old man. The patient mainly presented with dysuria and fever, and BP was detected in multiple blood cultures. The patient was cured and discharged after 2 weeks of treatment with imipenem. This case confirms that melioidosis can invade multiple organs and be easily misdiagnosed and mistreated. BP detection from any specimen of a patient with suspected melioidosis is the gold standard for diagnosis of the disease, which can be cured with sensitive antibiotic treatment.

**Keywords:** Melioidosis; *Burkholderia pseudomallei*; Prostatic disease; Thrombocytopenia

### Introduction

Melioidosis is endemic in Southeast Asia and is a kind of fever disease. Clinical manifestation from chronic to local infection is characterized by abscess acute septicemia involving multiple organs, and the most common clinical manifestation is pneumonia [1]. Doctors easily misdiagnose the disease as tuberculosis, common pneumonia, or other pyogenic infection due to the diversity of its clinical manifestations and lack of specificity; as such, melioidosis is named as “the great imitator” [1,2]. Prostatic melioidosis is rarely reported in China. Woo et al. [3] reported a case of melioidosis presenting with prostatic abscess in Hong Kong, China.

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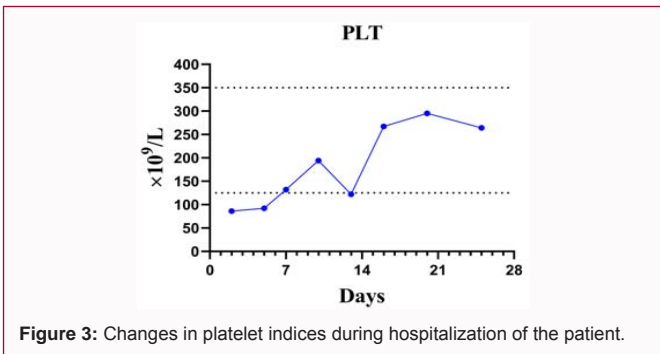
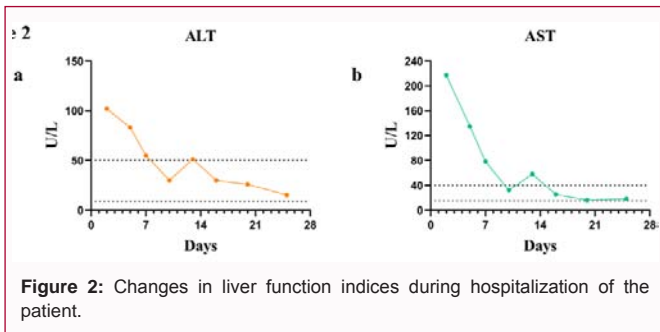
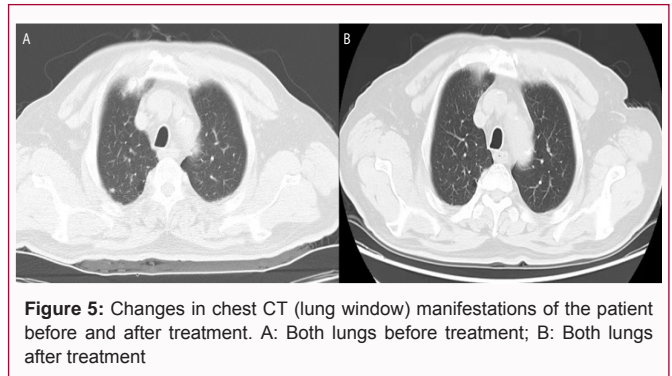
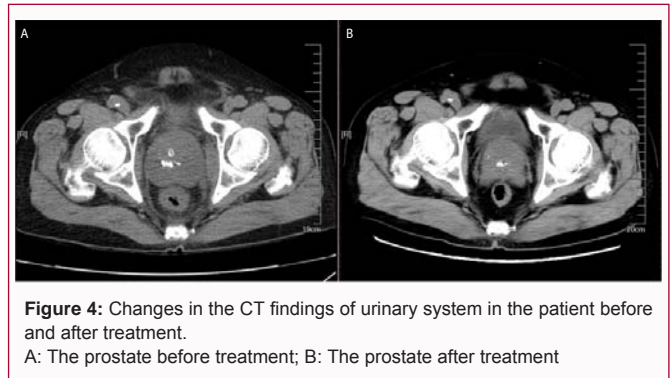
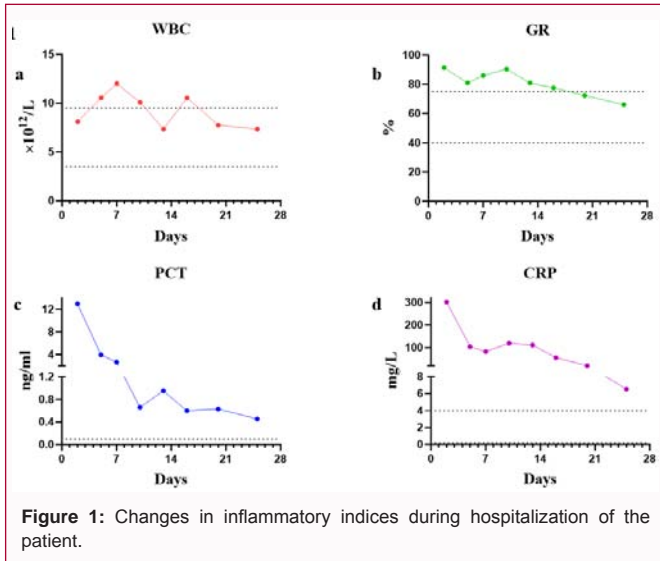
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### Case Presentation

A 66-year-old male patient from Lingshui, Hainan, China, who had been engaged in infrastructure construction for a long time, was hospitalized in the Second Affiliated Hospital of Hainan Medical University for Dysuria accompanied by fever. The patient had a long history of alcohol abuse. The past history of the patient was not special. Based on digital rectal examination, the palpable prostate was enlarged and had medium size and smooth surface, and the central sulcus disappeared without obvious tenderness. Related examination showed the following: Saw (Figures 1-3) for the abnormal results of some laboratory examinations. The CT results hinted the following: 1. (Figure 4A) prostate hyperplasia (62 mm × 53 mm × 45 mm); 2. (Figure 5A) infected lesions at the apex of both lungs and the anterior segment of the right upper lobe. The preliminary diagnosis was hyperplasia of the prostate combined with urinary tract infection. Cefmenoxime was given for treatment, but the effect was not satisfactory. After 3 days, piperacillin was replaced according to the drug sensitivity results of the first urine culture. After 2 days of treatment, the patient still had fever, with the highest temperature reaching 39.9°C. The patient was transferred to the Intensive Care Unit, and repeated blood cultures indicated BP (sensitive to imipenem). The final diagnosis was prostatic melioidosis. Imipenem (1 g/time, pump injection, 25 ml/h, q8h) were given. After treatment for 4 days, the patient was transferred back to the urology department and continued to receive imipenem (1 g/time, IVGTT, q8h). After treatment for 2 weeks, the CT scan showed the following: 1. (Figure 4B) the prostatic hyperplasia was smaller than before (50 mm × 42 mm × 40 mm), and calcification was the same as before; 2. (Figure 5B) inflammatory exudation of both lung apices was observed, and the anterior segment of the upper lobe of the right lung was absorbed more than that before. The patient’s condition improved and he was discharged from hospital and followed up continuously. He was subsequently seen in one month, three months, six months and one year after discharge, at which times he was asymptomatic with no biochemical and imaging evidence of melioidosis. The patient gave his consent for publication of the data.



**Discussion**

BP is Gram negative and is primarily transmitted through the skin, inhalation, and ingestion pathways [1]. BP is mainly prevalent in southern China, including Hainan, Guangdong, and Guangxi, with Hainan being the most serious [2,4]. Risk factors for melioidosis include male gender, middle age and elderly, diabetes, alcohol abuse, immunosuppressive status, and frequent contact with soil or water in endemic areas; among which, the most important factor is diabetes [5]. Kozłowski et al. [6] found that the most common clinical risk factor for patients with melioidosis prostate abscess is excessive alcohol intake. This case was a 66-year-old male, a construction worker in Ling Shui, Hainan province, who has a long history of alcoholism and had developed the disease in October, consistent with the high-risk factors for melioidosis. In this case, after admission, the patient was preliminarily diagnosed with prostatic hyperplasia according to his clinical manifestations and related examinations.

Corresponding treatment measures were taken, but the effect was not satisfactory. Digital rectal examination is useful for detecting changes in the prostate, but it does not distinguish between prostate abscesses and other causes of acute prostatitis [7]. In this case, no obvious prostate tenderness was observed in digital rectal examination, so distinguishing the disease from prostatic hyperplasia by digital rectal examination is difficult. In addition, CT scan of patients with prostate melioidosis can indicate multiple low-density mass shadows, usually in the shape of compartment, septum, and lobe. However, the CT scan of this patient did not show multiple low-density mass shadows, only suggesting prostatic hyperplasia. Therefore, the patient did not receive needle biopsy of prostate abscess. Review of the patient’s CT scan after 2 weeks of treatment indicated that the volume of hyperplastic prostate was significantly reduced compared with the previous one. Therefore, in future diagnosis and treatment, attention should be paid to distinguish prostatic hyperplasia and prostatic melioidosis, and the possibility of simultaneous existence of both cannot be ruled out. When necessary, prostate puncture biopsy is feasible to confirm the diagnosis. Interestingly, this patient developed thrombocytopenia (Figure 3), and the platelet index gradually returned to normal after 2 weeks of sensitive antibiotic treatment. Up to now, the mechanism of melioidosis thrombocytopenia remains unclear. Birnie et al. [8] showed that melioidosis thrombocytopenia may be associated with diffuse intravascular coagulation and hemophagocytosis. More interestingly, they [9] also found that thrombocytopenia can predict mortality in patients with melioidosis. The 2020 edition of Darwin melioidosis treatment guideline for the treatment of melioidosis [10] pointed out that treatment is mainly divided into intravenous antibiotic strengthening stage and oral antibiotic eradication stage. Ceftazidime, meropenem, or imipenem is recommended for a minimum of 2 weeks in the intensive phase of intravenous antibiotics. The patient in this case had positive blood cultures for many times, and the diagnosis of prostatic melioidosis complicated with bacteremia was established. Therefore, imipenem

was given in the intensive stage. Inflammation and liver function index significantly decreased after 1 week, did not drop to the normal range, and may appear even higher again (Figure 1, 2). After 2 weeks, these indicators returned to normal and did not rebound. Hence, treatment of melioidosis for 2 weeks is required for it to be basically stable, consistent with Darwin's guidelines.

## Conclusion

In summary, BP is increasingly recognized as an important human pathogen worldwide. Clinicians need to have more understanding of melioidosis and to achieve its early detection, diagnosis, and treatment to improve the cure and survival rates of patients.

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