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Case Report (Open Access)

MELIOIDOSIS WITH MULTI-ORGAN INVOLVEMENT IN AN UNCONTROLLED DIABETIC PATIENT: CASE REPORT

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ABSTRACT
Melioidosis, caused by *Burkholderia pseudomallei*, is an emerging infection with diverse clinical presentations and high mortality if untreated. We report the case of a 54-year-old male with uncontrolled type 2 diabetes mellitus (HbA1c 10.3%) who presented with prolonged fever, weakness, and anorexia. Imaging revealed hepatosplenic abscesses and mediastinal lymphadenopathy, initially raising suspicion for tuberculosis or malignancy. Microbiological culture confirmed *B. pseudomallei*, establishing the diagnosis of melioidosis. The patient was initially treated with intravenous ceftriaxone, doxycycline, and metronidazole. Due to inadequate response, therapy was escalated to ceftazidime followed by meropenem, resulting in gradual clinical improvement. This case underscores the diagnostic challenges of melioidosis in endemic regions and highlights the importance of considering it in patients with uncontrolled diabetes presenting with fever and multi-organ involvement. Early diagnosis and timely initiation of appropriate antibiotics are critical for improved outcomes.

Keywords: *Melioidosis, Burkholderia pseudomallei, Diabetes Mellitus, Hepatosplenic abscess, Ceftazidime, Meropenem*

INTRODUCTION
Melioidosis is a complex tropical infection caused by *Burkholderia pseudomallei*, a Gram-negative bacterium that naturally inhabits soil and water Mohapatra *et al.,* (2025). It is transmitted primarily via inhalation, ingestion, or direct inoculation, with occasional reports of person-to-person, sexual, perinatal, vertical, and nosocomial transmission Warapitiya *et al.,* (2021). Melioidosis contributes significantly to global health, with an estimated 165,000 cases and 89,000 deaths annually, accounting for nearly 4.6 million disability-adjusted life years (DALYs), a burden higher than several other tropical diseases Mohapatra and Mishra (2022).

Melioidosis presents with a wide spectrum, ranging from asymptomatic or subclinical disease to acute localized, septicemic, and chronic forms. While most infections remain asymptomatic, severe disease is more likely in individuals with risk factors such as diabetes mellitus, chronic renal disease, alcoholism, malignancy, or immunocompromised states. The lungs, liver, and spleen are the organs most affected Meumann Currie (2024).

Culture is the gold standard for diagnosing melioidosis. In suspected cases, blood, urine, and sputum should be cultured, along with pus, skin swabs, or aspirates from sterile sites as indicated by the clinical presentation Meumann Currie (2024). Advanced imaging modalities such as ultrasonography, computed tomograpy (CT), and magnetic resonance imaging (MRI) can aid in the diagnosis of melioidosis, with the presence of multiple hepatic and splenic abscesses being highly suggestive of the disease Sd (2016).

Here, we present a case of melioidosis with multi-organ involvement in an uncontrolled diabetic patient, underscoring the diagnostic challenges and the importance of early therapeutic intervention.

CASE
A 54-year-old male presented with fever for one month, occurring daily without localizing signs. He also reported weakness, anorexia, and vomiting. He had no history of allergies or prior medical illness. His

medications before admission included glimepiride 2 mg once daily (OD) (morning) and dapagliflozin 10 mg OD (evening).

On admission, his vital signs were as follows: temperature, 101.1°F; heart rate, 107 bpm; respiratory rate, 19/min; Peripheral Capillary Oxygen Saturation (SpO_2), 99% (room air), and blood pressure, 140/90 mmHg. Clinical examination revealed pallor, but no cyanosis, oedema, icterus, lymphadenopathy, or organomegaly. Cardiovascular, respiratory, gastrointestinal, neurological, and genitourinary examinations were within normal limits.

LABORATORY INVESTIGATIONS:

- Capillary Blood Glucose (CBG): 206 mg/dl, Haemoglobin A1C (HbA1C): 10.3%
- Na: 128–130 mmol/L, K: 3.5–3.7 mmol/L, Ca: 8.3 mg/dl, Cl: 95 mmol/L
- Procalcitonin: 0.41 ng/mL
- Erythrocyte Sedimentation Rate (ESR): 48 mm/hr
- Serology (Dengue, Malaria, Scrub Typhus, Typhoid): Negative
- Thyroid stimulating hormone (TSH): 0.88–1.03 mIU/L

HEMATOLOGY:

Follow up	Hemoglobulin (Hb) (g/dL)	Packed cell volume (PCV) (%)	Platelets (lakh/mm3)	Total count (TC)/Cmm	Neutrophil %	D-Dimer (ng/mL)	C-reactive protein (CRP) (mg/L)
Day 0	9.8	30.7	2.87	10,500	75	-	-
Day 2	9.0	28.4	3.28	6,900	70	-	-
Day 4	8.1	24.9	3.25	7,500	79	1,484.5	90.43
Day 6	8.5	26.3	5.44	9,900	79	3,044.71	74.25

IMAGING:

- **Neck:** A well-defined, smooth-margined ovoid-shaped peripherally enhancing hypodense lesion was found in the left carotid space at the level of C2-C5 vertebrae. The differential diagnosis was Neurogenic Tumour-Schwannoma.
- **CT Chest:** Revealed multiple subcentimetric to enlarged discrete and conglomerated peripheral rim-enhancing necrotic lymph nodes in the right hilar, right paratracheal, and subcarinal regions, with a likely tubercular etiology. There was also minimal right-sided pleural effusion.
- **Contrast-Enhanced Computed Tomography (CECT) Abdomen:** Hepatomegaly with multiple conglomerated microabscesses in segments IV, V, VI, VIII; multiple small splenic hypodense lesions (likely granulomas); small left renal calculus, mild osteopenia with spondylolysis (L5-S1).
- **Ultrasonography (USG) Abdomen:** Normal liver and kidneys; simple splenic cyst
- **Echocardiography (ECHO):** Normal ejection fraction, no pericardial effusion

MICROBIOLOGY:

Biopsy/aspiration culture grew *Burkholderia pseudomallei*, confirming melioidosis.

MANAGEMENT:

The patient was initially started on ceftriaxone (1 g IV BD), doxycycline (100 mg IV BD), and metronidazole (500 mg IV TDS). In view of clinical progression, antibiotic therapy was escalated to ceftazidime (Fortum) 2 g IV TDS and subsequently to meropenem 1 g thrice daily for 7 days. The patient's condition improved gradually with treatment. The diagnosis was explained to the relatives, highlighting its infectious and non-cancerous etiology.

DISCUSSION

Melioidosis is an infectious disease caused by the environmental Gram-negative bacillus *Burkholderia pseudomallei*. Diabetes mellitus is the most important predisposing factor, reported in over 50% of patients globally, and is associated with severe and disseminated forms of the disease. With the rising global diabetes burden, the incidence and mortality associated with melioidosis are expected to increase Wiersinga *et al.,* (2018). The present case of a 54-year-old male with uncontrolled diabetes mellitus (HbA1c 10.3%), developed multi-organ involvement, including hepatosplenic abscesses and mediastinal lymphadenopathy, underscoring the strong association between poor glycemic control and disease severity.

Melioidosis is frequently referred to as the 'great mimicker' due to its ability to resemble tuberculosis, community-acquired pneumonia, or sepsis. This overlap often complicates diagnosis, leading to frequent underdiagnosis and misdiagnosis, particularly in non-endemic settings Sharma *et al.,* (2022). Ultrasonography, CT, and MRI play an important role in identifying melioidosis, as the finding of multiple abscesses in the liver and spleen is highly characteristic of the infection Sd (2016). In this case, the imaging findings initially suggested differential diagnoses of neurogenic tumor (schwannoma) in the neck, while chest CT revealed necrotic lymphadenopathy and mild pleural effusion, both raising suspicion for tuberculosis or other granulomatous diseases. Abdominal imaging demonstrated hepatomegaly with multiple microabscesses and splenic granulomas, features suggestive of disseminated infection but not specific for melioidosis alone. Routine ultrasound and echocardiography were unremarkable. Microbiological analysis proved decisive culture from biopsy/aspiration confirmed the presence of *Burkholderia pseudomallei*, definitively establishing the diagnosis of melioidosis and distinguishing it from tuberculosis and other granulomatous infections.

The acute phase of melioidosis management necessitates the intravenous administration of high-dose antibiotics to reduce mortality Lim *et al.,* (2022). A review article mentioned ceftazidime or meropenem as the preferred agents for intensive therapy. Doxycycline may be considered in patients with intolerance or contraindications to trimethoprim-sulfamethoxazole (TMP-SMX) Mohapatra *et al.,* (2025). Another review mentioned the treatment consists of a minimum 14-day course with either a third-generation cephalosporin, most commonly ceftazidime, or a carbapenem such as meropenem. Ceftazidime is generally considered the first-line agent, whereas meropenem is reserved for critically ill patients with severe, life-threatening infections requiring intensive care unit (ICU) management Lim *et al.,* (2022); Wiersinga *et al.,* (2018). In this case, the patient was initially managed with intravenous ceftriaxone (1 g twice daily), doxycycline (100 mg twice daily), and metronidazole (500 mg three times daily). Due to inadequate clinical response, the antibiotic regimen was escalated to ceftazidime (2 g three times daily) and later to meropenem {1 g thrice daily} for a duration of seven days. Gradual clinical improvement was observed following this escalation. The diagnosis and its implications were discussed with the patient's relatives, emphasizing the infectious nature of the disease and clarifying that it was non-malignant.

CONCLUSION

Melioidosis should be considered in patients with uncontrolled diabetes presenting with prolonged fever and multi-organ involvement, particularly in endemic regions. Imaging findings of multiple hepatic and splenic abscesses are highly suggestive but require microbiological confirmation. This case emphasizes the importance of early suspicion, prompt microbiological diagnosis, and appropriate escalation of antibiotic therapy to optimize patient outcomes.

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ETHICAL APPROVAL
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