

Case Report

Melioidosis: acute respiratory distress syndrome and sepsis

Bharat M. Shah, Jimit Patel*

Department of Medicine, Gujarat Research and Medical Institute, Rajasthan Hospital, Shahibag, Ahmedabad, Gujarat, India

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***Correspondence:**

Dr. Jimit Patel,

E-mail: ptljimit6464@gmail.com

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ABSTRACT

Melioidosis is a serious infection caused by the bacterium *Burkholderia pseudomallei* (*B. pseudomallei*) mostly found in endemic areas like Southeast Asia. Herein, we presented a case of melioidosis in a 32-year-old man who presented with respiratory distress, was a known case of type 2 diabetes not on any treatment presented to the emergency department (ED) with a history of pustules over skin, shortness of breath, and fever. He was initially misdiagnosed and treated as pulmonary tuberculosis in another hospital prior to his latest presentation. Melioidosis is a severe infection that can be misdiagnosed due to variable presentation and low awareness among healthcare workers of the disease. Diagnosis requires high clinical suspicion, especially in patients who are coming from endemic areas with appropriate risk factors such as diabetes mellitus. Treatment with appropriate antibiotics for a long duration, and outpatient follow-up is vital to reduce the risk of recurrence.

Keywords: Melioidosis, *Burkholderia pseudomallei*, Acute respiratory failure, Sepsis

INTRODUCTION

Melioidosis, a relatively uncommon but potentially life-threatening infectious disease, has long perplexed the medical community.¹ This case report aims to shed light on this mysterious illness, providing a comprehensive understanding of its nature and emphasizing its significance in the realm of public health. Melioidosis is caused by the bacterium *Burkholderia pseudomallei*, which is found in soil and water in tropical and subtropical regions. It primarily affects individuals with compromised immune systems, but can also afflict otherwise healthy individuals. The disease can manifest in various forms, ranging from acute localized infections to chronic and disseminated cases.²

What makes melioidosis particularly challenging is its ability to mimic other diseases, often leading to misdiagnosis or delayed treatment. Its symptoms can vary widely, including fever, respiratory distress, abscesses,

and organ failure. By unravelling the mystery surrounding melioidosis, this case report aims to contribute to the body of knowledge about this enigmatic disease.

CASE REPORT

A 32-year-old male with known case of type 2 diabetes mellitus, presented with complained of persistent fever since 2 months, accompanied by chills and night sweats, severe fatigue, body aches since, vesicular lesion all over body since 2 days, left knee joint swelling and breathing difficulty since last 2 days.³

Initially patient was admitted in intensive care unit with clinical finding of fever, hypoxia, tachycardia, hypotension, localized swelling and tenderness in the patient's left lower leg, along with the presence of multiple pustules all over body. Respiratory finding suggests bilateral coarse crepitation. After admission routine Investigation done and according to patients ABG analysis

initially patient was put on non-invasive ventilator, patients breathing pattern was worsened on day 2 of admission, so patient was intubated. Patient serum acetone was also in higher range for that infusion of regular insulin was started.

For maintaining blood pressure injection noradrenaline via infusion was given. Blood culture and ET cultures were sent. Until the culture reports were came patient was treated with empirical antibiotics with injection amikacin, injection vancomycin, injection doxycycline, injection cotrimoxazole. Patient X-ray shows multiple diffuse patches, pulmonologist opinion taken and advice for injection fluconazole. Patient had continuous high grade fever despite giving higher antibiotics. On day 6 of admission patient culture report were came and which shows the growth of the *Burkholderia pseudomallei* organism in Blood as well ET culture. Which was sensitive to injection chloremphenicol and injection ticaracilin and clavulanic acid.

According to sensitivity report treatment given and patient shows improvement in terms of fever, blood pressure and breathing pattern within 24 hours after administrating injectable antibiotics according to culture report, hence patient was extubated on days 8 of admission, noradrenaline support was gradually tapered off and longer acting. For joint swelling orthopaedic opinion taken and advise for X-rays of affected joints which shows no significant abnormality and advise to follow conservative management. Patient CBC report was suggestive of anaemia, so correction of anaemia done with 2 units of packed cell volume. Once patient was hemodynamically and clinically becoming stable shifted in to the ward from ICU.



Figure 1: Chest X-ray (a/p)- bilateral, predominantly peripheral, multiple asymmetrical consolidation.

DISCUSSION

Diagnosing melioidosis can be a challenging task for healthcare professionals due to its diverse clinical presentations and the lack of specific symptoms. This infectious disease caused by the bacterium *Burkholderia pseudomallei* is often referred to as the ‘great mimic’ because its symptoms can be mistaken for other common conditions such as pneumonia, tuberculosis, or even sepsis.⁴ One of the main challenges in diagnosing melioidosis is the limited awareness and knowledge about this disease among healthcare providers, especially in regions where it is not endemic. This lack of familiarity can lead to delayed or misdiagnosis, resulting in potentially severe consequences for patients.

Another factor that adds to the complexity of diagnosing melioidosis is the difficulty in isolating and identifying *Burkholderia pseudomallei* from clinical samples. The bacterium requires special laboratory techniques and expertise, making it unavailable in many healthcare facilities, particularly in resource-limited settings. Furthermore, the symptoms of melioidosis can vary greatly depending on the route of infection, the patient's immune status, and other underlying health conditions.⁵ This variability in presentation makes it crucial for healthcare professionals to maintain a high index of suspicion, especially in areas where the disease is endemic or in individuals with a history of travel to such regions.

To overcome these challenges, it is crucial for healthcare providers to be educated about the clinical features and risk factors associated with melioidosis. This includes recognizing the importance of travel history, occupational exposure, and underlying medical conditions that may increase the likelihood of infection. Additionally, establishing strong collaborations between healthcare facilities, public health agencies, and research institutions can facilitate the exchange of knowledge, resources, and expertise in diagnosing and managing melioidosis. This interdisciplinary approach can contribute to the development of standardized diagnostic protocols, improved laboratory capacity, and enhanced surveillance systems for early detection and timely intervention. The median time for resolution of fever in burkholderia sepsis is nine days.

This case report highlights the diagnostic challenges posed by cases of prolonged fever unresponsive to traditional antibiotics.

CONCLUSION

Melioidosis is possibly under diagnosed in India, due to low index of suspicion, inadequate diagnostic facilities, and it mimics commoner diseases. Melioidosis should be consider in the differential diagnosis in febrile illness in any person who has (a) multiple pustular skin lesion, (b) fulminant respiratory failure, and (c) radiological pattern of ARDS. Mortality in this diseases is high due to lack of

familiarity with such infection in non-endemic areas. Melioidosis should be treated with the sensitive antibiotic according to culture report.

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