

# A rare but emerging infection among Diabetic Kidney Disease population in South India: A Case Series

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## ABSTRACT

Melioidosis is endemic in Thailand and Australia but may be under-diagnosed and under-reported in the Indian sub-continent. In the recent past, there has been an increase in reporting of this disease in south India especially in the south-western coastal belt of India. Melioidosis is endemic in parts of southeast Asia. We encountered 3 culture-proven cases of Melioidosis at a tertiary care hospital in Chennai between August and December 2015. All were admitted during heavy rainfall season. Patient age varied from 49 to 61 years with a median age of 55.3 years. All three patients were males, and from rural areas, they had type 2 diabetes mellitus and renal dysfunction. Two of them were alcoholic.

**KEYWORDS:** Melioidosis, Diabetes mellitus, Renal dysfunction, Tuberculosis, and Sepsis.

## INTRODUCTION

Melioidosis is caused by the bacterium *Burkholderia pseudomallei* (a motile, aerobic bacillus).<sup>1-3</sup> The disease usually occurs in the 4<sup>th</sup> and 5<sup>th</sup> decades of life, among those who have chronic co-morbidities such as diabetes, alcoholism, immunosuppression, and renal failure. It spreads to human being through direct contact with a contaminated source, especially during the rainy season. In India, melioidosis has acquired the status of a newly emerging infectious disease.<sup>4</sup>

## CASE SERIES

**Case Report 1:** A 61 year old male alcoholic patient with history of Diabetes since 3 years reported the medical department. The patient showed fever, severe myalgia, cough and Haemoptysis. Chest X-Ray was advised, and it showed consolidation lesion in right lower zone (Figure 1). CT- chest plain showed bilateral cavitary lesion,



Figure 1: chest x-ray pa view showing consolidation lesion in right lower zone

more in the right than left (Figure 2). It was initially diagnosed as Bacterial Pneumonia with Lung Abscess. The patient was put on Conventional Antibiotics for prolonged period of time. Response was negative. Later by Blood culture, it was diagnosed as Melioidosis. Ceftazidime was advised followed by Cotrimoxazole (Table 1).

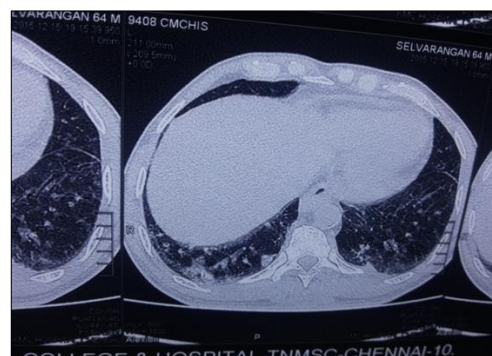


Figure 2: CT- chest plain showed bilateral cavitary lesion more right >left

**Case Report 2:** A 49 year old male alcoholic patient with history of Insulin therapy for Diabetes since 7 years reported the medical department. The patient showed fever, Neck swelling, acute abdominal problem. CT-abdomen (plain) showed multiple cavitary lesion in spleen (suggestive of multiple abscess) (Figure 3). It was initially diagnosed as Acute on CKD with splenic and submandibular abscess. The patient was advised Splenectomy and was put on Antibiotics for prolonged period of time but no response was found. Later by abscess drain culture, it was diagnosed as Melioidosis. Ceftazidime and Doxycycline was advised followed by Cotrimoxazole (Table 1).

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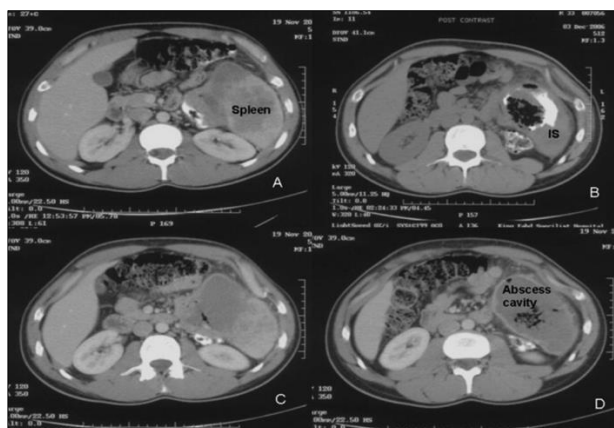


Figure 3: CT- abdomen (plain) showed multiple cavitary lesion in spleen (suggestive of multiple abscess)

**Case Report 3:** A 60 year old male non-alcoholic patient with history of Insulin therapy for Diabetes since 4 years reported the medical department. The patient was tested positive for HIV. The patient showed fever, cough with joint pain. X-Ray right foot-great toe distal end showed erosion suggestive of osteomyelitis (Figure 4). Kidney Biopsy LM suggested acute tubular injury (Figure 5). It was initially diagnosed as Pneumonia, Septic Arthritis. The patient was advised ATT and was put on Broad Spectrum antibiotics for prolonged period of time but no response was found. Later by abscess blood culture, it was diagnosed as Melioidosis. Ceftazidime was advised followed by Ciprofloxacin (Table 1).



Figure 4: X-Ray right foot -great toe distal end shows erosion suggestive of osteomyelitis

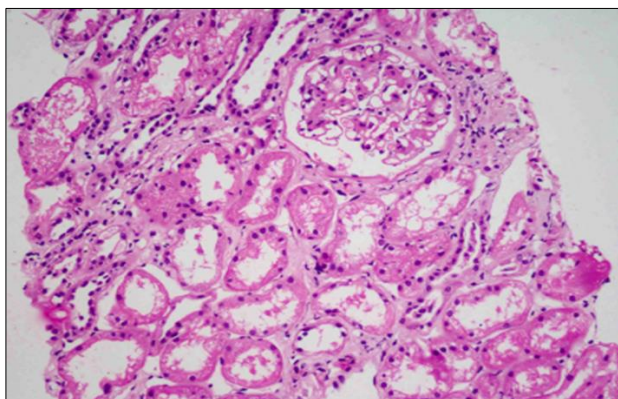


Figure 5: Kidney Biopsy LM showed Acute Tubular Injury

Character	Patient 1	Patient 2	Patient 3
Age	61	49	60
Gender	Male	Male	Male
Personal habits	Alcoholic	Alcoholic	Non Alcoholic
Diabetic Status	3 years , irregular treatment	7 years on insulin therapy	4 years on insulin therapy
HIV Status	Negative	Negative	Positive
Clinical Presentation	Fever, Severe myalgia, Cough & Haemoptysis	Fever, Neck swelling, Acute abdomen	Fever with cough with Joint pain
Initial diagnosis	Bacterial Pneumonia Lung abscess AKI	Acute on CKD Splenic abscess Submandibular abscess	Pneumonia Septic arthritis Acute on DN
Treatment	Prolonged conventional Antibiotics	Splenectomy, Prolonged antibiotics	ATT, Broad spectrum Antibiotic
Response	No response	No response	No response
Diagnosis of Melioidosis	By blood culture	Abscess drain culture	Blood culture
Time from onset of symptom to final diagnosis	27 days	32 days	51 days
Treatment & Response	Ceftazidime followed by Cotrimoxazole	Ceftazidime & Doxy with Cotrimoxazole	Ceftazidime then Ciproflox

Table 1: Case Series

## DISCUSSION

In our case series - Fever was the presenting symptom (100%) and mean duration of symptoms was 1.21 months before diagnosis. Two of them presented as multiple abscesses with the one patient had localized disease in spleen and other the lung. All of them had diabetic kidney disease and were treated successfully on follow-up, with a regimen of IV ceftazidime followed by cotrimoxazole. Two of them requiring hemodialysis.

**Clinical features:** Usually Symptoms onset appear 2 to 4 weeks after exposure. Most common presentation is the fever. Pain or other symptoms may be suggestive of a clinical focus, cough or pleuritic chest pain - pneumonia, bone or joint pain - osteomyelitis or septic arthritis, or cellulitis.

One study in southindia involving a series of patients with melioidosis revealed that skin and soft-tissue involvement (16%), liver abscess (16%), and bone and joint involvement (16%) were the most common presentations of this disease in patients with diabetes. Septicemia and major organ dysfunction resulting in death were not uncommon.<sup>5</sup> In another series northeast thailand of 214 patients, 27.6% had abscesses in the liver or spleen. Imaging of these organs using ultrasound or computed tomography should be performed routinely. *B. pseudomallei* abscesses may have a characteristic "honeycomb" or "swiss cheese" architecture on CT.<sup>6</sup>

Melioidosis is said to be able to affect any organ in the body except the heart valves (endocarditis) and primary meningitis has not been described. Although meningitis secondary due to ruptured brain abscesses has been described. Less common manifestations include intravascular infection, lymph node abscesses. (1.2–2.2%)<sup>7</sup>, myocarditis, mediastinal infection., and thyroid and scrotal abscesses and ocular infection.

Chronic melioidosis occurs in about 10% of patients and is usually defined by the duration of symptoms greater than two months. Chronic melioidosis presents as chronic skin infections, chronic lung nodule, and pneumonia. In particular, chronic melioidosis has sometimes been called "Vietnamese tuberculosis" because it closely mimics tuberculosis.

**Diagnosis:** Microbiological Isolation-is made by culturing the organism from any clinical samples that includes blood culture, sputum culture, urine culture, throat swab, and culture of any aspirated pus should be performed on all patients with suspected melioidosis (culture on blood agar as well as Ashdown's medium). Ashdown's medium, a selective medium containing gentamicin, may be required for cultures taken from nonsterile sites.

**Serological Diagnosis-** for melioidosis Indirect Haemagglutination is available. A high background titer may reduce the positive predictive value of serological tests in endemic countries.

**Treatment:** For moderate to severe melioidosis, a treatment protocol from the Royal Darwin Hospital in Australia consists of the following:

- Ceftazidime 2 g IV q6h (50 mg/kg up to 1 g in children) *or*
- Meropenem 1 g IV q8h (25 mg/kg up to 1 g in children) *plus*
- Cotrimoxazole 320/1600 mg PO/IV BID (8/40 mg/kg up to 320/1600 mg in children).

This regimen is given for at least 14 days, but may have to be continued for longer. Once the acute episode is resolved, then the eradication period would commence.<sup>8</sup>

**Prognosis:** Before antibiotics, the death rate for septicemic disease was 95%. It is greater than 50% for the septicemic disease and 20% for localized disease despite treatment. Overall, the mortality rate is 40%.

## CONCLUSION

- Melioidosis is an emerging infection in south India

especially in males from rural areas, with diabetes, renal dysfunction and alcoholism being the commonest risk factors.

- Diagnosis of Melioidosis should be considered in patients with multiple visceral abscesses in the background above-mentioned risk factor.
- As there is an excellent response in these patients, early suspicion, culture confirmation and early initiation of appropriate therapy are warranted for this highly lethal disease.

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