Melioidosis: A Case Report

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ABSTRACT

Burkhloderia pseudomallei has recently gained importance as an emerging pathogen in India. It causes various clinical manifestations like pneumoniae, septicaemia, arthritis, abscess etc. Cases have been reported from Southeast Asia mainly Thailand, Malaysia, Vietnam, etc. In India, few cases have been reported mainly from the southern part of the country. Patient was a 65-year-old male and presented with fever 1 month back, cough and breathlessness for same period, swelling on both ankles from 7 days. *B. pseudomallei* was isolated from endotracheal secretions, blood cultures, leg wound. He was successfully treated with Imipenem and Doxycycline and put on maintenance therapy now, and is currently doing well.

Key words: *Burkhlorderia pseudomallei*, Imipenem, Melioidosis, Septicaemia

INTRODUCTION

Burkhloderia pseudomallei has off late gained importance as an emerging pathogen in India. It is capable of causing various clinical manifestations like pneumoniae, septicaemia, arthritis, abscess etc. and is associated with high morbidity and mortality. Cases have been reported from Southeast Asian countries like Thailand, Malaysia and Vietnam etc.[1] In India, most cases have so far been reported from the southern states like Kerela[2] and Tamil Nadu.[3] Isolated cases have also been reported from eastern and northeastern parts of India.[2,4] Alhough not so uncommon in India but early and correct diagnosis and institution of proper antimicrobial therapy is important in order to reduce morbidity and mortality and have a favourable outcome.

Here we report a case of Melioidosis which probably was undiagnosed for long but was saved due to correct and timely intervention.

CASE REPORT

Our patient was a 65-year-old male from the state of Bihar. He presented with swelling of ankles and pain, redness on right ankle for 7 days and fever, cough, breathlessness from last 1 month.

Two months back he was treated for fever with Ceftriaxone as his Widal test was reactive. At about the same time, he was incidentally diagnosed with diabetes mellitus (DM). On treatment, though his symptoms subsided to some extent, during last 7 days he again complained of high fever, worsening breathlessness and loss of appetite. He was then brought to our hospital for further management.

On examination he was toxic, febrile, icteric, and dehydrated. His body temperature was 102° F, blood pressure 90/70mm Hg, respiratory rate 50/min, and heart rate 128/min. Bronchial breath sounds on left side and bilateral crackles were heard. Spleen was mildly enlarged without any free fluid in the abdomen. No cardiovascular or neurological abnormality was noted. On local examination, ankles were erythematic and oedematous. His right foot had cellulites with pustular discharge. His right knee was also swollen.

Laboratory investigations revealed that multiple hematological and biochemical parameters were deranged [Table 1]. Urine and blood samples were sent for culture.

His chest X-ray showed homogenous consolidation in upper left lobe and diffuse alveolar opacities in remaining part of lung [Figure 1]. Ultra sound revealed mild bilateral

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Table 1: Laboratory findings

Biochemical and hematological parameters	
Day 1	
Total leukocyte count	24,000/cubic mm
Peripheral blood smear	Showed toxic granulation and vacualation
Erythrocyte sedimentation rate	100mm at the 1st hour
Glycosylated haemoglobin (HbA1c)	11.10%
Total bilirubin	8.5mg/dl (Direct: 7.01mg/dl)
Total protein	5.2mg/dl (Albumin: 1.6mg/dl; Globulin: 3.6mg/dl)
Albumin/Globulin ratio	0.4
Serum glutamic oxaloacetic transaminase (SGOT)	160mg/dl
Serum glutamic pyruvic transaminase (SGPT)	82mg/dl
Alkaline phosphatase	1220mg/dl
Gamma glutamyl transferase	216mg/dl
Lactate dehydrogenase	387mg/dl
Creatinine	1mg/dl
High sensitivity C-reactive protein	233.8mg/dl
Procalcitonin	0.5 ng /ml
Microbiological parameters	
Day 1	
Urine culture	Sterile
Blood culture (2 sites)	*Burkhloderia pseudomallei*
Zeihl Neelsen stain from sputum for 3 days	Negative for acid fast bacilli
Malaria antigen	Negative
Widal test	Negative
Day 2	
Endotracheal secretion	
Gram stain	Gram negative bacilli
Culture	*Burkhloderia pseudomallei*
Day 4	
Pus from right leg	*Burkhloderia pseudomallei*

pleural effusion and mild ascitis with enlarged spleen. No focal lesions or organomegaly were noted.

Post admission his condition further deteriorated and had clinical evidences of Acute Respiratory Distress Syndrome, deranged blood gases, and was in respiratory distress. His oxygen saturation was 78%. With this background, he was put on ventilator and started with Piperacillin/Tazobactum and Clindamycin.

On day 2, endotracheal secretion was sent for culture. Gram negative bacilli were seen on gram stain [Figure 2]. Non fermenting pale colonies with metallic sheen were isolated next day on Blood agar and Mac Conkey agar [Figure 3]; the isolate was further processed on Microscan Walkaway 96 Si. Patient was continued with the same antibiotics. His total count, however, further increased to 26,000/cubic mm.

On day 4, the isolate was identified as *Burkhlorderia pseudomallei*, sensitive to Imipenem, Cotrimoxazole/Sulfamethoxazole, Tetracycline and resistant to Ceftazidime. Later on, both his blood cultures and pus drained from right leg [Figure 4]

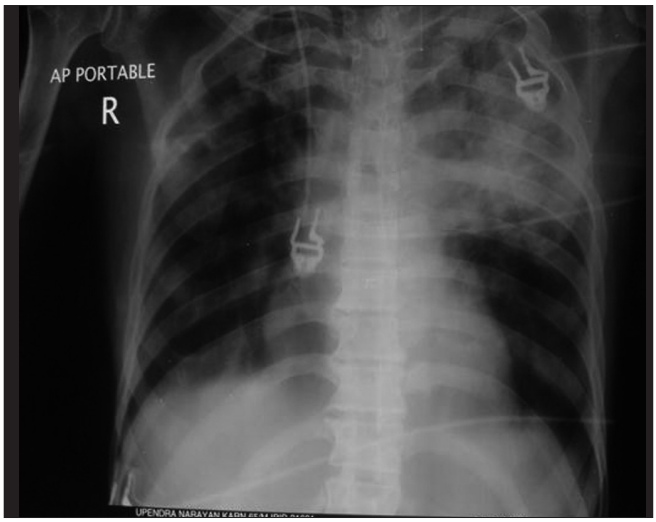

Figure 1: Chest X-ray showing left upper lobe consolidation

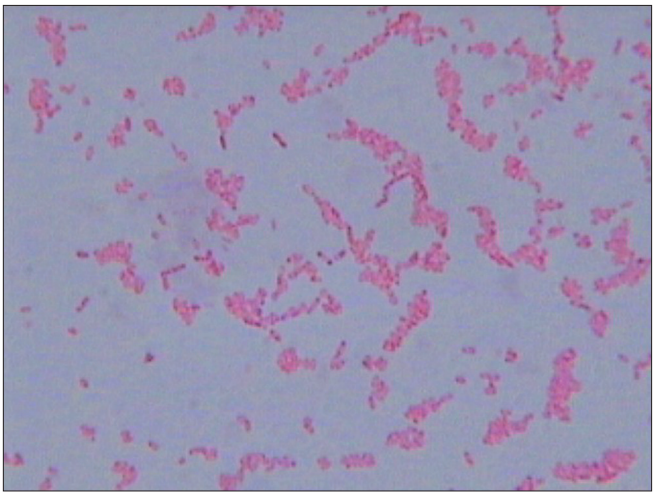

Figure 2: Gram negative bacilli with safety pin appearance on Gram stain

also grew *B. pseudomallei*. Based on the sensitivity report, antibiotic was changed to a combination of Imipenem and Doxycycline. Patient showed improvement, his fever subsided, total counts decreased, oxygen saturation was 100%, and was extubated on day 8.

His antibiotics were continued and after complete recovery and improvement of his liver and renal parameters he was discharged on day 20.

DISCUSSION

B. pseudomallei is an environmental inhabitant and is widely disseminated in soil, water, paddy fields, etc. It is geographically restricted to tropical and subtropical areas of Australia and Southeast Asian countries. In India, quite a number of cases were reported though many are still underreported due to its protean manifestations. Table 2

Figure 3: Colonies of *Bukhlorderia pseudomallei* on Mac Conkey agar

Figure 4: Pus drained from right ankle

Table 2: Review of cases in India

Year	Place	Clinical presentation	Treatment	Outcome
1996	Tamil Nadu[5]	Fever with Insulin dependent DM	Ceftazidime and Co-trimoxazole	Treated
2003	Tamil Nadu[3]	28 patients, 30 isolates from blood, 8 from pus, 3 from synovial fluid 1 from sputum	-	-
2003	Hyderabad[2]	Septicaemia	Imipenem	Death
2005-2006	Mangalore[6]	25 cases 3 -Septic Arthritis with DM 2 -Supraclavicular mass with DM 1-Pericardial effusion with DM 1-Scalp abscess with DM 2-Psoas abscess with DM 2-Gluteal abscess with Interstitial lung disease and COPD on steroids 5-Pneumonia 3-Renal disease with DM and Chronic Renal Failure. 1-Pancreatic pseudocyst with alcoholic liver disease 1-Pneumonia/Septic Arthritis with DM 3-Pyrexia of Unknown origin with malnutrition 1-Pneumonia without septicaemia with DM	-	-
2007	Tamil Nadu[4]	Genito-urinary infection with DM type I	Ceftazidime and Co-trimoxazole for 6 months	Treated
		Genito-urinary infection with DM type II	Treatment could not be started	Died
2007	Tamil Nadu[8]	Liver abscess - 2 cases	Ceftazidime and Co-trimoxazole	Died
2008	Pondicherry[9]	Diabetes with splenic abscess and foot abscess	Ceftazidime	Treated
	Tamil Nadu[7]	HIV positive	Ceftazidime and Co-trimoxazole	Treated
2009	Pondicherry[11]	Pre-term neonate	Meropenem	Treated

gives a short review of different cases reported from India. Most of these were reported from the southern part though Melioidosis may be more widely prevalent. Two of the cases reported from Tamil Nadu actually originated from eastern part of India.[4] DM has been found to be one of the most frequent predisposing factors. Human infection occurs through inhalation or direct inoculation on damaged skin. Our patient was exposed to recent floods, which could be the source of infection.

Active infection have been predisposed to occur in patients with many underlying conditions like DM, renal disease,[6] and HIV postive.[7] In our patient diabetes was an incidental finding during the course of investigation. Vidyalaxmi *et al*.[6] found a correlation of 76% of diabetes with Melioidosis. Melioidosis is a systemic manifestation with pulmonary involvement as the commonest manifestation. It is also associated with liver and spleen.[8,9] Bone involvement has been reported in 16% cases by Chiranjay *et al*.[10] Our case was a typical presentation with pulmonary involvement along with bacteraemia. Splenomegaly was present without abscess formation. Soft tissue involvement was seen though without any bony lesion.

The drug of choice is Ceftazidime in systemic melioidiosis.[12] Review of literature reveals successful treatment with a

combination of Ceftazidime and Co-trimoxazole [Table 2]. Our strain was resistant to Ceftazidime and therefore patient was put on Imipenem and Doxycycline. Studies[13,14] showed that though Ceftazidime is the drug of choice. Carbepenems have a better response against *B. pseudomallei*.

The patient was put on maintenance therapy of Doxycycline, Trimethoprim –Sulfamethoxazole and is doing well. Studies have documented fatalities even upon institution of therapy or due to late diagnosis.[4,8]

CONCLUSION

The case focuses the need to record presence of Melioidosis in India. This case was probably missed due to lack of clinical awareness and correct microbiological diagnosis. A high index of suspicion is needed for diagnosis due to its varied clinical presentations.

At the same time, the case highlights the need for improved microbiology services in patient care management. We were able to successfully treat the case by institution of correct antimicrobials based on microbiology feedback.

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