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MELIOIDOSIS: A CASE SERIES FROM A TERTIARY CARE HOSPITAL IN ASSAM

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ABSTRACT

CASE REPORT

Melioidosis is sporadically reported from various parts of India. We present a case series from Assam, highlighting the varied manifestations of the disease. Three cases of culture-proven melioidosis are presented in whom *Burkholderia pseudomallei* were isolated from aspirate or blood. Melioidosis had a varied presentation involving multiple abscesses in the soft tissues, liver, spleen, mediastinum, and the subdural space. It presented as either acute fulminant sepsis or followed a chronic indolent course, mimicking tuberculosis. Most cases had predisposing risk factors such as diabetes and chronic alcoholism.

INTRODUCTION

Burkholderia pseudomallei or Whitmore's bacillus, a soil saprophyte, has emerged as a significant pathogen in the past few years. [1] Infections with protean manifestations were originally seen in the population of tropical and subtropical areas of Southeast Asia and Australia. [2] Now, it is an emerging infectious disease in India. [3] A 2016 study reported an annual incidence of around 52500 cases in India. The only sero surveillance study done in India is from Udupi, a small coastal town in southwest India with a seroprevalence of 29%. [4] In the acute form, it has no pathognomonic features. It is capable of causing clinical manifestations like pneumonia, septicemia, arthritis, multiple abscesses, etc., and is associated with high morbidity and mortality. individuals with chronic diseases like diabetes mellitus (DM), renal disease, liver disease, or alcoholism are seen to have severe disease. Infection is acquired by inoculation or inhalation of soil

and water, and occupational exposure to surface water and mud is a risk factor [5].

CASE SERIES

CASE 1.

A 50-year-old diabetic male, farmer, had a continuous fever for 15 days with chills and rigor, which subsided by sweating after taking paracetamol. The highest recorded temperature was 104F. Fever was associated with significant weight loss and anorexia. There was no history of cough, burning micturition, loose motion, joint pain, and shortness of breath. Several other physicians were consulted who prescribed several antibiotics without results. On examination, the patient was febrile (temperature 102F) and hemodynamically stable. He had signs of dehydration and weight loss. Hepatosplenomegaly was present. He did not have lymphadenopathy or bony tenderness. Laboratory investigations revealed neutrophilic leukocytosis, ESR-67 mm in 1st hr., CRP-121 mg/ld. Urine cultures showed no growth. Test for malaria was negative, sputum for AFB (2 samples) was negative. A contrast CT scan of the abdomen showed an ill-defined multiseptated low attenuated mass lesion in the left lobe of the liver with a honeycombing appearance. Echocardiography revealed no valvular disease, no vegetation, or thrombus. Ultrasonogram (USG) guided fine needle aspiration of the liver mass showed pus and culture revealed growth of *Burkholderia pseudomallei*, sensitive to aztreonam, ceftazidime, imipenem, and piperacillin-tazobactum. He was started on piperacillin and ceftazidime. Later he was discharged with advice to take oral co-trimoxazole and doxycycline for 3 months.

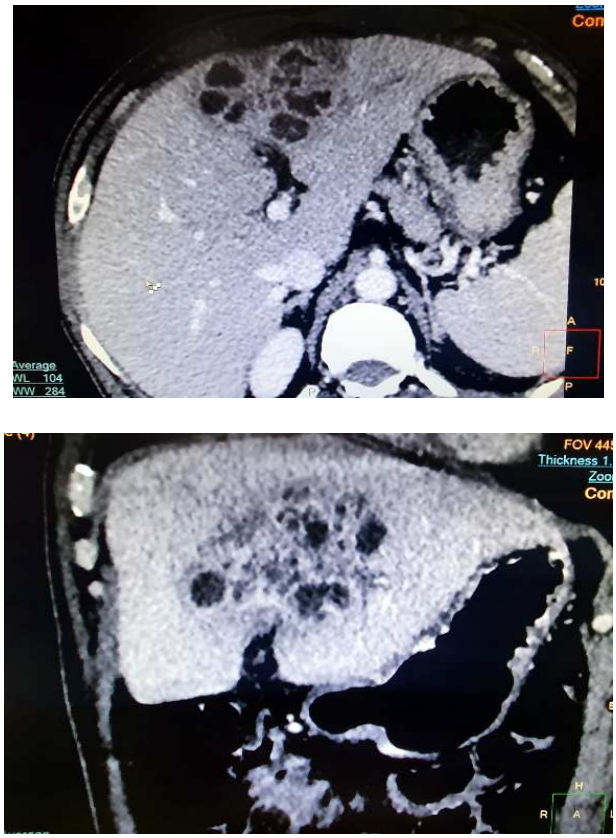


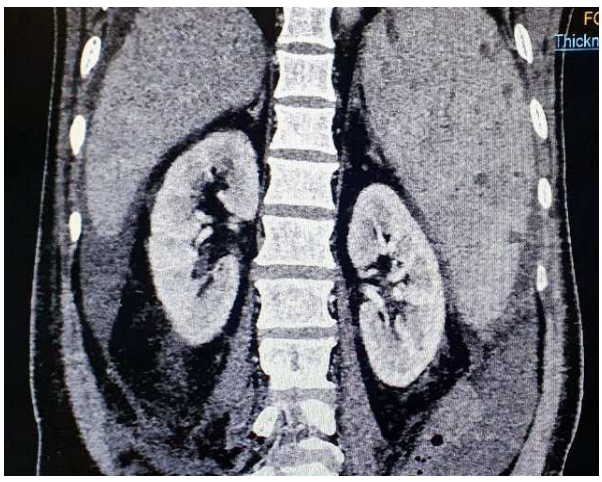
Fig 1: Contrast CT scan of the abdomen showed an ill-defined multiseptated low attenuated mass lesion in the left lobe of the liver with the honeycombing appearance

Fig 2: Dry wrinkled colony in MacConkey agar after 48 hours of aerobic incubation at 37 degrees.

CASE 2.

A 41-year-old male patient who was on treatment for diabetes mellitus for 15 years, presented with high-grade fever and left-sided upper abdominal pain. Complete blood count showed neutrophilic leucocytosis (TC = 21440 cells/mm3) and erythrocyte sedimentation rate was 99 mm. Computed tomography abdomen showed multiple well defined, hypodense regions within the spleen.

Blood culture revealed growth of *Burkholderia pseudomallei*, sensitive to Ceftazidime, Meropenem, Amoxicillin-Clavulanate, Imipenem, Cotrimoxazole, and Tetracycline and resistant to Gentamicin, Amikacin, Netilmicin, and Colistin. The patient was started on Meropenem and Ceftazidime. He improved symptomatically and was discharged after 10 days and advised to continue on Doxycycline for three months.



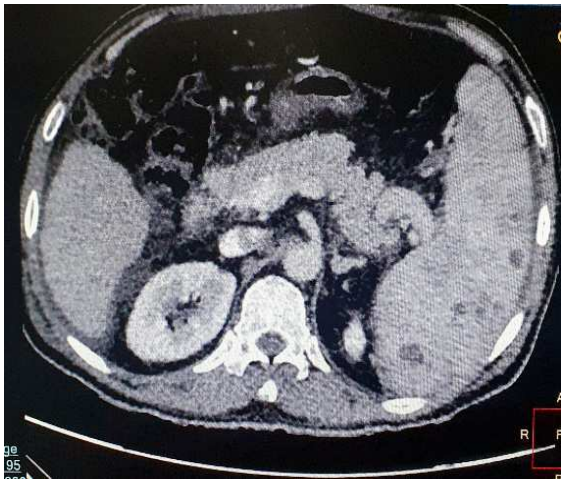


Fig 3: Computed tomography abdomen showed multiple well defined, hypodense regions within the spleen.

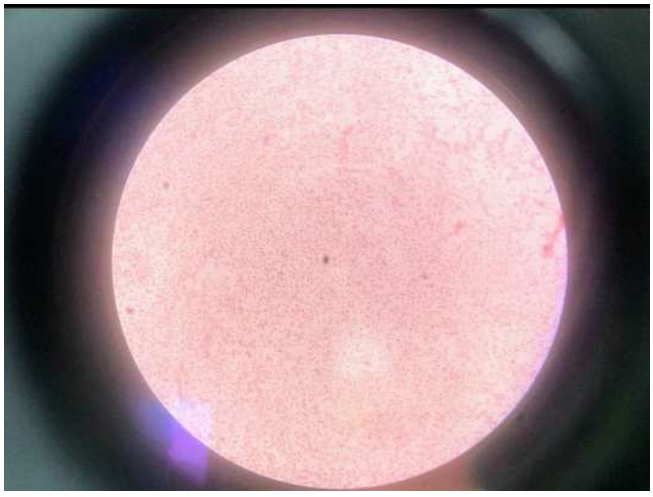


Fig 4: Gram-Negative Bacilli with bipolar staining.

CASE 3.

A 60-year-old man from a rural area of Assam presented with an on-and-off fever of 3 months' duration. His chest X-ray showed bilateral asymmetrical confluent opacities. He had been treated for multilobar pneumonia with intravenous meropenem for 7 days. His chest became clear and was discharged afebrile.

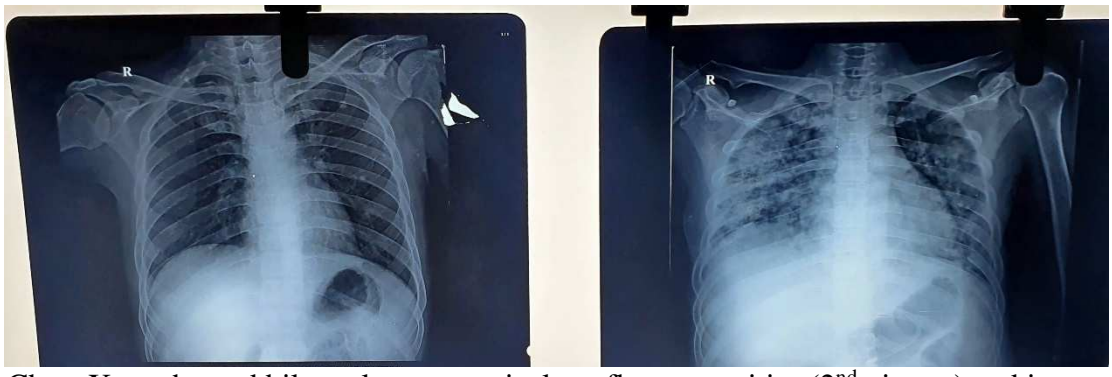


Fig 5: Chest Xray showed bilateral asymmetrical confluent opacities (2nd picture) and its resolution after treatment with meropenem (1st picture)

But after 10 days he again came to our hospital with on-and-off fever and a painful lump at the lateral aspect of the right calf. On examination, he was febrile (102 °F) and mildly pale but not icteric. He did not have enlarged peripheral lymph nodes or skin rashes. He had a small induration over the lateral aspect of his right upper calf, which was tender. On further examination, lumpiness was detected deep in the indurated area, measuring 0.5 cm × 0.5 cm, which was firm and tender. Further, there was surrounding muscle tenderness. He did not have evidence of thrombophlebitis. He was hemodynamically stable, and the results of his respiratory and cardiovascular examinations were perfectly normal. His abdomen was soft, and he did not have hepatosplenomegaly. The result of his neurological examination, including bilateral fundi, was normal. His initial full blood count showed a white blood cell count of 18,500/mm^3 with 85% neutrophils. His initial C-reactive protein (CRP) level and erythrocyte sedimentation rate (ESR) were 221 mg/L and 75mm in the first hour, respectively, and he had an elevated serum creatine kinase level. His liver enzymes were marginally elevated with alanine transaminase of 124 U/L and

aspartate transaminase of 86U/L, but his liver and renal function were normal. His antibodies for human immunodeficiency virus types 1 and 2 were negative. The findings of his chest x-ray, 2D echocardiogram, and an ultrasound scan of the abdomen were normal. He was started on intravenous meropenem after blood cultures were taken. Ultrasound scan of the right lateral calf showed multiple hypoechoic nodular lesions of 10-13mm in size. The patient underwent ultrasound-guided muscle biopsy, which showed coagulative necrosis in the muscle/subcutaneous tissue; infiltration with neutrophils, lymphocytes, and plasma cells in the adjacent tissue; focal suppuration; granulomata with Langhans-type giant cells; and focal fibrosis in the muscle. The histopathological features were suggestive of melioidosis. The patient received intravenous meropenem for 2 weeks and was started on eradication therapy with oral cotrimoxazole 960 mg 12-hourly after the intensive phase and continued for 6 months. He was clinically improving with reduced pain over the lateral aspect of the right thigh and was fever-free by day 7 of treatment. He was discharged after 14 days of treatment with meropenem. On discharge, the patient's ESR was 30 mm in the first hour, and his CRP level was 8.5 mg/L. At his follow-up appointment after 2 weeks, he reported resolution of symptoms.

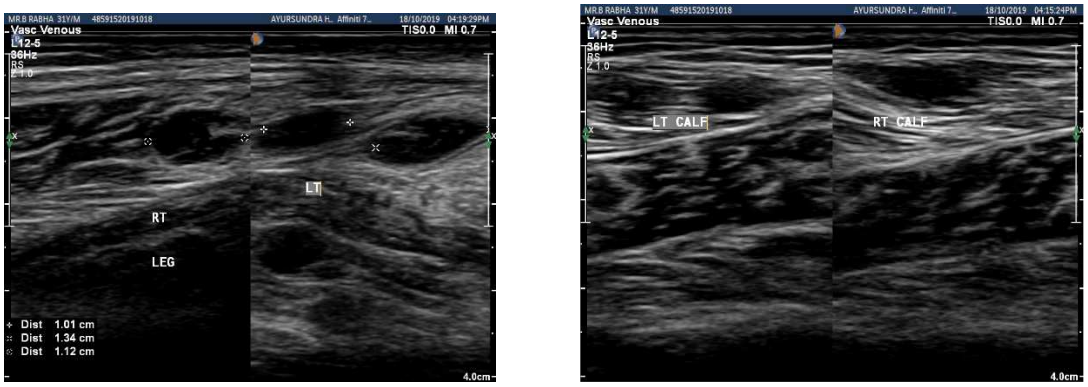


Fig 6: Ultrasound scan of the right lateral calf showed multiple hypoechoic nodular lesions of 10-13mm in size.

DISCUSSION

Burkholderia pseudomallei on Gram staining is Gram-negative and tends to stain darkly at the ends giving a 'safety pin' appearance. DM is one of the most frequent predisposing factors. Vidyalaxmi et al. found a correlation of 76% of DM and melioidosis.[6] Melioidosis is a systemic systemic disease with pulmonary involvement as the commonest manifestation. It is also associated with liver and spleen involvement.[7] Bone involvement has been reported in 16% of cases by Chiranjoy et al.[8] Our patient presented with hepatic abscess, splenic abscess, and musculoskeletal abscess. Since the clinical presentation is not distinctive, a high index of suspicion is required. A definitive diagnosis of melioidosis requires a positive culture of *B. pseudomallei*. Two of our patients (cases 1and 2) had a positive blood culture, and in the remaining patient, muscle biopsy showed features suggestive of melioidosis.

Melioidosis can present as acute fulminant sepsis with high mortality or follow a chronic indolent course.

The organism responsible for melioidosis, *B. pseudomallei*, is most often sensitive to amoxicillin-clavulanate, ceftazidime, cotrimoxazole, and carbapenems. Our patients were cured with ceftazidime, meropenem, and long duration course of cotrimoxazole and doxycycline.

Melioidosis is probably much more prevalent than what is reported in India, and

awareness and a high index of suspicion amongst clinicians and microbiologists will aid in early diagnosis and appropriate therapy.

CONCLUSION

Melioidosis is a rare disease with varied clinical presentation. With its changing epidemiology and increasing occurrence in India, a high degree of clinical suspicion and a systematic approach is necessary for making a diagnosis. Melioidosis is diagnosed by the isolation of B. pseudomallei by culture from clinical specimens. Early initiation of treatment is necessary to prevent complications and morbidity and to achieve a good clinical response.

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