CASE REPORT

Melioidosis Septicemia with Musculoskeletal Involvement: A Case Report

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Abstract

Melioidosis is a life threatening infectious disease caused by *Burkholderia pseudomallei*, seen more commonly in South East Asia and Northern Australia. Though it is an important cause of sepsis, musculoskeletal melioidosis is rare in the Indian subcontinent. We report a case of melioidosis in a 45 year old male diabetic, with septicemia , distal femur osteomyelitis, septic arthritis of knee and multifocal abscesses.

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Melioidosis is an infection by Gram negative bacillus *Burkholderia pseudomallei*[1]. The organism enters the body through ingestion, inhalation or direct inoculation[2]. Patients usually present with abscesses (localised or multifocal) with or without sepsis. Persons with diabetes, chronic renal failure and immunosuppression are more prone to get the disease[1]. Case fatality rates are high in melioidosis even with appropriate antibiotic treatment[3].

Case Report

A 45 year old male presented with swelling of right knee, chills and rigors, and altered sensorium of 2 days duration. There was an associated history of fever and left shoulder pain of 1 month duration, with right knee pain for 2 weeks. He is a known diabetic (on oral hypoglycemic agents), and occasional alcoholic. He had been treated for these symptoms at several hospitals on an outpatient basis including native treatment.

He was in septicemia and so admitted in multidisciplinary ICU. He was drowsy but arousable, febrile with tachycardia. There was effusion, redness and tenderness of right knee and ROM was severely restricted due to pain. Examination of left shoulder revealed a tender swelling in the supraclavicular region. There were no distal neurovascular deficits. Other systems examination was within normal limits.

Investigations showed elevated white cell counts, ESR, CRP and serum procalcitonin. There was hyponatremia (sodium 104 meq/L) and alteration of baseline LFT. USG abdomen was suggestive of hepatomegaly with increased echotexture. X-ray right knee appeared normal (Figure 1).

Aspiration of right knee joint yielded around 30 ml frank pus and was sent for culture and sensitivity testing. He was put on broad spectrum antibiotics. He underwent emergency right knee arthrotomy with thorough lavage and incision and drainage of left supraclavicular abscess. Blood and pus culture reports were positive for *Burkholderia*

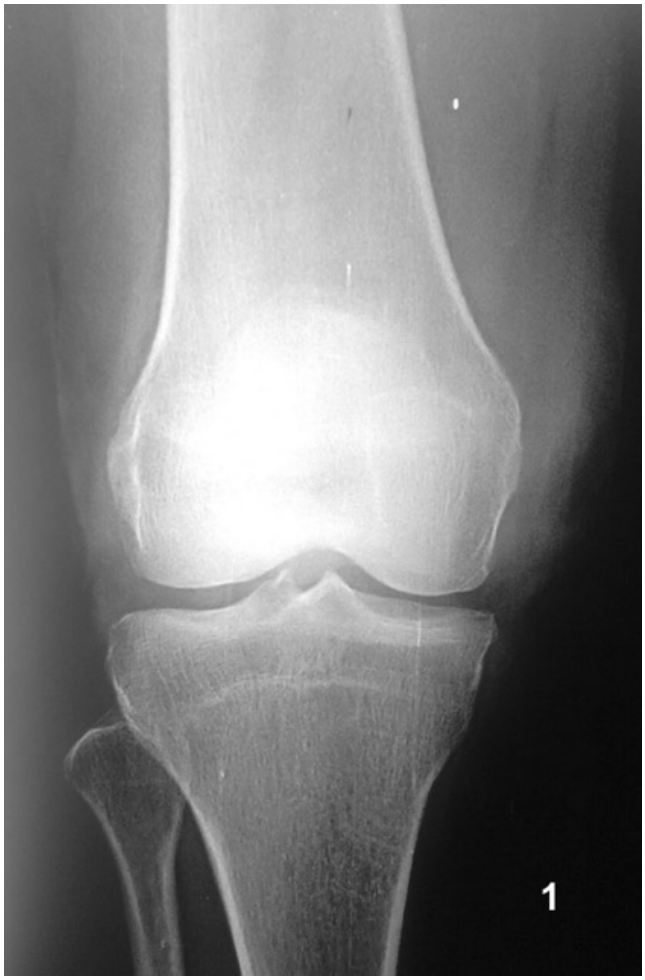

Figure 1. X-ray right knee.

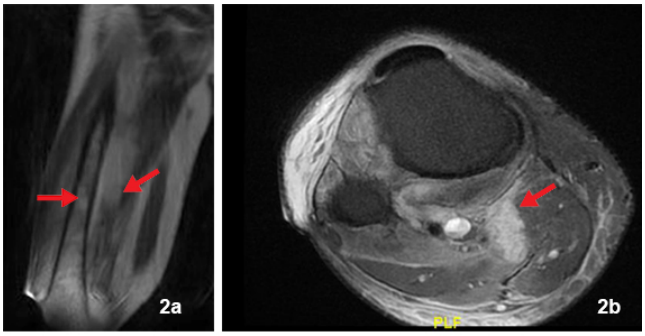

Figure 2. (a) MRI showing osteomyelitic changes in distal femur and thigh abscess (arrows). (b) MRI showing abscess deep to medial head of gastrocnemius (arrow).

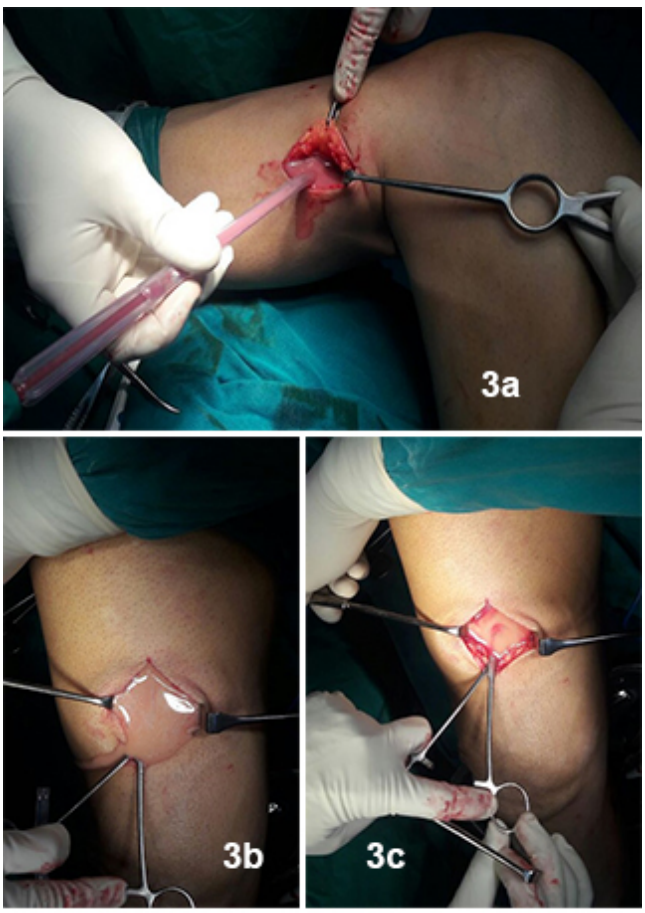

Figure 3. (a)–(c) Intraoperative images showing frank pus draining from distal femur and upper calf.

pseudomallei and antibiotics were changed to ceftazidime and co-trimoxazole(according to the sensitivity pattern). As fever persisted, cardiology consultation was done and infective endocarditis ruled out. His general condition improved on further management with antibiotics, hydration and other supportive measures. One week later he developed severe pain in right thigh and calf region. USG showed elongated collection in the midthigh (extending to supra-patellar location) and popliteal fossa (extending to upper calf). MRI right knee was suggestive of osteomyelitis distal femur with abscesses in vasti, adductors and deep to medial head of gastrocnemius (Figure 2(a),(b)).

Decompression and saucerization of distal femur was done and the profuse purulent collection was let out. Meropenem coated cement beads were placed through the cortical window. Thigh and calf abscesses were also drained (Figure 3(a)–(c)).

HPE report was inconclusive. Ceftazidime was changed to meropenem due to the better bony penetration of carbapenems. Co-trimoxazole was continued. There was around 100–150 ml purulent collection daily and it was three weeks before this settled and the drain could be removed (Figures 4 and 5). Repeat blood culture at 3 weeks was negative. Quadriceps and knee ROM exercises and toe touch down mobilization was

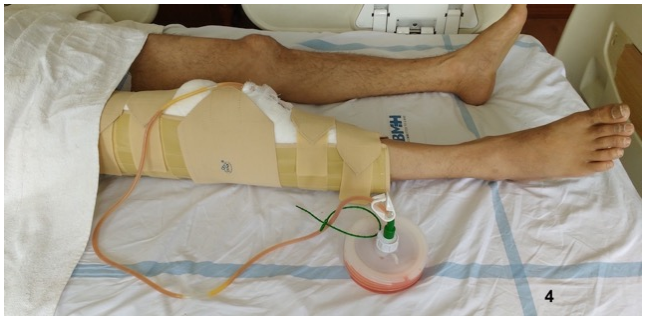

Figure 4. Post op period, in knee brace.

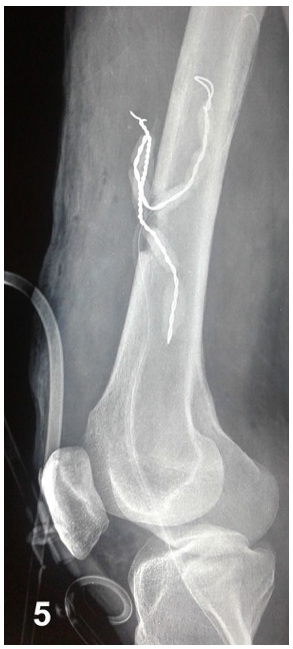

Figure 5. X-ray showing meropenem coated cement beads inserted into distal femur.

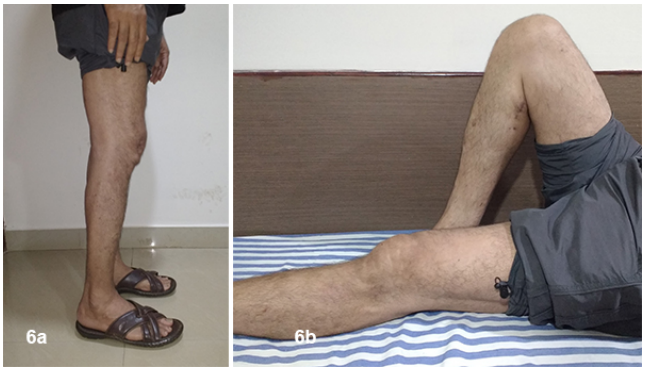

Figure 6. (a) Weight bearing at 3 months. (b) Full ROM of knee at 3 months.

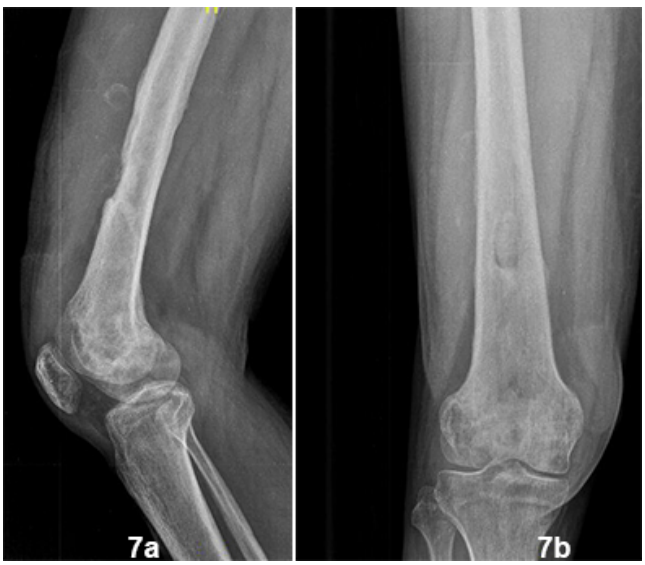

Figure 7. (a), (b) X-rays post bead removal at 5 months.

started. He responded well to the treatment. He was advised to continue meropenem for another 8 weeks and co-trimoxazole for a period of 5 months at the time of discharge.

Normal weight bearing was possible at 3 months follow up with full ROM of right knee (Figure 6(a), (b)).

He remained asymptomatic at 5 months follow up and the cement beads were removed, with no recurrence till date (Figure 7(a), (b)).

Discussion

Melioidosis was first described as a glanders like disease by the pathologist Alfred Whitmore in 1911. The term melioidosis was coined by Stanton and Fletcher in 1932. The causative organism has been known by various names such as *Bacillus whitmorii, Bacillus pseudomallei*, *Malleomyces pseudomallei*, *Pseudomonas pseudomallei* during the last century. It is known as *Burkholderia pseudomallei* since 1992[4,5]. It is a slender, motile, aerobic, oxidase positive, catalase positive, Gram negative bacillus with bipolar staining, found in contaminated water and soil. It will grow on most laboratory media such as sheep blood, chocolate and MacConkey agars as smooth, creamy, white colonies with a characteristic musty odour[2].

Melioidosis has emerged as a major health problem in Southeast Asia and Northern Australia. The disease is being increasingly recognised in the Indian subcontinent. Persons living in endemic areas, particularly farmers in paddy fields are more susceptible to the disease. Other common predisposing factors are diabetes, liver disease, chronic renal disease, chronic lung disease and immunosuppression . Infection is acquired through percutaneous inoculation, inhalation and ingestion. Clinical manifestations include pneumonia, genitourinary and soft tissue infections, abscesses in lung, liver and spleen, septicaemia and bacteremia without evident focus. It may mimic

various diseases like pulmonary tuberculosis and polyarthritis. Musculoskeletal melioidosis presenting as osteomyelitis and septic arthritis is rare (4 to 12%)[1–3,6].

Isolation of the organism from body fluid is the gold standard for diagnosis. It is sensitive to ceftazidime, chloramphenicol, carbapenems, co-trimoxazole and doxycycline but resistant to macrolides, aminoglycosides, fluoroquinolones and second generation cephalosporins. Previously ceftazidime was considered as the single best drug for melioidosis. Now the standard treatment regime is intensive therapy with atleast 2 weeks of iv meropenem or ceftazidime, followed by oral co-trimoxazole and doxycycline (eradication regime) for 3–6 months. Recurrence rate after treatment is around 1 in 16 patients and mortality rates are as high as 14% to 40%[1–3,6].

As *Burkholderia Pseudomallei* septicaemia can be fatal, early and prompt recognition and institution of appropriate antibiotics along with surgical intervention for musculoskeletal melioidosis plays a significant role in reducing its morbidity and mortality.

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