

## Case Report

**Melioidosis presenting as knee joint septic arthritis: a case report**H.D. Hettige<sup>1\*</sup>, P. Weerawansa<sup>2</sup>, S. Siribaddana<sup>2</sup>, C. Sarathchandra<sup>2</sup><sup>1</sup>Postgraduate Institute of Medicine, University of Colombo, Sri Lanka<sup>2</sup>Department of Medicine, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka**Abstract**

A 56-year-old woman having type 2 diabetes, presented with intermittent high-grade fever for three weeks and right knee joint pain and swelling with restricted movements. She had had a prick injury to the left sole two weeks ago in the paddy field. Investigations revealed neutrophil leucocytosis and raised inflammatory markers. Blood culture was sterile. Joint fluid was turbid with neutrophil predominance, but the culture was sterile. Chest x-ray showed bilateral multiple patchy consolidations, that turned out to be abscesses on contrast-enhanced computed tomography (CT) scan. The history of prick injury, diabetes and presence of multiple lung abscesses made us ponder a diagnosis of melioidosis. Although cultures were negative, melioidosis antibody titre was raised. She was treated with ceftazidime and doxycycline for one month, followed by co-cotrimoxazole and doxycycline for three months. She had complete recovery after the full course of antibiotics.

**Keywords:** Melioidosis, Septic arthritis, Subcutaneous skin nodule, Lung abscess.**Copyright:** © 2021 H. D. Hettige *et al.*  This is an open-access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.**Funding:** None**Competing interest:** None**Received:** 27.10.2020**Accepted revised version:** 23.12.2020**Published:** 15.08.2021\* ✉ **Correspondence:** [hiranthahettige@gmail.com](mailto:hiranthahettige@gmail.com) <https://orcid.org/0000-0002-3644-4522>

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**Introduction**

Melioidosis is a granulomatous infection caused by the aerobic gram-negative bacillus *Burkholderia pseudomallei*. It is acquired by inoculation or inhalation of soil or water. Melioidosis is endemic in Southeast Asia and Northern Australia and is an emerging infection in Sri Lanka [1]. Clinical presentation of melioidosis can range from acute septicaemia to chronic suppurative disease. Severe infection is more common in people with diabetes mellitus (DM), renal disease, liver disease, or alcoholism [2].

**Case description****Presentation**

A 56-year-old woman from Galgamuwa, Sri Lanka, who was recently diagnosed with type 2 diabetes, presented

to the local hospital with an acute febrile illness associated with arthromyalgia and general malaise. She had a prick injury to the left sole two weeks ago, and it was healed at the time of presentation. She was diagnosed with uncomplicated leptospirosis, based on contact history, and was treated with oral doxycycline, and was discharged.

One week after completion of the treatment course with doxycycline, she again developed a high-grade fever and right knee joint swelling. She was admitted again to the hospital and treated with intravenous antibiotics for one week for septic arthritis. However, despite antibiotics, she continued to have a high fever, chills, and worsening right knee joint swelling, resulting in her admission to Teaching Hospital, Anuradhapura.

When she presented to our unit, she had suffered from fever for three weeks with painful swelling of the right

knee joint. Examination revealed right knee joint swelling, warmth, and effusion with joint tenderness. The range of movements of the knee joint was reduced. In addition, there was a mildly tender soft tissue swelling in the skin below the left knee (Figure 1A), and there was evidence of healed prick injury in the left sole (Figure 1B). Three days after admission, she developed a dry cough and mild shortness of breath.



**Figure 1A: A nodule on the site of prick injury on the sole of the left foot (circled)**



**Figure 1B: Skin nodule below the knee joint (circled)**

The C-reactive protein level was 120 mg/dL, and the erythrocyte sedimentation rate was 65 mm/hour. Full blood count revealed a white blood cell count of  $15 \times 10^9/L$  with a neutrophil count of 88%, Hb 12.2 g/dL,

and platelets  $178 \times 10^9/L$ . An ultrasound scan of the right knee joint revealed a mild amount of viscous joint effusion. Blood, sputum, and urine cultures were sterile. Knee joint aspiration was turbid and yellow in colour with a white blood cell count of  $3000/mm^3$  with neutrophil predominance. The skin abscess and right knee joint aspirate culture reports were negative. Chest x-ray showed bilateral multiple patchy consolidations. A contrast-enhanced computed tomography (CT) scan of the chest revealed thin-walled cavities in both lungs. An ultrasound scan of the abdomen was normal. There was no evidence of abscess in the liver, spleen, kidney, or any other organs.

Her occupation, prolonged fever, and multiple lung abscesses in the background of diabetes mellitus made us ponder a diagnosis of melioidosis. Although blood culture and joint fluid aspirate cultures were negative, the melioidosis antibody titre was 1:1280. The diagnosis of melioidosis was made because of the high antibody titre as well as the rapid response to intravenous ceftazidime and oral doxycycline. This combination was continued for four weeks, followed by oral doxycycline and co-trimoxazole for another three months [3]. The patient was completely cured after the course of antibiotics. She underwent arthroscopy of the right knee joint twice. The orthopaedic team managed to successfully drain the infected joint fluid and preserve the joint [4].

### Discussion

Melioidosis septic arthritis is usually monoarticular and typically involves large joints such as the knee, ankle, and shoulder [5]. This occurs more often due to secondary haematological dissemination, but it can also be the primary manifestation. Presentation of Melioidosis as septic arthritis and soft tissue infections is limited to a few case reports [6–9]. A low index of suspicion, under-reporting, under-recognition because of inadequate diagnostic facilities in rural areas could be contributing to this observation. The clinical suspicion of melioidosis emerged in our patient with her risk factors of prick injury in the paddy field, diabetes mellitus, and clinical deterioration despite administering broad-spectrum antibiotics [10–13].

Isolation of *B. pseudomallei* from clinical specimens is the “gold standard” of diagnosis. We were unable to isolate the bacteria in the blood and joint fluid culture. Pre-treatment with oral doxycycline and lack of familiarity with the cultural characteristics of the

pathogen would explain this. In most instances, culture would be reported as a ‘*Pseudomonas* species’, a blanket term used to describe a vast range of species belonging to many genera such as *Pseudomonas*, *Burkholderia*, *Comamonas*, *Stenotrophomonas*, etc., that share the common property of being aerobic, non-fermentative gram-negative bacilli [14]. Given the increasing recognition of melioidosis in our country, it is important to re-assess the microbiological evaluation in this instance.

Serological tests are often performed as a preliminary test in endemic areas to expedite the diagnosis [15]. Sensitivity of the serum melioidosis antibody levels by Indirect Haemagglutination Assay (IHA) is slightly lower than the culture but useful for rapid screening. As the antibody titre can be high in endemic areas, interpretation of IHA should be used cautiously in the diagnosis of melioidosis in endemic regions. Melioidosis IgM and IgG ELISAs are rapid and avoid the observer bias in IHA [16].

Success in the management of this patient was multifaceted. Supportive care, including early physiotherapy to facilitate mobilization, played a pivotal role in preventing peri-articular muscle wasting. Early

diagnosis, surgical drainage of the abscesses, and culture-specific antibiotics were the backbone of treatment. Patient co-operation for the three-month uninterrupted antibiotic administration was essential as a prolonged course of antibiotics is necessary to avoid relapse [17,18]. More literature and large-scale studies providing guidance will facilitate better patient outcomes in areas where melioidosis is still emerging.

### Conclusion

Infection by *B. pseudomallei* should be suspected early in the evaluation of septic arthritis when the patient has plausible risk factors.

### Patient perspective

The patient is happy that doctors from all over the world are learning from her illness. She does not want anybody to experience this illness. She is fully independent at the moment.

### Informed consent

The patient has given verbal and written consent to publish her history and images as a case report.

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