

## A RARE CAUSE OF SEPTIC ARTHRITIS WITH PLEURAL EFFUSION: *BURKHOLDERIA PSEUDOMALLEI*

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### ABSTRACT

Melioidosis is a fatal disease, most prevalent in South-East Asia, Northern Australia, and the Indian subcontinent is caused by Gram-negative saprophyte *Burkholderia pseudomallei*. Septic arthritis due to melioidosis is very rare and should be a differential diagnosis in patient presenting with septic arthritis in endemic areas. It results in severe morbidity. Hence, we report a case of septic arthritis of left knee and hip in a young patient who later developed pleural effusion caused by *B. pseudomallei*.

**Keywords:** Septic arthritis, Pleural effusion, Vietnamese bomb.

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### INTRODUCTION

Melioidosis is a fatal disease, most prevalent in South-East Asia, northern Australia, and the Indian, subcontinent [1] is caused by Gram-negative saprophyte *Burkholderia pseudomallei*. Risk factors include diabetes, alcohol use, or chronic lung disease [1]. The common presentations include pneumonia (most common), skin infection, genitourinary infections, and septicemia with distant focus [2]. It has high mortality rates ranging from 14% to 40% despite optimal therapy with high recurrence rates [1,2]. Septic arthritis due to melioidosis is very rare and should be a differential diagnosis in patient presenting with septic arthritis in endemic areas. Septic arthritis usually spread via hematogenous route and is very common in elderly patients with risk factors such as diabetes, malignancy, chronic renal failure, acquired immune deficiencies and hypogammaglobulinemia, long duration of steroid therapy, and also in stem cell recipients. It also spreads as a result of direct inoculation from a contiguous focus. It often results in severe morbidity [3]. Hence, we report a case of septic arthritis of left knee and hip in a young patient who later developed pleural effusion caused by *B. pseudomallei*.

### CASE REPORT

A 43-year-old male with no premorbidities presented with fever and pain in the left hip and knee since 2 weeks. Examination showed swelling and local inflammation of left knee with joint effusion. Vital signs on admission were temperature, 37°C; pulse rate, 85/minutes; and blood pressure, 130/70 mm Hg. On physical examination, he had a markedly edematous, tender, and hyperemic left hip and knee joint with decreased range of movements.

### Laboratory investigations

Lab investigations revealed hemoglobin of 10.5 g/dL, peripheral leukocyte count of  $14.32 \times 10^9/L$  with 80% polymorph nuclear leukocytes, and platelet count of 90,900/mm<sup>3</sup>. The erythrocyte sedimentation rate (70 mm/h) and C-reactive protein (10.6 mg/dL; normal, 0-4 mg/dL) were elevated with normal liver, renal function tests as well normal chest X-ray, and electrocardiogram were suggestive of septic arthritis of the left knee and hip. Left hip and left knee radiograph showed soft tissue swelling. Synovial fluid of affected joint had a leukocyte count of 28,800/L with 95% polymorphs and 5% lymphocytes. On day 3 of hospitalization patient developed breathlessness. Chest X-ray showed left sided pleural effusion. Pleural fluid aspiration was done, and

2 blood cultures were taken. Both blood samples and synovial fluid samples grew *B. pseudomallei*. A diagnosis of melioidosis was made and susceptibility to cotrimoxazole, tetracycline, Chloramphenicol, piperacillin, piperacillin - tazobactam, amoxicillin-clavulanic acid, ceftazidime, and carbapenems was found out. Hence, the patient was started on intravenous CEFTAZIDIME 2 g 8<sup>th</sup> hourly for 2 weeks along with cotrimoxazole double strength tablet 800 mg for 2 weeks. Debridement of the knee joint and hip joint were also done. The patient improved and was discharged with oral cotrimoxazole 800 mg DS tablet for along with doxycycline 100 mg 12<sup>th</sup> hourly for 6 weeks. The patient was completely asymptomatic at 8 weeks follow-up and Chest X-ray as well as X-ray of knee and hip joint showed improvement and patient was healthy.

### DISCUSSION

*B. pseudomallei*, also called Vietnamese bomb, was first described by Whitmore and Krishna Swami in 1911. Incidence of melioidosis is very high in Southeast Asia and northern Australia with sporadic cases being reported worldwide [4]. Disease spectrum ranges from suppurative skin infection to septicemic abscess formation affecting any organ with a high mortality rate. 50% cases presents with respiratory involvement ranging from consolidation to massive pleural effusion [5] Septic arthritis and osteomyelitis are very rare presentations of disease [6]. Large joints are usually involved among which knee joint and shoulder joint are more common. Risk factors include diabetes, alcoholic use, malignancy, immune deficiencies, chronic renal failure with diabetes mellitus being the major risk factor. *B. pseudomallei* usually by inoculation via skin abrasions, inhalation, and ingestion. Septic arthritis usually occurs via hematogenous spread and also via direct inoculation from contiguous sites [7]. In Thailand, a study reported 25 septic arthritis cases due to melioidosis out of 77 culture positive septic arthritis cases [7]. A 10-year prospective study reported 9 septic arthritis and osteomyelitis cases out of 252 confirmed cases of melioidosis [8]. Jesudason *et al.* reported 3 cases of melioidotic septic arthritis from south India [9]. The most common organisms causing septic arthritis include *Staphylococcus aureus*, *Streptococcus* spp., *Pseudomonas aeruginosa*, *Escherichia coli*, and hemophilus influenzae. Clinical manifestations are not alone diagnostic of septic arthritis of melioidosis with culture of joint fluid and blood culture helping in the diagnosis of the patient. It is susceptible to ceftazidime, tetracycline, cotrimoxazole. intravenous ceftazidime, imipenem, and cotrimoxazole have been recommended in severe melioidosis cases

for 10 days-4 weeks [10]. Our patient presented with septic arthritis of left hip and knee joint with any known risk factor and later developed pleural effusion of left chest and synovial fluid and blood culture proved *B. pseudomallei* to be the causative agent. Our patient responded well to intravenous ceftazidime and surgical debridement was also done, and the patient showed marked clinical improvement.

#### CONCLUSION

Septic arthritis being a very rare presentation of melioidosis, physicians treating patients in endemic areas of melioidosis should be aware of this mode of presentation and management using intravenous antibiotics for a longer duration ranging from 10 days to 4 weeks should be administered and proper assessment of risk factors along with proper management should be planned to avoid morbidity and mortality among melioidosis patients.

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