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Isolated septic arthritis of knee by *Burkholderia Pseudomallei*: A case report

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Abstract

Melioidosis affecting the knee joint is a rare manifestation of *Burkholderia Pseudomallei* but well recognized, the disease is more common in tropical areas of Australia and Thailand and less reported in South Asian countries. Early diagnosis and treatment is essential in preventing the dissemination that carries a high mortality rate.

Case report: We present the case of a 44 year old male with isolated septic arthritis of right knee. Post arthrotomy pus culture revealed the organism to be *Burkholderia Pseudomallei*. He was started on iv antibiotics. Patient fully recovered after a course of 6 weeks.

Conclusion: Melioidosis is a rare case of septic arthritis knee, clinicians should deal with high index of suspicion, but to be kept in mind and is curable on intravenous antibiotics. Delaying diagnosis leads to dissemination with fatality.

Keywords: Septic arthritis, burkholderia pseudomallei, Melioidosis

Introduction

Melioidosis was first described by Alfred Whitmore and C Krishna Swami in intravenous morphine abusers. Monsoon conditions preferably favour the spread probably by contamination of water supplies ^[1]. Often direct inoculation as in trauma leads to joint involvement. There is lack of awareness, deficiency of laboratory resources and confusion with mimic *M tuberculosis* which leads to misdiagnosis ^[2]. Being an endemic to Thailand and northern Australia disease presence is now identified in India along the coastal border of southern states ^[1].

Case report

We report a case of 44 year old male who presented with right knee swelling and fever for 2 weeks. Patient had a similar swelling over the left elbow which subsided, but later presented with knee swelling with no history of trauma. Patient is a case of uncontrolled diabetes mellitus.

Clinical findings

Physical examination revealed swelling, tenderness, local rise of temperature, with restricted range of movements of right knee. He was unable to bear weight and passive and active knee movements were painful. Other system examinations and bone examination were within normal limits.

Diagnostic assessment

Ultrasound examination of right knee revealed loculations within the joint- Knee joint aspiration was done, aspirate was pus and was sent for culture and sensitivity. Patient underwent Arthrotomy, intra operatively tissue specimen was sent (Fig. no: 2). 40 ml of pus was present (Fig. no: 1). Blood investigations revealed Total count- 18000, ESR-56 mm/hr, CRP-86 mg/dl, RBS-190 mg/dl, HbA1c-9.2. Knee aspirate showed white cell count- 60000 with PMN cell count more than 80%. Aspirate culture and sensitivity showed organism to be *Burkholderia Pseudomallei* (Fig. no: 3).

It was found sensitive to Ceftazidime with synergy with Cotrimoxazole. X-ray Chest revealed no features of pneumonitis. USG abdomen, MRI brain showed no significant findings.

Diagnosis

Septic arthritis knee (right) caused by *Burkholderia Pseudomallei* (gram negative safety pin shaped bacteria, Fig. No: 4).

Differential diagnosis

Most important mimic of the disease is *M Tuberculosis*. Other diagnosis include septic arthritis caused by gram negative cocci including *Neisseria Gonorrhoea*, *Streptococcus* and *Staphylococcus*.

Treatment

Arthrotomy was done. pus and necrotic tissue was removed. postoperative drain was put. Cylinder slab was advised for postoperative immobilisation for 1 week. Patient was treated with intravenous antibiotic for 3 months. (patient was started on iv Ceftazidime 2 gm thrice daily along with Cotrimoxazole double strength (800/160) twice daily).

Outcome and follow up

Following a week of intravenous antibiotics as inpatient, patient was discharged with referral to nearby local hospital for continuing iv antibiotics. Patient was better on serial visits with stiffness off knee joint that was advised mobilization exercises. He was continued on cotrimoxazole for 6 weeks post iv antibiotic therapy. Follow up X rays were normal.

Discussions

Melioidosis is not endemic in India, it's rare in southern states of India and isolated manifestation of septic arthritis knee without any systemic disease is a further rare [2]. Common route of transmission is via inhalation and ingestion. Isolated joint involvement is by direct inoculation. Recreational and occupational surface water workers carry the highest risk [1]. Other risk factors of melioidosis include diabetes, alcohol intake, steroid intake, renal disease, thalassemia, iron overload and malignancy [2]. Diabetes is the most important predisposing factor [4]. Common presentation is with systemic involvement pneumonitis, multiple abscesses in visceral organs and cranial abscess [5]. Most commonly involved organ is lungs. Chronic melioidosis is common in cystic fibrosis patients of Indian origin [6]. Only 4-14% of people infected with *Burkholderia Pseudomallei* has features of septic arthritis/ osteomyelitis. Knee is the most common joint followed by ankle and hip. Septic arthritis has a high correlation with chronic osteomyelitis... Iv Ceftazidime is the drug of choice with oral Cotrimoxazole continued for a minimum of 8 weeks [8]. High relapse rate exists with relapse even occurring after 3 months of treatment. Completion of therapy is important as relapse with inadequate therapy is well documented. A complete therapy constitutes antibiotics for acute phase and eradication phase of 3-6 months. Mortality ranges from 10-30%. Adequate treatment with iv antibiotics prevents development of osteomyelitis and systemic disease [9].



Fig 1: Pus aspirated from the joint



Fig 2: Intra op picture of pus and necrotic tissue post arthrotomy.



Fig 3: Typical wrinkled metallic appearance of *Burkholderia Pseudomallei* colony in blood agar after 48 hours of incubation. (Courtesy: Dept of Microbiology, Govt. Medical College Kozhikode)

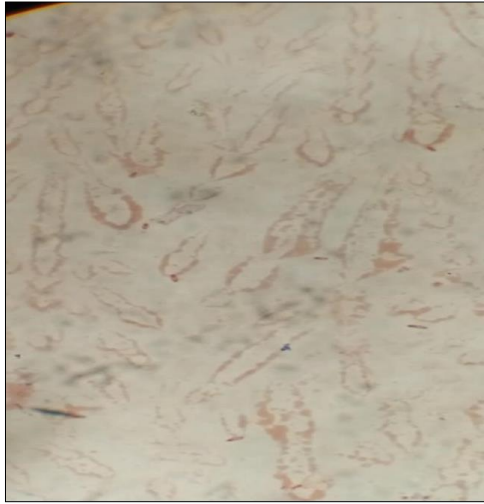


Fig 4: Safety pin appearance of *Burkholderia Pseudomallei*
 Courtesy: Dept of Microbiology, Govt Medical College Kozhikode.
 Gram stain view oil immersion - 1000x)

Pseudomallei: Progress in epidemiology, diagnosis, treatment and vaccination Bart J Currie. *Curr Opin Infect Dis.* 2022 Prevention of melioidosis. *J Family Med Prim Care*; c2022.

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Abbreviations

USG- ultra sonography

ESR- Erythrocyte sedimentation rate

CRP- C reactive protein

RBS- Random blood sugar

HbA1C- Haemoglobin A1C

PMN – polymorph nuclear

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