

## CASE REPORTS

# Melioidosis: Truly Uncommon or Uncommonly Diagnosed in Bangladesh? A Case Report

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### Abstract

*Melioidosis is a rarely reported infectious disease in Bangladesh. Patients may present with fever, soft tissue infection, deep seated abscess, arthritis and septicaemia, specially if immunocompromised. It often mimics tuberculosis. Here we describe a case of melioidosis in a middle aged Bangladeshi diabetic farmer who presented with fever, soft tissue infection and septic arthritis involving right*

*hip joint. Culture of pus from soft tissue infection and synovial fluid revealed growth of Burkholderia pseudomallei. He was treated with prolonged courses of antibiotics including ceftazidime in initial phase followed by co-trimoxazole and was cured completely.*

**Key words:** Bangladesh, *Burkholderia pseudomallei*, melioidosis.

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### Introduction

Melioidosis (Whitmore disease) is caused by *Burkholderia pseudomallei* (previously known as *Pseudomonas pseudomallei*) infection. Whitmore and Krishnaswami first described it in 1912 in Burma.<sup>1</sup> It is endemic in South-East Asia and Northern Australia but sporadic cases occur through-out the world.<sup>2</sup> Haq JA in 1998 and Jilani MSA et al. in 2010 predicted and forecasted it's possible presence in soil of Bangladesh and finally the source of organism was discovered from soil of Kapasia, Gazipur, Bangladesh in 2013.<sup>3-5</sup> Though nearly one-third of human population in Bangladesh exhibited sero-positivity against *B. pseudomallei*,<sup>6</sup> previously only a few cases of melioidosis were reported in Bangladesh.<sup>7-9</sup> Here we report a case of melioidosis.

### Case Report

A 40-year-old farmer from Kaliakoir, Gazipur, Bangladesh presented with one and half months history of intermittent fever and soft tissue swelling over left upper chest and lower part of neck. He had been experiencing

pain in right hip for 6 days prior to hospitalization. He lost 2 kg weight during this period. He did not have cough, past history of tuberculosis or contact with tuberculosis patient. He denied any history of trauma. He was a known diabetic patient and was on metformin 500 mg once daily for last 4 years without regular follow up. He never travelled outside Bangladesh.

He was anaemic, febrile with a temperature of 101.4<sup>0</sup>F and haemodynamically stable. He did not have any lymphadenopathy. There was an erythematous, fluctuant swelling in the left upper chest measuring 6 cm x 4 cm with increased local temperature and overlying crusting, and another similar lesion of 2 cm x 2 cm in the lower part of left side of neck with purulent discharge from one point (Fig.-1). He had 2 cm firm, non-tender hepatomegaly. Movement of right hip joint was

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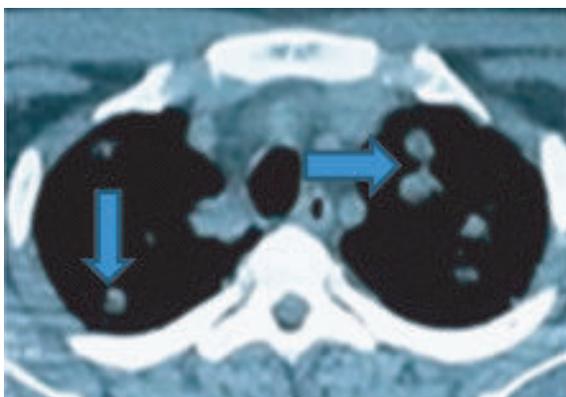
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**Fig-1:** Soft tissue infection at left upper chest with overlying crusting (wide arrow below) and lower part of neck (small arrow above) with discharge of pus

restricted because of pain. Other physical examination findings were unremarkable.

On admission his haemoglobin was 9.5 gm/dl, normocytic-normochromic, total white cell count was 17,080/cmm with 84% neutrophil and normal platelet count. Erythrocyte sedimentation rate was 102 mm in 1<sup>st</sup> hour and C-reactive protein was 48 mg/L. Alanine aminotransferase was 140 IU/ml. His diabetes was uncontrolled (random blood glucose 17.2 m.mol/L and HbA1c 10.7%). Chest X-ray postero-anterior view and X-ray pelvis antero-posterior view were normal, but computed tomographic (CT) scan of neck and chest revealed nodules in both lung apices without any cervical lymphadenopathy (Fig-2). Abdominal ultrasonogram (USG) revealed mild hepatosplenomegaly and USG of right hip showed minimal fluid collection within the synovial cavity. Urine routine examination was normal. Urine culture, blood culture and triple antigen all were negative. Culture of pus from discharge of neck lesion revealed growth *B. pseudomallei* which was resistant to amikacin, aztreonam, colistin, gentamycin, netilmicin and sensitive to augmantin, cefixim, cefotaxim, ceftazidime, ceftriaxone, ciprofloxacin, co-trimoxazole imipenem and tazobactam-piperacillin combinations. USG guided aspiration of right hip joint fluid was purulent and culture showed growth of *B. pseudomallei* with similar antibiotic sensitivity patterns. So, he was diagnosed as a case of melioidosis.



**Fig.-2:** CT scan of chest showing nodules (arrows) in both lung apices

Initially he was put on split-mixed regimen of insulin, paracetamol and flucloxacilin. After receiving culture reports, his antibiotic was changed to ceftazidime 2 gm

intravenously 8 hourly for 4 weeks. Then he was prescribed co-trimoxazole 960 mg 12 hourly per oral for another 5 months. He was on regular follow up, continued the treatment and cured of disease without any recurrence of symptoms upto 18 months of follow up.

### Discussion

*Burkholderia pseudomallei* is an environmental saprophyte found in soil specially in moist areas, surface water and paddy fields.<sup>2</sup> Human usually gets infected by inoculation through abraded skin during agricultural works, inhalation and ingestion can also transmit infection.<sup>10</sup> Presentation depends upon human immune status and infective inoculum.<sup>2</sup> Diabetes mellitus is an important risk factors.<sup>2,11</sup> Other risk factors include renal failure, renal stone, malignancy, human immunodeficiency virus (HIV) infection, steroid therapy, alcoholism and intravenous drug abuse etc. Melioidosis typically causes abscesses in the lungs, skeletal muscles, visceral organs and rarely in soft tissue.<sup>12</sup> Asymptomatic infections occur and can be reactivated after a long period, even upto 26 years is described.<sup>13</sup>

Since the description of an 8-month old girl, who had pneumonia and septic shock due to melioidosis in 1988,<sup>14</sup> a few cases of melioidosis have been reported in Bangladeshi population, or among travellers through Bangladesh in some international as well as few local journals.<sup>7-9,15-20</sup> Most of them were diabetic. Their presentations included fever, arthritis, cough, cavitating lung lesion, abscesses in liver, spleen and prostate etc. In recent years, we have encountered five cases of melioidosis among diabetic patients from Tangail, Gazipur, Mymensingh and Chittagong districts of Bangladesh and one returning worker from Brunei having features suggestive of tuberculosis, soft tissue infection, arthritis, liver abscess and lung abscess (unpublished observation). Though no geographic clustering of patients with seropositivity against *B. pseudomallei* in Bangladesh was described<sup>6</sup>, majority of these cases were from greater Mymensingh area. One reason might be that our hospital primarily deals with diabetic patients, diabetes is a risk factor for melioidosis, and our hospital receives many referral cases from this region of Bangladesh. It is further noted that cases have been described from Feni<sup>8</sup> and among travellers through Sylhet<sup>16</sup> and Rangpur<sup>18</sup> districts of Bangladesh.

Culture of representative samples specially blood, pus, urine and other body fluids reveals growth of *B. pseudomallei* and is considered as gold standard. A good liaison between physician and microbiologist is the key in diagnosis of melioidosis, as recognition and identification of *B. Pseudomallei* depends upon clinical suspicion, and awareness and familiarity of the microbiologist with the cultural characteristics of the organism.<sup>2</sup> Immunological tests can give rapid results and helps in treatment initiation in severe cases but its utility is limited in endemic areas.<sup>2,12</sup> Treatment consists of ceftazidime, meropenem, combination of chloramphenicol, doxycycline and trimethoprim-sulphamethoxazole (co-trimoxazole). Though ceftazidime is effective in treatment of melioidosis, ceftazidime resistance has been reported in recent years.<sup>21,22</sup>

So, in conclusion, it can be said that melioidosis is endemic in Bangladesh, though incidence of clinical cases is rare. A high index of suspicion is necessary in appropriate clinical scenario, so that cases can be diagnosed early and treated accordingly, as it is assumed that many such cases are empirically being treated as tuberculosis resulting in poor outcome.

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