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Melioidosis – Cases with Various Clinical Presentations: A Case Report

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ABSTRACT

Burkholderia pseudomallei, a natural saprophyte widely distributed in soil, stagnant waters of endemic areas, is said to infect humans through breaks in the skin or through inhalation causing protean clinical manifestations including fatal septicaemia. We report three cases admitted to our hospital one with hepatic abscess and septic arthritis, second case of splenic abscess and third case of probable cutaneous manifestation all presenting with septicaemia. Early diagnosis of melioidosis was made by culture and growth of Burkholderia pseudomallei in cultures. All the 3 cases recovered by treatment of appropriate antibiotics.

Introduction

Melioidosis, caused by the gram-negative saprophyte Burkholderia pseudomallei, is a disease of public health importance in southeast Asia and northern Australia that is associated with high case-fatality rates in animals and humans. Melioidosis is regarded as endemic to southeast Asia and northern Australia[1]. The incidence of which is unknown in many developing countries because of the lack of diagnostic tests and medical practitioners' lack of awareness of the disease. Clinical manifestations, severity, and duration of B. pseudomallei infection vary greatly. Melioidosis develops after subcutaneous infection, inhalation, or ingestion of contaminated particles or aerosols. Infection has occurred after near-drowning accidents and transmission of B. pseudomallei in drinking water

The most frequent clinical picture is a septicaemic illness, often associated with bacterial dissemination to distant sites such that concomitant pneumonia and hepatic and splenic abscesses are common. Osteomyelitis and septic arthritis due to *B. pseudomallei* are well recognized. Superficial pustules, subcutaneous abscesses and pyomyositis are relatively common manifestations (15–25%), and may be the primary site of infection or secondary to haematogenous spread [2] . Here we report 3 cases presented to Narayana Hrudayalaya Hospital , Bangalore.

Case 1

A 46yr old male diabetic from Tamil nadu presented with history of fever and chills since 40- 45 days associated with right upper quadrant and epigastric pain, decreased appetite and nausea. He was referred to our hospital with history of liver abscess and treated in outside hospital with USG guided aspiration of hepatic abscess and laproscopic drainage of hepatic abscess. He did not respond to this management and continued to have fever associated with history of left knee pain and swelling over knee joint. On examination of the abdomen there was right upper quadrant tenderness and discharge from the laproscopic port, left knee joint effusion which they suspected was septic arthritis.

Laboratory investigation – Total count of 14,600, Neutrophils of 72.6%, LFT showed Total bilirubin 1.5mg/dl , Alkaline phosphatase 293 IU/ml, SGOT-823IU/ml, SGPT- 699IU/ml, TC-14,600/cumm. CT(figure1) and MRI of abdomen was done to evaluate the liver abscess which showed heterogenous mass suggestive of evolving abscess. Synovial fluid sent for analysis showed 66% Neutrophils. Procalcitonin was 2.03.

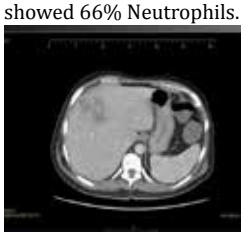

Figure 1: CT scan of abdomen showing hepatic abscess

Wound swab of the discharge was sent following which Blood culture (Bact T Alert) and synovial fluid were sent for culture. Gram stain from wound swab and synovial fluid showed few inflammatory cells and occasional Gram negative bacilli. The samples were streaked on Blood and Mac conkey agar. Colonies on blood agar showed large flat dried wrinkled colonies with central umbonation. On Mac Conkeys agar pink coloured colonies with wrinkled appearance.(figure 2)

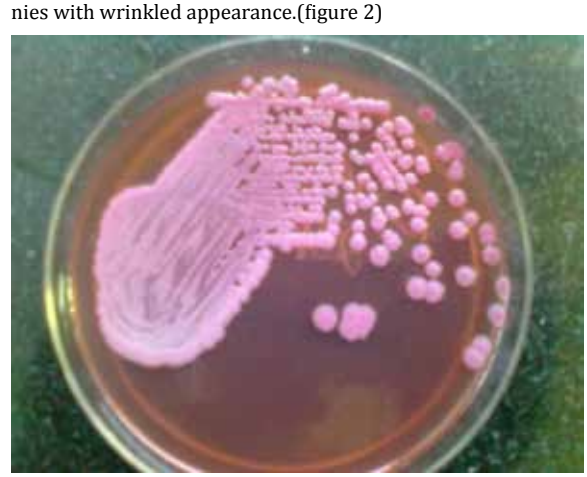

Figure 2 : Colonies if Burkholderia pseudomallei on Mac Conkey agar

The colonies were catalase positive, oxidation positive, motile. On Gram stain Gram-negative slender rods with bipolar staining

All the samples grew Burkholderia pseudomallei (identification by vitek 2 compact).

Sensitive to Ceftazidime, Ciprofloxacin,Levofloxacin, Imepenem, Meropenem, Pippericillin/tazobactam.

He was started on Imepenem, Doxycycline and Levofloxacin. In view of rising liver enzymes Doxycycline was stopped. Patient showed good improvement and was afebrile at the time of discharge after 17 days.

Case 2

A 58yr old male, diabetic from Bangalore presented with history of loss of appetite and generalized weakness since 15 days associated with fever and headache.

Laboratory investigation - Total count was 7,600 , neutrophils 87.5%, Sodium – 118mmol/L(hyponanatremia) Bilirubin 2.8mg/dl, SGOT- 67IU/L, SGPT- 71IU/L, Alkaline Phosphatase – 312IU/L, Renal function test was normal. USG abdomen showed small hypoechoic splenic abscess at the upper pole largest measuring *2.7x2.8cms, the size of the abscess increased gradu*ally

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to 3.5x 3.8cm in 7 days. CT abdomen with iv contrast showed multiple hypodense areas in the spleen likely representing splenic abscess (figure3), cholelithiasis with no evidence of cholecystitis. CT brain showed small vessel ischemic disease suggestive of pansinusitis.

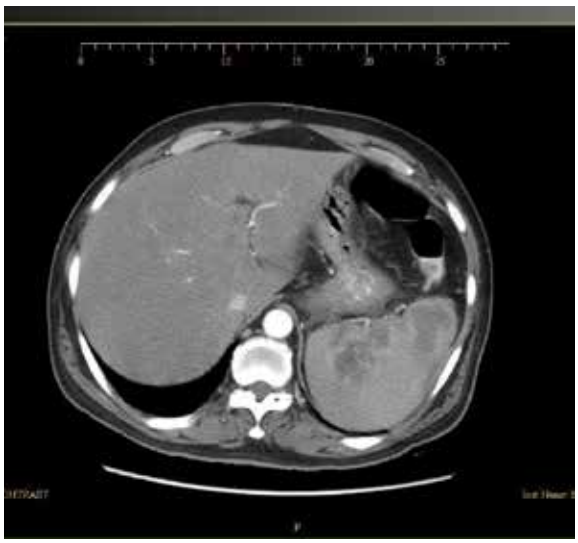

Figure 3: CT scan of abdomen showing splenic abscess

Blood culture of this patient grew Pseudomanas aeruginosa (identification by vitek 2 compact).

Sensitive to Ciprofloxacin, levofloxacin, Imepenem, Meropenem, Pipperacillin/Tazobactam. Inj imepenem was started. To rule out infective endocarditis echo including TEE was done which was normal. Splenectomy was advised after improvement of general condition and Pnemococcal vaccine given ,discharged in stable condition with iv antibiotics.

He was admitted back to the hospital in 2 days and in view of persisting fever and abscess he underwent Splenectomy.

Splenic Pus and blood sent (Bact T Alert) for culture and sensitivity. The colony morphology was similar to that of case1. Both pus and blood culture grew Burkholderia pseudomallei.(Identification by Vitek 2 compact) .Sensitive to Ciprofloxacin,Cotrimoxazole, Imepenem,Meropenem,Pipericillin/tazobactam. He was started on appropriate antibiotics

He developed left pleural effusion in the post operative period which was managed conservatively. Later he was discharged in stable condition after 11 days with oral antibiotics.

Case 3

A 47 yr old male diabetic from Tamil nadu presented with history of fever since 2 weeks. On examination there was a small ulcer over the left elbow, TC- 21.900cu.mm with neutrophils 88.7%, Bilirubin was 3mg/dl, Alkaline phosphatase – 375IU/L. Systemic examination were within normal limits.

Wound swab for Gram stain showed few inflammatory cells. Blood culture (Bact T alert) sent for this patient grew Burkholderia pseudomallei. Sensitive to Ciprofloxacin, Ceftazidime, Cefaperazone, Amoxyclav, Cotrimoxazole, Imepenem, Meropenem,Pipericillin/tazobactam. However swab from the wound didnt grow bacteria. He was started on Ceftazidime and tigecycline. His fever improved and was discharged later with iv antibiotics.

Discussion

It is a soil saprophyte, present in stagnant water, paddy fields and infection is via the skin through abrasions or inhalation. Patients with diabetes mellitus, chronic renal failure, alcoholism, cirrhosis and immunocompromised status are more susceptible.[3]. The first case of Melioidosis from India was reported in a child from Dapoli taluka in Maharashtra in 1990.[4]

Melioidosis is known to present as a febrile illness, ranging from an acute fulminant septicaemia to a chronic, debilitating localized infection and is characterized by abscess formation. There is usually no obvious infected wound or evidence of recent trauma [5]. Skin and soft-tissue infection comprise 13%–24% of clinical presentations with melioidosis in published case series[1]. Melioidosis is a great masquerader, and it is often confused with staphylococcal abscesses in acute form or tuberculosis in chronic presentations. [6] B. pseudomallei, the emerging pathogen, is overlooked in many cases due to the low index of suspicion and awareness among microbiologists and clinicians. Therefore, due consideration should be given to this organism to know the true magnitude of melioidosis in our country. As B. pseudomallei is a non fastidious organism without any exacting growth requirements, all non fermenters should be subjected to speciation as a part of routine microbiological work up. [7]. Limited experience and a lack of validated diagnostic reagents make Burkholderia pseudomallei, the cause of melioidosis, difficult to recognize in the diagnostic microbiology laboratory. [8] The causative organism, B. pseudomallei may be mistaken for Pseudomonas species, since they share several common phenotypic characteristics. A clear understanding of the culture characteristics and biochemical reactions is essential for recognizing this pathogen in the diagnostic microbiology laboratory [9]. The key recommendations were use of the cephalosporin Ceftazidime or a carbapenem antibiotic for initial treatment of acute infection over 2-4 weeks and a combination of co-trimoxazole and doxycycline for eradication over a 12-20 week period [10]

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