Research Paper

Volume : 3 | Issue : 10 | October 2014 • ISSN No 2277 - 8179

Melioidosis in Andrha Pradesh,India

Microbiology

KEYWORDS : Melioidosis, Andhra Pradesh ,India.

Dr.P.Lakshmi vasantha — Associate professor, Department of Microbiology, Kamineni Institute of Medical Sciences,Narketpally,Nalgonda dt;Andhra Pradesh,India.

Dr.K.Sai Leela — Professor &HOD, Department of Microbiology,Kamineni Institute of Medical Sciences,Narketpally,Nalgonda dt;Andhra Pradesh, India.

ABSTRACT

Melioidosis is endemic disease in South East Asia & Northern Australia. Significant number of cases were reported from India, especially from South India. But only few cases were reported from Andhra Pradesh state.It was recognized as emerging disease in India. Here we report a case of melioidosis with septicemia in a diabetic individual from Andhrapradesh. Patient presented with multiple abscesses in liver and spleen.Pus culture from liver abscess and blood culture yielded Burkholderia pseudomallei.Early diagnosis and appropriate treatment by followingguidelines is needed for the management of this disease.

Introduction

Melioidosis caused by *Burkholderia pseudomallei* is associated with high mortality.This disease is endemic in south east Asia and northern Australia. Highest number of cases were reported from Thailand.Cases were reported from other countries like Malaysia,Vietnam,PDR Laos,Indonesia,Singapore,Cambodia,China,Hong Kong,Taiwan,Srilanka and southern India.It is now recognized as emerging infectious disease in India[1,2,3,4]. Even though cases were reported from Andhra Pradesh[1], awareness among physicians regarding this disease is poor.Early diagnosis and appropriate treatment by following guidelines is needed. Here we report a case of melioidosis with septicemia.

Case report

A 23 year old diabetic (Type I) male patient from Andhra Pradesh,Nalgonda district presented with complaints of fever with cough of 10 days duration. Pain abdomen was present for the past 5 days. On examination icterus,pedal edema and tenderness over right hypochondrium were observed. Investigations showed that Hb-10.7%,total leucocyte count – 13,700/mm^3 ,neutrophils -85%,lymphocytes -10%,esinophils -3%,monocytes -2%,platelet count – 1lakh/mm^3.HBsAg &HIV antibody tests –negative. Random blood sugar – 296mg/dl, blood urea-41mg/dl,serum creatinine- 0.4mg/dl,prothrombin time – 16,INR -1.1,Total bilirubin- 2.49mg/dl,AST-142IU/L,ALT-81 IU/L,Alkaline phosphatase – 281IU/L.Serum albumin -2gm/dl.Total protein – 4.2gm/dl.Urine for ketone bodies-negative. Ultrasound scan showed multiple splenic abscesses and liver abscesses with ascites. Patient was kept on ventilator and antibiotics piperacillin +tazobactum,vancomycin &metronidazole and insulin were started.

Exploratory laparotomy and incision and drainage of liver abscess was done. Pus aspirated from liver was sent for culture. Blood culture was also done.Gram staining of pus revealed Gram negative bacilli with bipolar nature of staining ie.safety pin appearance. Blood culture and pus culture yielded same growth. Colonies on blood agar were observed after 24 hours of incubation and they were small,smooth and became dry,wrinkled after 72 hours of incubation [Figure 1]. Light pink coloured colonies were observed on MacConkeys on first day and became dry with metallic sheen in two days [Figure 2]. On Gram staining of the colony, they were found Gram negative with safety pin appearance (bipolar nature) [Figure 3],oxidase and catalase positive, motile, utilized glucose, lactose, but not arabinose oxidatively and arginine dihydrolase,nitrate reduction tests were positive. Triple sugar iron agar-K / no change ,urease test – negative and negative lysine and ornithine decarboxylase tests. Isolate recovered was identified as *Burkholderia pseudomallei* in our laboratory. Antibiotic sensitivity testing was done by Kirby –Bauer disc diffusion method on Mueller-Hinton agar. It was sensitive to ceftazidime, cotrimoxazole, Imipenem, Amoxyclav and resistant to gentamicin, amikacin, netilmicin. Culture sent for identification in Vitek -2. It was identified as *Burkholderia pseudomallei* in Vitek -2 also. Patient didn't respond to treatement and died because of septicemia.

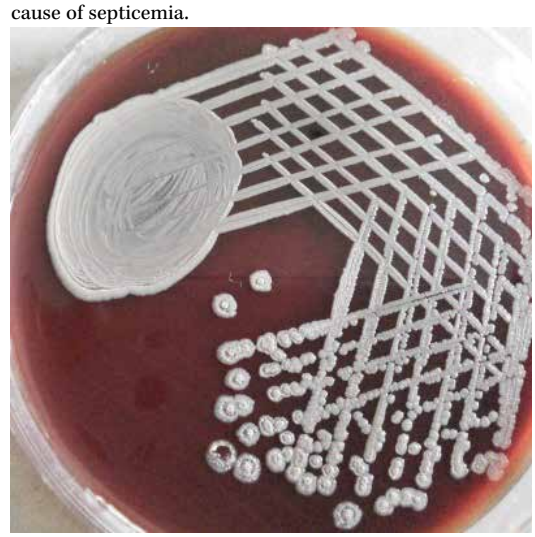

Figure 1: Burkholderia pseudomallei colonies on blood agar

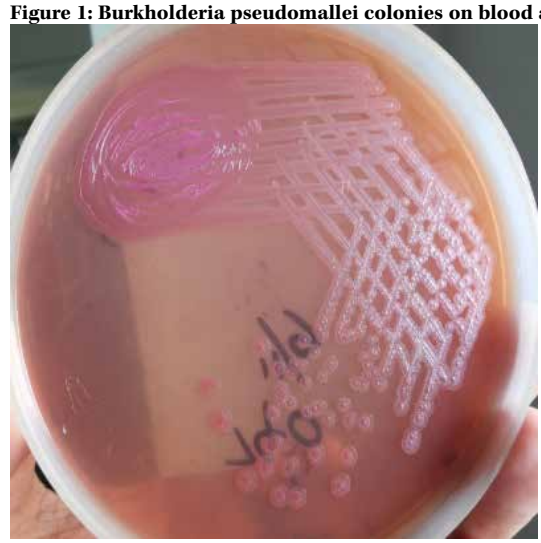

Figure 2: Burkholderia pseudomallei colonies on MacConkeys agar

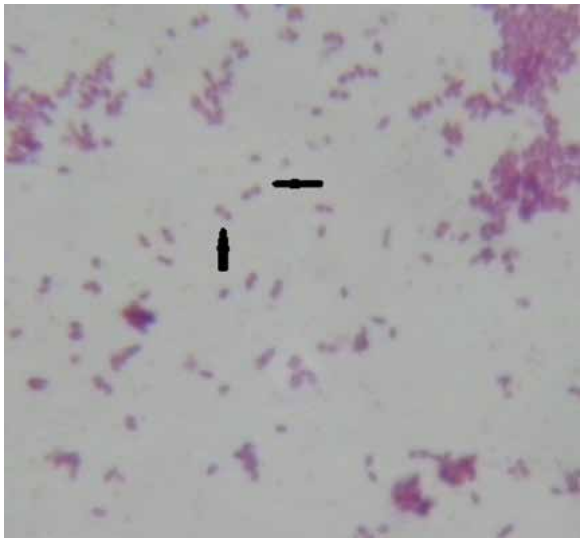

Figure3: Gram stain showing safety pin appearance of Burkholderia pseudomallei.

Discussion

Burkholderia pseudomallei is a soil dwelling Gram negative bacilli. Main mode of entry of this organism is through percutaneous inoculation during contact with contaminated soil or water. Persons who come in contact with contaminated soil or water frequently, especially workers in rice paddies are at risk[5]. In this case the patient is farmer by profession. More over patient is diabetic for past 10 years, which is the most common risk factor observed in reported cases. Other risk factors being thalassemia,renal disease,chronic lung disease,alcoholism.

In this case patient presented with multiple abscesses in liver and spleen with septicemia. Clinical presentation of melioidosis vary from pneumonia[6] to multiple abscesses in internal organs like liver,spleen,prostate etc., osteomyelitis,septic arthritis[6,7], pyomyositis, cellulitis, fasciitis, skin abscess or ulcers and septicemia with or without focus[1,8]. It can present as acute fulminant or chronic infection. Reactivation of infection long after exposure is common as these bacilli can survive intracellularly in reticuloendothelial system and it was observed especially in Vietnam War experience (Vietnam time-bomb).And this is the reason behind giving prolonged treatment for up to 4-6 months which include intensive and eradication phases. Intensive phase,consisting of in-patient treatment for at least 10-14 days with ceftazidime or carbapenems (imipenem or meropenem) and Eradication phase,consisting of treatment with oral trimethoprim-sulfamethoxazole (TMP-SMX) for 3-6 months.Doxycycline or amoxicillin-clavulanic acid can be used in cotrimoxazole resistant cases. In septicemic cases intensive phase of treatment should be 4 or more weeks and addition of TMP-SMX to be done for neurological,prostrate,bone or joint melioidosis[9].

In India cases were reported from Karnataka, Maharashtra, Orissa, West Bengal, Tamilnadu and Andhra Pradesh. In Andhra Pradesh, cases were reported from NIMS institute[1].

With routine conventional cultivation and identification methods it is very much possible to identify *Burkholderia pseudomallei.*Isolation of *B.psudomallei* from non-sterile sites require selective medium like Ashdown agar[10]. Colonies on Ashdown agar appear as pinpoint, pale pink in 24 hours and changing to pinkish purple, flat and slightly dry with sheen in the next 2 days. After 5-7 days of incubation colonies appear wrinkled (rugose, corn flower head) and they take up crystal violet from the medium.

Diagnosis of melioidosis requires suspicion by physician and proper identification by microbiologist. But it requires awareness of the disease prevalence in particular geographic area and availability of microbiological laboratory facility.

REFERENCE

1. Anuradha K, Meena AK, Lakshmi V. Isolation of Burkholderia pseudomallei from a case of septicemia – A case report. Indian J Med Microbiol 2003;21:129-132. | 2. Saravu K, Vishwanath S, Kumar RS, et al. Melioidosis-a case series from South India. Trans R Soc Trop Med Hyg 2008; 102 (suppl 1): 18-20. | 3. Jesudason MV, Kumari RS, John TJ, V Jesudason Mary, Jacob John T.Burkholderia pseudomallei-An emerging pathogen in India. Indian J Med Microbiol 1997; 15(1):1-2. | | 4.Raghavan KR, Shenoi RP, Zaer F, Aiyar R, Ramamoorthy R, Mehta MN. Meliodosis in India. Indian Pediatr 1991; 28:184-8. | 5. Cheng AC, Currie BJ. Melioidosis: Epidemiology, Pathophysiology, and Management. Clin Microbiol Rev 2005; 18:383-416 | 6.Vidyalakshmi K, Shrikala B, Bharathi B, Suchitra U. Melioidosis: An under-diagnosed entity in western coastal India: A clinico-microbiological analysis. Indian J Med Microbiol 2007; 25:245-8. | 7. Danda D, Thomas K. Transient aseptic arthritis of knees in a patient with melioidosis. Indian J Med Sci 2000; 54:18-20 | 8.Jesudason MV, Anbarasu A, John TJ. Septicaemic melioidosis in a tertiary care hospital in south India. Indian J Med Res 2003; 117:119-21 | 9. Mukhopadhyay C, Eshwara VK, Hattangadi VB. Melioidosis. J Acad Clin Microbiol 2013; 15:11-18. | 10. Wuthiekanun V, Dance DA, Wattanagoon Y, Supputtamongkol Y, Chaowagul W, White NJ. The use of selective media for the isolation of Pseudomonas pseudomallei in clinical practice. J Med Microbiol 1990; 33:121-6 |