

Melioidosis Mimics Septic Arthritis- A Rare Presentation

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Abstract—Middle aged male with fever of 3 weeks duration, was referred to us as a case of vasculitis; he presented with abdominal wall abscess, septic arthritis of the right knee joint, acute respiratory distress, disseminated intravascular coagulation and renal failure. Initial treatment consisted of urgent intubation with ventilation, arthrotomy with synovectomy and drainage of the abdominal wall abscess. *Burkholderia pseudomallei* were isolated from blood culture, synovial fluid culture and culture of anterior wall abdominal aspirate, sensitive to Imipenem and Cotrimoxazole, suggesting melioidosis. He improved steadily with Imipenem and was discharged on Cotrimoxazole, to be strictly consumed for the following 3 months to avoid relapse.

Melioidosis is emerging in India probably secondary to the global aborted blood environmental pollution and contraceptive menstrual blood pollution [e.g. small family norms] evidenced by documented rising environmental estrogen, alpha feto protein, β human chorionic gonadotropins in river and sea waters and air. {*Epidemics of Ebola virus disease can have similar roots*}

Keywords—*Melioidosis; multifocal abscesses; Burkholderia pseudomallei*

Case details

This gentleman aged 45 years, was referred to us with a tentative diagnosis of vasculitis and splenic infarction; he presented with fever and abdominal pain of 3 weeks duration, accompanied by 10 days of cough with expectoration, 7 days of dyspnoea and 3 days of right knee joint pain with swelling. Past history of diabetes mellitus and systemic hypertension, of 2 to 5 year's duration, with irregular treatment, was present. He had a 30 year history of ethanol consumption.

At the time of presentation, he was normotensive but he was tachypnoeic with a respiratory rate of

40/minute and he had tachycardia with pulse of 130/minute. Auscultation of his lungs revealed crepitations with rhonchi heard at the base Figure 2. His left para-umbilical region of the abdomen was tender; his right knee joint was tender and inflamed Figure 1; he was drowsy but he did not have neck stiffness.



Figure 1. Radiograph of Right knee joint showing medial tibio femoral joint space narrower than the lateral, with prominent osteophytes and tibial tubercles, suggestive of arthritis



Figure 2. Radiograph of the chest showing bilateral inhomogenous opacities suggesting acute respiratory distress syndrome (ARDS).

Blood investigation identified neutrophilic leukocytosis of 81%, elevated serum creatinine of 2

mg/dl, initial arterial blood gas suggested metabolic acidosis with type -1 respiratory failure, which improved on serial follow up blood gas analysis, as clinical condition improved; bilirubin was elevated to 5.6mg/dl, alkaline phosphatase was elevated at 257u/l, suggesting an infiltrative pathology; there was thrombocytopenia of 93,000/c.mm with deranged coagulation parameters suggesting sepsis with disseminated intravascular coagulation (DIC) and multiorgan dysfunction. Blood culture grew non fermenting *Burkholderia pseudomallei* sensitive to Imipenem and cotrimoxazole. The organism was characterized by standard biochemical tests and confirmed by Vitek. Antibiotic susceptibility was done by Kirby Bauer technique and results were interpreted by CLSI guidelines. Melioidosis was considered.

Ultra sonogram of the abdomen showed an ill defined lesion with heterogeneous echogenicity in the left para umbilical region suggesting a hematoma. Aspirate of this lesion suggested abscess and its culture grew *Burkholderia pseudomallei*. Synovial fluid culture also grew the same organism.

The abdominal wall abscess was surgically drained. An arthrotomy with synovectomy of right knee joint was undertaken and synovial tissue sent for culture also grew *Burkholderia pseudomallei* suggesting melioidosis. He required supportive ventilation initially, and during aspiration of abdominal wall abscess, arthrotomy with synovectomy, for about seven days; He was treated with the sensitive antibiotic Imipenem, at the dose of 500 mg thrice daily from the fourth day, for 14 days.

Repeat blood cultures after 7 days were sterile and he made a *remarkable recovery*. He received mobilizing treatment with physiotherapy and was discharged 3 weeks after admission, with strict recommendation to continue Cotrimoxazole for 3 months to prevent relapse.

Discussion:

Burkholderia pseudomallei are a saprophytic bacterium present in the moist soil of the tropics of South East Asia and North Australia. It is endemic in Thailand and is recognized as a major cause of community acquired septicemia; ¹ in contrast, melioidosis was not endemic in the Indian subcontinent² although melioidosis had been documented in Bengali men settled in London (UK). It has an incubation period that varies from a few days to many years. It is frequently associated with diabetes mellitus³ and ethanol consumption.⁴ Presentation of melioidosis as chronic suppurative joint effusion is rare⁵ in India, diagnosed with difficulty and can result in mortality.

Recently a retrospective study of 32 culture proven cases⁶ of melioidosis was undertaken to analyze the clinical presentation and epidemiological risk factors for melioidosis in India; mean age of presentation was 42.5 years of age though it was diagnosed from 4-60 years of age; more than 75% were males, mostly from

rural areas; mean duration of symptoms before diagnosis was 2.34 months; >50% [56.25% presented as disseminated disease, with remainder as septic arthritis or abscesses; 75% of patients were treated successfully with Ceftazidime followed by Doxycycline or Cotrimoxazole.

Clinical cases are recently reported from the states of Tamil Nadu, Kerala, Karnataka, Maharashtra, Orissa, Assam, West Bengal, Pondicherry and Tripura in India, hence 45 samples⁷ of soil from Parangipettai of Tamil Nadu were screened for prevalence of *Burkholderia pseudomallei* and 4 isolates were identified by bacteriological and molecular methods.

In 2007, 154 samples of soil, 130 samples of water from several⁸ locations in Guangxi of China were screened for *Burkholderia pseudomallei* by culture, sensitivity and Polymerase chain reaction for species specific; none of the water samples contained the organism; all positive samples were confined to single low lying region from rice paddy fields.

Melioidosis often presents as abscesses in multiple sites, including musculoskeletal system. Although rare, septic arthritis is a recognized feature of melioidosis, as mentioned in the 20 years prospective study⁹ undertaken in Australia, which quoted an incidence of 2.6%-4% of septic arthritis. From clinical presentation, it is difficult to differentiate melioidosis from other causes of arthritis.

Melioidosis can be fatal¹⁰ 14% mortality rate is reported. It has been documented in the¹¹ literature, that Ceftazidime reduces mortality by 50% in severe melioidosis. Treatment for prolonged period of 3 months after discharge is warranted, otherwise melioidosis can recur. Septic arthritis¹² arises from hematogenous dissemination of the organism or contiguous spread from neighboring tissues. Arthrotomy, synovectomy, drainage of abscesses, ventilation, with appropriate sensitive antibiotic therapy [Imipenem] was rewarding in our patient.

Melioidosis` is detected in Indian soil with increasing prevalence probably, due to globally increasing environmental aborted blood, contraceptive menstrual blood [including small family norms, one child policy] pollution¹³ evidenced by rising environmental estrogen in air, water which is documented in 1998, 1994 by Professor Paul Devroey¹⁴ and Dr. Susan Jobling¹⁵ respectively;

$863,000,000$ reported surgical abortions till 2010 \times
 4200pg of estrogen \times $\sim 350\text{ml}$ blood
loss/abortion = environmental estrogen or

498 abortions /minute \times 60 minutes \times 24 hours \times 365
days \times 50 - 80 years of global contraception practice
 $\times 4200\text{pg}$ of estrogen/ml blood loss \times $\sim 350\text{ml}$.
minimum blood loss/ abortion = environmental
estrogen

When a mother is blessed for e.g. with 10 children she will not menstruate for 200 months or 20 years; whereas after contraception:-

1,989,375,754 women of 15-50 years×200 months×300pgm of estrogen×350ml menstrual blood loss =environmental estrogen¹⁶

Global Environmental estrogen increase=global innocent aborted blood, contraceptive menstrual blood contained air-inhalation, water ingestion=environmental aborted blood, contracepted menstrual blood contained pollution.

Our analysis of sea, river waters detected estrogen, alpha feto protein, β Human chorionic gonadotropins confirming further, aborted and contraceptive menstrual blood pollution of the environment

Contraceptive menstrual blood, aborted blood being a very good media for incidence, prevalence of viruses namely Human immunodeficiency virus, Hepatitis A,B,C,D,E viruses, SARS, Chikungunya, Dengue, H1N1, Extended spectrum of Beta lactamase production, drug resistance of microbes including tuberculosis, (inherently less virulent), polyvalent strains of varicella, making vaccines ineffective;

Environmental pollution with aborted blood, contraceptive menstrual blood is a rich media for emergence, growth and virulence of organisms resulting in infectious diseases including Melioidosis; increasing incidence, virulence of fungal¹⁷ rickettsial infections and vector-mosquito borne diseases [since mosquitoes' food –blood is made freely available in the environment by contraception, abortions] are also increasingly prevalent.¹⁸

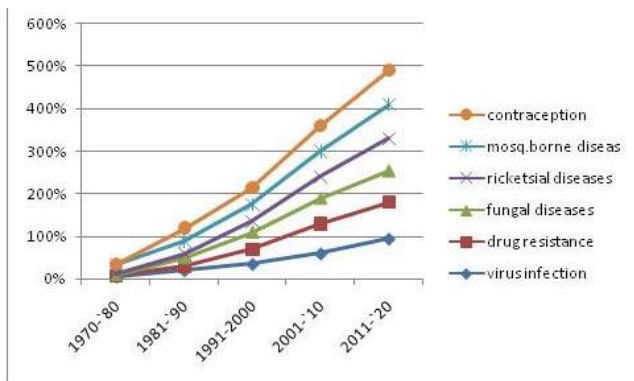


Figure: Prevalence of infectious diseases and contraception, abortion [reference17]

A saprophyte ` Burkholderia Pseudomallei` has increased in prevalence in India, wherein it was not endemic prior to implementation of contraception, abortion in the name of small family norms.[Ebola virus disease` epidemics can have similar roots in the globe]

Conclusion:

Since melioidosis presenting as septic arthritis is uncommon in India, the diagnosis of melioidosis was not established for 3 weeks prior to admission.

We present this report to highlight a neglected tropical disease emerging as community acquired

septicemia, *multi organ dysfunction*, multifocal abscesses, septic arthritis requiring adventurous arthrotomy, synovectomy, drainage of abscesses and ventilator assistance and appropriate antibiotic administration. Melioidosis is associated with significant mortality. Emerging Melioidosis [epidemics of today's Ebola virus disease] is probably secondary to global aborted blood, contraceptive menstrual blood environmental pollution, being a rich media for microbial growth, virulence.

Publication that helps create awareness, of an apparently increasing incidence of *Burkholderia pseudomallei* sepsis in India, may enable early diagnosis, by appropriate cultures, followed by treatment with antibiotics, to be continued for 3 months after discharge, to prevent relapse and thereby reduce the associated mortality.

PATIENT CONSENT

The authors, Natarajan N; Samuel EJ; Periasamy S; Natarajan V; Daniel J; KB Latha, Rassou D Declare They have obtained written, informed consent for the publication of the details relating to the patient in this report.

1. All possible steps have been taken to safeguard the identity of the patient.

This submission is compliant with the requirements of local research ethics committees.

References

- 1 ChaowagulW,WhiteNJ,DanceDA,Wattanagoo nY,NaigowitP,DavisTM:Melioidosis:a major cause of community acquired septicemia in north eastern Thailand; Journal of Infectious Diseases1989; 159:890-9
- 2 S.N.Hoque, M.Minassian, S.Clipstone, S.J.Lloyd-Owen, E.Sheridan, M.P.A.Lessing: Melioidosis presenting as septic arthritis in Bengali men in East London; Oxford Journals Medicine Rheumatology: 38, 10, 1029-1031
- 3 Esther P, Sudhagar M, Anandha lakshmi S, Shanthi M. A case report of melioidosis in a diabetic patient in a Union Territory. AMJ2013, 6, (8)401-5.
- 4 Saravu K, Mukhopadhyay C, Vishwanath S, Valsalan R, Docheria M, Vanadana KE, Shashtry BA: Melioidosis in South India; epidemiological and clinical profile; SE Asian J Trop Med Public Health 2010 Mar; 41(2): 401-9
- 5 Deshmukh M, Mundhada S: Chronic suppurative joint effusion due to *Burkholderia pseudomallei*: a case report; Indian Journal of Pathol Microbiol. 2013 Oct-Dec: 56 (4):460-3
- 6 Gopalakrishnan R, Suresh Kumar D,Thirunarayan MA, Ramasubramanian V: Melioidosis an emerging infection in India; JAPI 2013 Sep;61(9):612-4
- 7 Prakash A, Thavaselvam D, Kumar A, Arora S, Tiwari S, Barua A, Sathyaseelan K:isolation,

8 identification and characterization of *Burkholderia pseudomallei* from soil of coastal region of India; Springer plus 2014 August 16;3:4-38.doi:10.1186/2193-1801-3-438.e collection 2014

9 Ma G, Zheng D, Cai Q, YuanZ : Prevalence of *Burkholderia pseudomallei* in Guangxi, China; Springer plus 2014 August 16; 3:4-38.doi:10.1186/2193-1801-3-438.e collection 2014

10 Levi P Morse, Jonathan Smith, Janak Mehta, Linda Ward, Allen C Cheng, Bart J Currie: Osteomyelitis and septic arthritis from infection with *Burkholderia Pseudomallei* : 20 years prospective study from Northern Australia; Journal of Orthopedics 10, 2, 2013, 86-89

11 Bart J Currie, Linda Ward, and Allen C. Cheng: PLOS Neglected Tropical Diseases: The epidemiology and clinical spectrum of melioidosis; November 30, 2010. DOI:10.1371

12 White NJ, Dance DA, Chaowagul W, Wattenagoon Y, Wuthiekanum V, Pitakwatchara N.: Halving of mortality of severe Melioidosis by Ceftazidime; Lancet 1987;ii:697-701

13 Anjali Rajudhyaksha, Archana Sonawale, Shruti Khare, Chetan Kalal Rahul Jankar: Disseminated Melioidosis presenting as septic arthritis ; JAPI, June 2012,vol.60

14 Elizabeth JeyaVardhini Samuel, Nagarajan Natarajan: Increasing prevalence of chronic obstructive pulmonary disease, tuberculosis, lung cancer and rising environmental estrogen; International Journal of Science and Research Volume 3 Issue 6 June 2014 Pages 1593-1596 http://www.ijsr.net/v3i6_05.php

15 Professor Paul Devroey: Fertile Ground; *Odyssey Journal* volume 4 Issue 1998, page 4.

16 Jobling S (1996): A survey of Estrogenic activity in United Kingdom inland waters; *Environmental Toxicology and Chemistry* 15, 1993-2002.

17 Samuel EJ, George SJ, Gouthaman T, Jobin John: Increased prevalence of Liver diseases and fragmented germ cells with reduced endogenous estrogen; increasing prevalence of Hepatitis B virus and rising environmental estrogen; *International Journal of Scientific and Engineering Research*; volume 5, Issue 8, August 2014 pages 773-777 http://www.ijser.org/research-paper-publishing-august-2014_page.aspx

<http://www.ijser.org/researchpaper%5CIncreased-prevalence-of-liver-disease-and-fragmented-germ-cells-with-reduced-endogenous-Estrogen.pdf--liver>

18 Samuel EJ, Joseph V, Susan P, Jobin John: Increased prevalence of solar keratoses, infectious diseases and rising environmental estrogen equating with aborted blood, contraceptive menstrual blood pollution with consequent ozone depletion; *IOSR Journal of Environmental Science, Toxicology and Food technology*; volume 8, Issue 9, version 1 (September 2014),pages 75-79 [http://www.iosrjournals.org/iosr.jestft/pages8\(9\)Version-1.html](http://www.iosrjournals.org/iosr.jestft/pages8(9)Version-1.html)

19 Elizabeth J S, George SJ, Gouthaman T, Tony J, Peter D, John J, David B: Increased prevalence of Dermographism, Filariasis, Mosquito borne diseases and rising environmental estrogen equating with aborted blood, contraceptive menstrual blood pollution; *International Journal of Scientific Research and Engineering Studies*; volume1, Issue 3, September 2014 http://www.ijres.com/2014/vol-1_issue-3/paper_2.pdf