

Case Report

Mixed infection of melioidosis and brucellosis

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Abstract

Melioidosis and brucellosis are human infections which are probably under reported in India. We report a case of mixed infection of melioidosis and brucellosis in a patient presenting as hepatic and splenic abscess. This mixed infection is not reported previously.

Key words: Melioidosis, brucellosis , mixed infection

Introduction

Melioidosis is an infectious disease of humans and animals caused by burkholderia pseudomallei, a gram-negative soil bacterium. It is predominantly a disease of tropical climates with reports from various parts of India. Brucellosis, a zoonosis, caused by brucella is a multisystem disease that may present with a wide spectrum of clinical manifestations. Both these organism produce abscesses in liver and spleen. We describe a patient with mixed infection of melioidosis and brucellosis , presenting as hepatic and splenic abscess.

Case report

A 44 year old immunocompetent male,rubber tapper without any comorbidities was admitted with low grade intermittent fever and right hypochondrial pain of 15 days. He was febrile, had pallor, grade 2 clubbing and bilateral pitting pedal oedema. Systemic examination showed tenderness of right hypochondrium and mild hepatosplenomegaly. His

hemoglobin was 9.5 g/dl (normocytic normochromic), total WBC count 13,500/ μ l(N 77% L 17% M 06%), platelet count 1.9L/cmm and erythrocyte sedimentation rate 32mm in 1hour. Liver function test showed mildly elevated alkaline phosphatase and reversal of albumin globulin ratio. Renal function tests, urinalysis, chest radiograph were all normal. Tuberculin skin test was negative. Ultrasonogram of the abdomen showed multiple focal lesions in liver, spleen and enlarged periportal lymph nodes. Contrast enhancing CT of the abdomen showed multiple nonenhancing cystic lesions, perisplenic collection, and necrotic intraabdominal lymphadenopathy(Figure1).Culture of CT guided aspirate from the liver lesion and blood showed growth of burkholderia pseudomallei . Serology for brucella by ELISA was also positive. So a diagnosis of mixed infection with melioidosis and brucellosis was made.

He was treated with meropenam, trimethoprim-sulfamethoxazole and doxycycline. His fever and abdominal pain decreased with treatment and a follow up CT abdomen after 3 weeks of treatment showed significant decrease in the size of abscess (Figure 2). He was discharged on oral trimethoprim-sulfamethoxazole and doxycycline and is under follow up.

Discussion

Melioidosis is caused by a gram negative, motile bacilli isolated from soil and surface water. The disease is acquired by inoculation through abraded skin, inhalation or ingestion.^[1] The majority of cases present during the rainy season. The incubation period ranges from 24 hours to many years.^[2]

Melioidosis is called a mimicker of maladies. In its acute form it can mimic any community acquired bacterial sepsis, pneumonia or abscess. In its chronic form, it can mimic tuberculosis or malignancy.^[3] Melioidosis can present with subcutaneous abscesses and visceral abscesses in the liver, spleen, prostate, parotid, and lymph nodal mass.^[4]

About half of the patients with Melioidosis are bacteremic and up to a quarter can present with septic shock. Without appropriate treatment, case-fatality ratio may reach 90% within 48 hours of developing symptoms.^[5] Although healthy people may get melioidosis, the major risk factors are diabetes, excessive alcohol use, liver disease, chronic renal disease, chronic lung disease, other immunosuppressing condition and occupational exposure.

The culture of *B. pseudomallei* from any specimen in a patient with appropriate clinical features is the diagnostic gold standard. Serologic test like indirect hemagglutination assay can be used but its utility is limited. Diagnosis can be made by microscopic

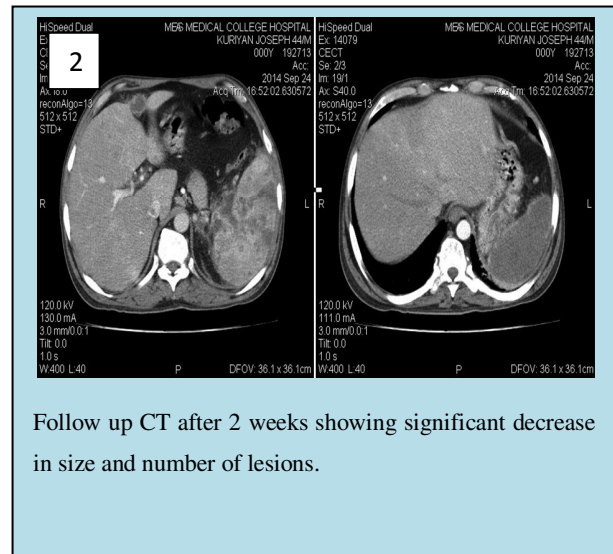
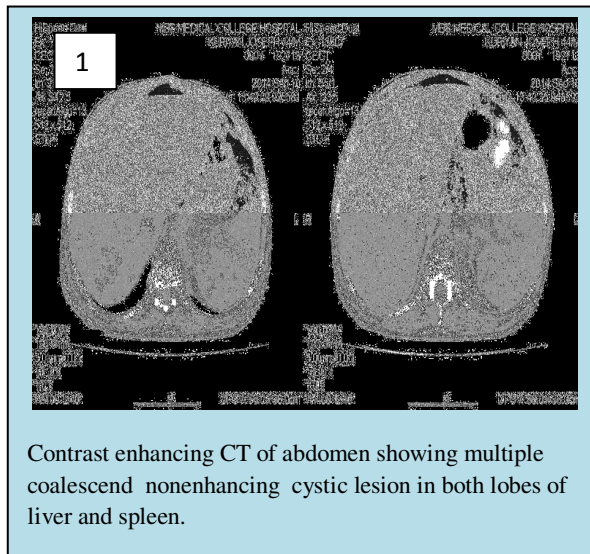
demonstration of small bipolar gram-negative rods with the characteristic “safety pin” appearance which is confirmed by culture of the bacteria with a fourfold or greater rise in the titer of serum antibody to the organism. Ceftazidime or meropenem with trimethoprim-sulfamethoxazole are the drugs used in treatment.

Brucellosis is a systemic zoonotic infection caused by Gram-negative bacilli of the genus *Brucella*. Humans get the infection by the consumption of unpasteurized milk and contact with infected animals. Clinical manifestations vary from multisystem involvement to asymptomatic infection. Almost every organ in the body may be involved. Its predilection for organs rich in reticuloendothelial cells (spleen, liver, bone marrow, lymph nodes) and its intracellular location are responsible for the chronicity of the disease, which can last for months or even years.^[6] Because the liver is the largest organ of the reticuloendothelial system and plays the important role of defense mechanism against brucella infections, diffuse hepatic involvement is common with brucellosis. It involves the liver in varying ways, including a slight increase in transaminase levels, mild hepatosplenomegaly, chronic suppurative disease, and rarely, acute hepatitis.^[7] Diagnosis of brucellosis is confirmed by positive blood culture and serology. Streptomycin and doxycycline are the drugs used for treatment.

There are reports of mixed infection by various organism like malaria and scrub typhus^[8], leptospira and dengue.^[9] Identification of these mixed infection is important because mortality and morbidity is very high if proper treatment is delayed. Tuberculosis, malignancies, infective endocarditis, brucellosis, melioidosis and fungal infections are the common causes of disseminated abscess in liver and spleen.

[1,7,10] We were able to identify melioidosis and brucellosis as possible etiology in our patient, and he was started on meropenam, trimethoprim-sulfamethoxazole and doxycycline. He improved with treatment and there was marked reduction in size of the abscess on follow up CT. Mixed infection

of melioidosis and brucellosis is not reported previously. Since the mortality rate of these infections are very high, an increased awareness, high index of suspicion, early diagnosis and initiation of appropriate therapy is necessary for a favorable outcome



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