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A Rare Case of Disseminated Meliodosis – An Emerging Differential for Tuberculosis

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I.

II. INTRODUCTION-

Melioidosis is an infectious disease caused by a gram-negative bacterium called Burkholderia pseudomallei.[1] Most people exposed to B. pseudomallei experience no symptoms; however, those who do experience symptoms have signs and symptoms that range from mild, such as fever and skin changes, to severe with pneumonia, abscesses, and septic shock that could cause death.[1] Approximately 10% of people with melioidosis develop symptoms that last longer than two months, termed "chronic melioidosis".[1]

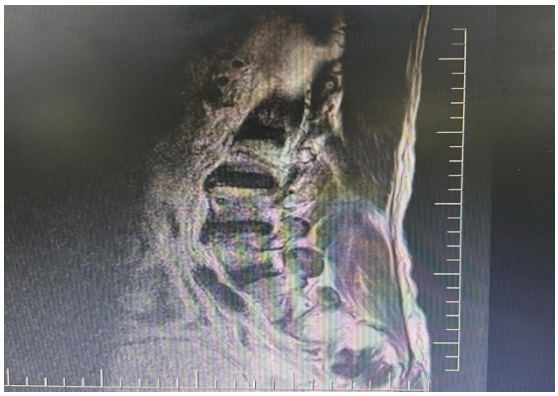
III. CASE REPORT

64 years old male, farmer by occupation, hailing from Ankola Magota village from Karnataka, known case of Diabetes Mellitus and chronic calcific pancreatitis came with complaints of low grade fever and constitutional symptoms since 3 weeks.

On arrival, vitals were stable. Examination revealed pallor, icterus and mild pitting type of pedal edema. Per abdomen examination revealed hepatosplenomegaly. Laboratory evaluation revealed anemia with Hemoglobin of 7.9, peripheral smear and iron studies suggestive of Iron deficiency anemia. Raised inflammatory markers ESR 120 and CRP 81. Total counts was 6,000 however neutrophilic predominant. Serum albumin levels were low(negative acute phase reactant). Chest x ray revealed bilateral lower zone nodules. USG Abdomen Pelvis showed hepatosplenomegaly along with features of chronic calcific pancreatitis.

Patient was transfused 2 pints PRBC and blood cultures were awaited. In the mean time, patient was started on Cefaperazone – sulbactam.

Within 2 days, patient developed high grade fever spikes along with fresh complaints of sudden onset abdominal discomfort and mild abdominal distention. Pancreatic enzyme levels were within normal limits. However, patient had deranged LFT suggestive of sepsis induced cholestasis and elevated creatinine suggestive of sepsis induced AKI, however total counts remained the same. Immediately CT abdomen was done which revealed peripherally enhancing pre sacral collection with loss of cleavage and rectal wall thickening a lytic sclerotic lesion involving sacrum, L5/S1 intervertebral disc with intra discal air with suspicious involvement of right sacro iliac joint – likely to be granulomatous origin along with bilateral nodules in lower lung fields. Features suggestive of chronic calcific pancreatitis and hepatosplenomegaly were also noted.



By then the blood cultures showed growth of Burkholderia pseudomallei sensitive to Meropenem. Accordingly, patient was started on the same antibiotic, after which patient drastically improved, later discharged with cotrimoxazole, thus giving us the diagnosis of disseminated meliodosis.

On follow up, patients symptoms had resolved. All laboratory parameters were within normal limits. Even the hepatosplenomegaly had resolved in subsequent visits. Thus making it a close differential for tuberculosis.

IV. DISCUSSION

Humans are infected with B. pseudomallei by contact with contaminated soil or water. The bacteria enter the body through wounds, inhalation, or ingestion. Person-to-person or animal-to-human transmission is extremely rare.[1]

Melioidosis is caused by gram-negative, motile, saprophytic bacteria named Burkholderia pseudomallei. The bacteria are usually opportunistic, facultative intracellular patho gens. It is also aerobic and oxidase

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test positive.[2] A granule at the centre of the bacterium makes it resemble a "safety pin" when Gram stained.[2] The bacteria emit a strong soil smell after 24 to 48 hours of growth in culture

The signs and symptoms of melioidosis resemble tuberculosis and misdiagnosis is common.[2] Diagnosis is usually confirmed by the growth of B. pseudomallei from an infected person's blood or other bodily fluid such as pus, sputum, and urine.[1] Those with melioidosis are treated first with an "intensive phase" course of intravenous antibiotics (most commonly ceftazidime) followed by a several-month treatment course of co-trimoxazole.[1] In countries with an advanced healthcare system, approximately 10% of people with melioidosis die from the disease. In less developed countries, the death rate could reach 40%.[1]

Diabetes is a major risk factor for melioidosis; over half of melioidosis cases are in people with diabetes.[1] Increased rainfall and severe weather events such as thunderstorms are associated with an increased number of melioidosis cases in endemic areas.[2]

Most people exposed to B. pseudomallei experience no symptoms.[2] The mean incubation period of acute melioidosis is 9 days (range 1–21 days).[1] Nevertheless, symptoms of melioidosis can appear in 24 hours for those who experienced near drowning in water.[7] Those affected present with symptoms of sepsis (predominantly fever) with or without pneumonia, or localised abscess or other focus of infection. The presence of non-specific signs and symptoms has caused melioidosis to be nicknamed "the great mimicker".[1]

Diabetes mellitus is one of the most important risk factors in developing melioidosis. The disease should be considered in anyone who has spent time in endemic areas who develops a fever, pneumonia, or abscesses in their liver, spleen, prostate, or parotid gland.[1] The clinical manifestation of the disease can range from simple skin changes such as abscesses or ulcerations to severe organ problems. The commonest organs affected are the liver, spleen, lungs, prostate, and kidneys. Among the most common features are bacteremia (in 40 to 60% of cases), pneumonia (50%), and septic shock (20%).[1]People with only pneumonia may have a prominent cough with sputum and shortness of breath. However, those with septic shock together with pneumonia may have minimal coughing.[2] Results of a chest X-ray can range from diffuse nodular infiltrates in those with septic shock to progressive consolidation located most commonly in the upper lobes for those with pneumonia only. Pleural effusion and empyema are more common for melioidosis affecting the lower lobes of the lungs.[2] In 10% of cases, people develop secondary pneumonia caused by other bacteria after the primary infection.[3] In northern Australia, 60% of the infected children presented with only skin lesions, while 20% presented with pneumonia.[3]

Depending on the course of infection, other severe manifestations develop. Approximately 1 to 5% of those infected develop inflammation of the brain and brain covering or brain abscess; 14 to 28% develop pyelonephritis, kidney abscess or prostatic abscesses; 0 to 30% develop neck or salivary gland abscesses; 10 to 33% develop liver, spleen, or paraintestinal abscesses; and 4 to 14% develop septic arthritis and osteomyelitis.[1] Rare manifestations include lymph node disease resembling tuberculosis, mediastinal masses, pericardial effusion,[3] mycotic aneurysm,[1] and inflammation of the pancreas.[3] In Australia, up to 20% of infected males develop prostatic abscess which may manifest clinically as pain during urination, difficulty in passing urine, and urinary retention requiring catheterisation.[1] Rectal examination may find enlarged prostate.[3] In Thailand, 30% of the infected children develop parotid abscesses.[1] Encephalomyelitis not only happens in those with risk factors but can also occur in healthy people without risk factors. Those with melioidosis encephalomyelitis tend to have normal computed tomography (CT) scans but increased T2 signal by magnetic resonance imaging (MRI), extending to the brain stem and spinal cord. Clinical signs include: unilateral upper motor neuron limb weakness, cerebellar signs, and cranial nerve palsies (VI, VII nerve palsies and bulbar palsy). Some cases presented with flaccid paralysis alone.[3] In northern Australia, all melioidosis with encephalomyelitis cases had elevated white cells in the cerebrospinal fluid (CSF), mostly mononuclear cells with elevated CSF protein.

Chronic

Chronic melioidosis is usually defined by symptoms lasting greater than two months and occurs in about 10% of patients.[1] Clinical presentations include fever, weight loss, productive cough with or without bloody sputum which may mimic tuberculosis. Additionally, long-standing

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abscesses at multiple body sites may also present.[2] Tuberculosis should be considered for lymph nodes enlargement at the root of the lung. Additionally, pneumonia caused by melioidosis rarely causes scarring and calcification of the lungs, unlike tuberculosis.

Latent

The potential for prolonged incubation was recognized in US servicemen involved in the Vietnam War, and was referred to as the "Vietnam time-bomb".[2] Initially, it was thought that the longest period between presumed exposure and clinical presentation is 62 years in a prisoner of war in Burma-Thailand-Malaysia.However, subsequent genotyping of the bacteria isolate from the Vietnam veteran showed that the isolate may not come from Southeast Asia, but from South America. This reinstates another report that put the longest latency period for melioidosis as 29 years.Patients with latent melioidosis may be symptom-free for decades. Less than 5% of all melioidosis cases have activation after a period of latency.[1] Various comorbidities such as diabetes, renal failure, and alcoholism can predispose to reactivation of melioidosis.[2]

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