PRIMEVIEW

MELIOIDOSIS

nature REVIEWS DISEASE PRIMERS

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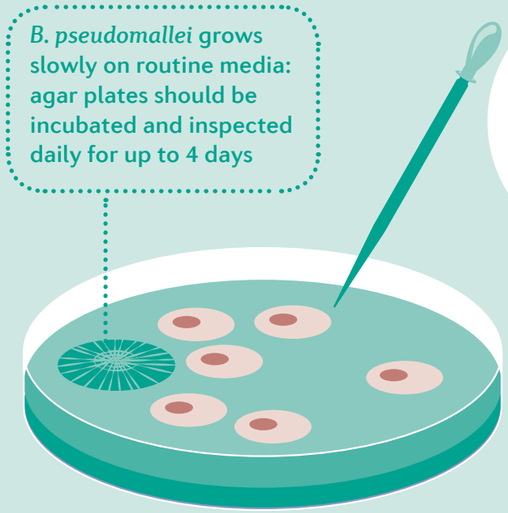
Melioidosis is an infectious disease caused by the bacterium *Burkholderia pseudomallei*. Melioidosis can be acute (~85% of cases) or chronic (that is, symptomatic for >2 months); however, *B. pseudomallei* infection can also be latent and become symptomatic later.

DIAGNOSIS

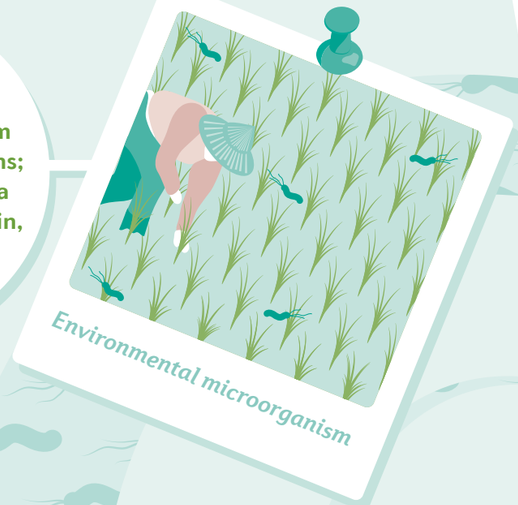
Clinical manifestations and their severity vary depending on the presence or absence of risk factors, the route of infection and the bacterial load and strain; nevertheless, most patients present with sepsis, pneumonia or both. Owing to the non-specific presentations, microbiological confirmation of the diagnosis is required. Bacterial culture is the gold standard, but *B. pseudomallei* might be misidentified if the laboratory personnel are not familiar with these bacteria. Furthermore, as melioidosis can be life-threatening, treatment cannot be delayed by waiting days for culture results. Thus, alternative, rapid assays to directly detect the pathogen in clinical samples are being evaluated for routine clinical use.

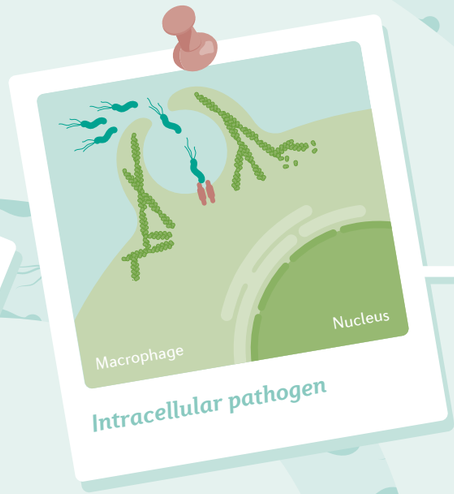
***B. pseudomallei* grows slowly on routine media: agar plates should be incubated and inspected daily for up to 4 days**



PATHOPHYSIOLOGY

***B. pseudomallei* is abundant in soil and surface water from endemic tropical regions; infection can occur via contact with broken skin, by ingestion or by inhalation**





The bacteria usually first enter and replicate in epithelial mucosal cells at the site of infection, then spread to other cells, including macrophages

Infected cells can lyse and release the bacteria, which disseminate to distant sites via the circulation or lymphatic system by infected antigen-presenting cells

Deep-seated bacterial abscesses are common, especially in the spleen, prostate, liver and kidneys

MANAGEMENT

Antimicrobial therapy should be started as soon as possible. The initial intensive therapy consists of intravenous ceftazidime or meropenem for at least 10–14 days. The subsequent eradication therapy with oral trimethoprim–sulfamethoxazole should last 3–6 months. Surgical drainage of large abscesses in the prostate, liver or muscle might also be required.

EPIDEMIOLOGY

Melioidosis is endemic in southeast Asia and Australia. In areas with the resources for rapid diagnosis and early intensive treatment, mortality is ~10%, but is ≥40% in most endemic settings despite effective treatment. Diabetes mellitus is a major risk factor for developing melioidosis and is present in ~60% of patients. The difficulties in diagnosing *B. pseudomallei* infection and limited awareness of the resulting disease contribute to the under-reporting of melioidosis: the global prevalence is estimated at ~165,000 cases, but only ~1,300 cases have been reported per year worldwide since 2010.

OUTLOOK

Although melioidosis has high mortality and is treatable, it is not acknowledged as a neglected tropical disease; thus, efforts to raise awareness at the local and international levels are needed. Improved recognition of the disease and increased availability of antibiotics would reduce mortality in endemic areas. A vaccine could be a cost-effective intervention in developing countries and several vaccine candidates are under development.

B. pseudomallei is a potential public health threat: it is classified as a tier 1 select agent, as its deliberate misuse could cause mass casualties or devastating effects to the economy, critical infrastructure or public confidence

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