Fungal Disease

Traveler Summary

This article discusses coccidioidomycosis (also known as valley fever), histoplasmosis, paracoccidioidomycosis, blastomycosis, and talaromycosis. The most frequently occurring human fungal infections affect the skin and are troublesome in warm, damp climates; these organisms are not discussed here.

Key Points

- Fungal diseases are caused by a variety of fungal organisms commonly found in the Americas and certain regions in Asia and are transmitted via inhalation of dust contaminated with fungal spores.
- Risk exists for travelers going to affected areas with extensive dust exposure or contact with bamboo rats. Persons with weakened immune systems are at increased risk.
- Symptoms are variable and include fever, chest pain, rashes, difficulty breathing, and weight loss.
- Consequences of infection can include skin sores and multi-organ failure.
- Prevention includes avoiding risk behaviors.
- No vaccine or preventive drugs are available.

Introduction

Fungal diseases are generally acquired through inhalation of spores or fungal filaments found in dust, soil, bird/bat guano, or decaying vegetation, and most often affect the respiratory system. In healthy persons, fungal disease is generally asymptomatic or self-limited. However, infection can lead to significant disease, particularly in persons with weakened immune systems.

Risk Areas

Specific areas of risk are as follows:

- Coccidioidomycosis occurs mainly in hot, dry areas of the southwestern US, parts of Mexico, and Central and South America. Incidence is highest during seasonal dry periods.
- Histoplasmosis occurs worldwide and is especially well recognized in central and eastern US and parts of Central and South America, especially around river valleys.
- Paracoccidioidomycosis occurs mainly in the tropical Americas, from Mexico to Argentina, with most cases (80%) in Brazil, especially in the wet rainforest. Cases are uncommon in travelers going to endemic areas.
- Blastomycosis occurs mostly in river valleys in the midwestern, south-central, and southeastern US, as well as in central Canada.
- Talaromycosis occurs mainly in southeast Asia (rarely in other parts of Asia), including Vietnam, Hong Kong, Taiwan, and southern China.

Transmission

Fungal diseases are transmitted via inhalation of dust from the environment, especially in northern Thailand after a natural disaster or dust storm. Exposure to bat guano or bird droppings, especially in caves (or at sites where bats roost), is associated with histoplasmosis. Exposure in areas where vegetation is disturbed in forests, near water sources, and with sandy, acidic soil is associated with paracoccidioidomycosis. Coccidioidomycosis and talaromycosis may be acquired by skin implantation.

Risk Factors

Risk exists for travelers going to and temporary residents of affected areas after participating in activities that expose them to dust, such as construction, landscaping, mining, agriculture, archaeological excavation, and military maneuvers or recreational pursuits, such as dirt biking, camping, and caving or spelunking. Contact with or consumption of bamboo rats in Thailand is also a risk factor. Paracoccidioidomycosis occurs most commonly in males in affected areas.

Persons with medical conditions resulting in weakened immune systems, such as HIV/AIDS and organ transplantation, and use of medications, such as corticosteroids or TNF-inhibitors, are more susceptible to clinical disease.

Symptoms

Coccidioidomycosis

Symptoms may appear 1 to 3 weeks following exposure and include an influenza-like illness (characterized by fever, chest pain, headache, muscle aches, rash, dry cough, weight loss, and malaise). However, about 60% of people who are infected show no symptoms.

Histoplasmosis

Symptoms may appear 3 to 17 days following exposure and include fever, headache, dry cough, shortness of breath, chills, weakness, chest pain, and fatigue. However, about 90% of infected persons show no symptoms or may develop mild influenza-like illness, which resolves within 2 to 3 weeks, although fatigue may persist longer.

Paracoccidioidomycosis

Symptoms include fever, cough, shortness of breath, fatigue, and may progress over months to years with pulmonary lesions, weight loss, and swollen lymph nodes.

Blastomycosis

Symptoms may appear 3 to 12 weeks after infection and include cough, fever, weakness, and weight loss. However, most infections have no symptoms and are not detected until the infection has spread to other organs.

Talaromycosis

Talaromycosis infection is not seen in immunocompetent adults or children but is a major opportunistic infection in HIV/AIDS. Symptoms include fever, anemia, and weight loss. Blisters may appear on the face, trunk, and extremities, and skin sores may develop.

Consequences of Infection

Fungal diseases can lead to a variety of complications, including severe lung disease, multi-organ dysfunction, skin ulcers/sores, nervous system disorders, and bony lesions.

Need for Medical Assistance

Travelers who experience respiratory symptoms lasting longer than a week following exposure in an affected area should seek medical attention. Some medical practitioners choose to treat coccidioidomycosis and histoplasmosis with an antifungal drug to prevent more serious infection from developing, especially for persons at risk for severe disease.

Prevention

Nonvaccine

Travelers should avoid the risk factors described above. If heavy exposure to dust is unavoidable, an N95 mask should be worn. Injuries should be cleaned with soap and water.

Travelers with weakened immune systems or those taking immunosuppressive medications should take extra care in avoiding risk factors.