

What is blastomycosis?

Blastomycosis is an uncommon, but potentially serious fungal infection. It primarily affects the lungs and skin and is caused by the fungus *Blastomyces dermatitidis*. The illness that can result from exposure to this organism is extremely variable. Infected individuals may not develop any symptoms or may develop mild and rapidly improving respiratory symptoms; a very serious progressive illness involving multiple organ systems can occur in untreated patients.

How does a person develop blastomycosis?

Blastomycosis develops when spores of the *B. dermatitidis* are inhaled and establish a primary infection in the lung. In nature, the fungus probably resides in moist soil with decomposing organic debris. It appears that only under quite specific conditions of humidity, temperature and nutrition can the fungus grow and produce the infecting spores. The spores become airborne when soil in which the fungus is growing is disturbed. Thus, activities that involve disrupting the soil are likely to put a person at increased risk for acquiring blastomycosis by the inhalation of *Blastomyces* spores.

Dogs commonly develop blastomycosis because they frequently dig in the soil and sniff along the ground thereby increasing their opportunity to inhale *Blastomyces* spores. Infected dogs cannot transmit the disease to humans, but do serve to indicate that an area may be infected with the fungus. Blastomycosis cannot be transmitted from person-to-person.

What are the signs and symptoms?

Some people infected with *Blastomyces* fungus never develop symptoms. Evidence of their infection is only found by chance on a chest x-ray or blood test. Other individuals may develop an acute lung infection that begins with a fever and dry cough and may progress to weight loss, chest pain, and a persistent cough associated with the production of thick sputum. Other symptoms may include muscle aches, night sweats, coughing up blood, shortness of breath, and chest tightness. The time from a person's exposure to the fungus to the time symptoms develop can vary from three weeks to several months. Signs or symptoms of the infection may disappear without treatment. However, in a small percentage of cases the infection may spread by blood to the skin, bone, or other organs. Blastomycosis of the skin appears as enlarging raised lesions with ulcerating centers. These usually occur on the exposed parts of the body such as the face, hands, wrists, feet, and ankles. In more severe cases, blood-borne fungal lesions may also occur in bones, the prostate gland, testes, and kidneys.

How is blastomycosis diagnosed?

Infected symptomatic individuals usually have abnormalities present on their chest x-rays. However, these abnormalities are not unique to blastomycosis and may occur with many other respiratory illnesses. The identification of the fungus *B. dermatitidis* in a culture of the sputum, skin, or biopsy specimen of infected tissue can confirm the diagnosis of blastomycosis. Blood specimens may also be used to determine if an individual has had a previous blastomycosis infection; however, blood tests will not identify all cases and on occasion may be falsely positive. Similarly, skin tests are not accurate in diagnosing blastomycosis.

How is blastomycosis treated?

Once blastomycosis has been diagnosed, the disease can be treated with one of three anti-fungal drugs – itraconazole, amphotericin B, or fluconazole. For life-threatening blastomycosis or blastomycosis of the central nervous system, amphotericin B is the treatment of choice. Itraconazole or fluconazole are excellent for treatment of patients who are not critically ill or who have no central nervous system involvement.

How common is blastomycosis?

In spite of recent widespread publicity, blastomycosis is a relatively uncommon disease in Wisconsin. The Wisconsin Division of Public Health (DPH) averages 90-100 cases of blastomycosis reported annually. It is likely that some people are infected with the fungus but only develop minimal symptoms and are not diagnosed or reported to the DPH. Most cases of blastomycosis that occur are isolated events and only rarely have outbreaks or clusters of cases been reported. Nationally, blastomycosis occurs along the Mississippi River Valley from Minnesota and Wisconsin to Arkansas, along the Ohio River Valley, and in the southeastern United States. Although cases of blastomycosis have been reported from all areas in Wisconsin, there appears to be an increase in the number of reported cases occurring in the northern and central counties. While *B. dermatitidis* is widely distributed geographically, the actual area infected with the fungus is likely to be small and may be limited to one rotting log or several square yards of infected soil. Depending upon environmental conditions, the area may be infected for only a brief time.

How can blastomycosis be prevented?

Currently, there is no way to identify areas where the organism exists. Therefore, until more is known about the existence of *B. dermatitidis* in nature, it cannot be successfully controlled and tested for in the environment. More effective skin and blood tests are needed to diagnose blastomycosis and to survey individuals in areas where blastomycosis is suspected to occur. Through such surveys, high-risk areas in the environment could be identified and hopefully the necessary environmental conditions for the growth *B. dermatitidis* identified. Control efforts may then be possible.