

CANINE BLASTOMYCOSIS

What is blastomycosis, and how does an animal get this disease?

Blastomycosis is a fungal disease caused by *Blastomyces dermatitidis*. This fungus most commonly infects humans and animals through the respiratory tract. After spores are inhaled, they settle in the small airways and begin to reproduce. Subsequent to this, the organism spreads throughout the body to involve many organs. Infrequently, infection occurs through inoculation of an open wound.

Although researchers in human medicine have been mostly unsuccessful in reliably isolating the organism from the environment, it does appear that both humans and animals become infected from particular environmental sources, probably the soil. In the United States, the disease is most prevalent in the warm, moist environment found in the Ohio and Mississippi River valleys. It is very common in the Southeastern United States.

What can I do to rid the environment of the fungal organism?

Nothing. The organism is ubiquitous, meaning it lives everywhere.

What are the signs of this disease?

The fungus seems to have preferences for certain body systems, although it is usually disseminated (spread) throughout the entire body. Fever, depression, weight loss, and anorexia are common. Draining lesions on the skin are seen in most cases. Some degree of respiratory distress is present in advanced cases. Blindness may occur suddenly because the eyes are frequently involved. Lameness, orchitis (testicular inflammation), seizures, coughing, enlarged lymph nodes, and a variety of other signs are reported.

How is blastomycosis diagnosed?

The only tests which conclusively diagnose blastomycosis are cytology and histopathology. Cytology, the microscopic study of cells, may be performed in the veterinarian's office on some of the fluid draining from an open wound or aspirated from a nodule or lymph node. Histopathology is the study of cells and tissue architecture; a tissue sample is sent away to a veterinary pathologist. Because the organism is shed in large numbers in the draining lesions, blastomycosis is usually diagnosed in the office with cytology.

Be aware that there is a *screening blood test* (AGID) to determine potential exposure. A positive result on this test does not equate with infection; it only shows exposure to the organism. Many humans and animals have positive screening tests, but this does not mean that they have (or had) blastomycosis.

Can the disease be treated?

Yes, although not all animals will survive. Fortunately, the newest anti-fungal agent being used is well-tolerated by most animals and has relatively few side effects when compared to the agents being used several years ago. The drug, itraconazole (Sporanox), is quite expensive. Dogs may require several months of therapy. The drug is given once daily with food.

How do I know if my animal will survive?

There is no way to determine this before treatment is begun, although an animal in poor condition and with advanced disease is less likely to survive. For many, the critical period comes in the first 24-72 hours when the drug takes effect and the fungi begin to die. The lungs harbor a large number of organisms. A severe inflammatory response may occur as treatment takes effect and the organisms begin to die in the lungs. Respiratory distress may be a significant problem in the first few days of therapy. The animal's chest will be X-rayed prior to therapy to determine the presence and significance of a fungal pneumonia, although the chest X-ray cannot predict the outcome of treatment.

Relapse of infection is more common when the organism involves the nervous system, the testicles, or the eyes. Many drugs have difficulty penetrating the natural barriers of the nervous system, and infections here are hard to treat. Male dogs may need to be castrated to remove this potential source of organism. For similar reasons, one or both eyes may be removed, especially if the animal has already been blinded by the disease. The risk of relapse is very real with this disease, even though treatment appears successful.

Am I at risk of infection from my animal?

Studies on the fungus have found that once an animal is infected, the organism enters a different form or phase; this does not appear to be infectious to other animals or to humans. However, common sense would dictate that strict hygiene should be followed in handling the draining lesions. Thorough hand-washing should follow contact with these animals.

The infected pet does not need to be segregated from the owner or other household pets. The true risk of infection to others probably comes from sharing the same environment which infected the pet (i.e., soil, etc.). Because the *Blastomyces* organism may be harbored near your home, we would recommend that you advise your family physician of your pet's diagnosis. Also, if anyone in your family falls into one of the following categories, we would recommend that you consult with your physician:

1. Infants or small children
2. Transplant patients
3. Chemotherapy patients
4. HIV/AIDS
5. Elderly family members
6. Anyone with a known immunosuppressed state