

## Blastomycosis

Blastomycosis is a serious and sometimes life-threatening fungal infection that is most common in dogs living in the Midwest part of the United States. Blastomycosis rarely infects cats.

### Cause

Blastomycosis (also often referred to as Blasto) is caused by *Blastomyces dermatitidis*, is a systemic fungal infection that affects dogs and cats. Blastomycosis appears most commonly in certain geographic locations where the soil tends to be moist and rich in organic matter.

Infection with *Blastomyces* occurs when a cat or dog inhales the fungal spores into the lungs, usually by digging in the soil. The incubation period (time between exposure and development of signs) is from 5 to 12 weeks. The disease spreads most commonly from the lungs to the rest of the body. Ocular infection is common, affecting roughly half of the patients with Blasto. Skin and lymph nodes are often affected as well. Less commonly, the infection can reach the bone, brain, or reproductive organs. Rarely, a patient will have a local skin infection only; this can only occur if your pet has an open skin wound that is exposed to the fungus in the soil. This type of infection is rare; when Blasto is diagnosed, it is generally considered to be a systemic infection.

Dogs are the most susceptible species to systemic infection with Blastomycosis. The disease is rarely reported in cats. The reason dogs are more susceptible is unknown, but immune-deficiency and the tendency to have their noses in the soil may play a role. It is extremely rare for humans to acquire blastomycosis from an animal. Dermal infections due to contact with secretions from a dog's open wound are rare but reported. For this reason, we recommend wearing gloves if there are open wounds on a dog's skin. Nearly all human blastomycosis cases are due to inhalation of spores from the environment.

### Clinical Signs

The signs of illness will depend on what organs are infected. Most commonly, patients present for coughing, difficulty breathing, fever, and lethargy. Sometimes patients will have inflammation of the eyes or sudden onset of blindness before respiratory signs occur. Patients with skin infection will have open, sometimes draining wounds without any known trauma to the skin. Owners of dogs in specific geographic areas should keep on the lookout for coughing, difficulty breathing, eye inflammation, skin inflammation, enlarged testicles, fever, and lack of appetite.

### Diagnosis

Patients suspected of having Blasto usually have blood and urine tests as well as radiographs (X-rays) to evaluate the lungs or other areas that may be affected (such as bone). A urine test that tries to identify the fungal DNA in urine will be submitted not only to confirm the diagnosis but to get a baseline of the fungal load. The definitive diagnosis is when fungal organisms are identified in sampled tissues. This is generally accomplished by aspirating an affected organ, such as lung, bone, or skin. Most of the time, a fungal infection in the lung affects all lung lobes in a diffuse pattern, but sometimes patients will have one or two large mass-like lesions in the lung. It is particularly important in these patients to sample these areas, as treatable fungal lesions can mimic less-treatable cancer lesions.

### Treatment

The majority of patients with Blasto are able to be treated with oral anti-fungal medication, but some patients require more aggressive intravenous anti-fungal medication. Because of the tenacious nature of fungi, oral medications are usually required for a minimum of 4-6 months and are not discontinued until there is certainty that the disease has been cleared from the patient. Intravenous anti-fungal therapy is reserved for severe, life-threatening infections, because of the potential toxicity and expense of the drug.

**Prognosis**

Treatment of Blastomycosis requires commitment and patience, as it can take weeks to see improvement. Patients with severe infections and/or involvement of the eyes often require multiple visits to specialists and it is easy to become discouraged. Many patients need to be hospitalized early in the course of the disease for fluids, oxygen, and pain medications. Most patients who survive the first few weeks after diagnosis will recover, though some have residual effects. It is critical to give all medications as directed and do not discontinue the medication unless there is certainty that the infection is cleared. Working closely with your veterinarian and following all medication instructions will increase your pet's chance of survival, and reduce the chance of relapse of the infection.

**Long Term Follow-Up**

Patients with Blasto need to be closely monitored for the first 6-9 months after diagnosis and are generally followed by an internal medicine specialist. Oral medications are often continued for a minimum of 6 months. Follow-up exams include monitoring of patient progress, medication side effects, and clearance of infection. Urine Blasto antigen testing is often used to assess clearance of infection, and several negative tests a few months apart are recommended. Because medication and follow-up recommendations are based on physical exam findings as well as radiographs and lab tests, we recommend that the follow-up be done at Veterinary Specialty Center if you and your primary care veterinarian want the internal medicine specialists to continue to make therapeutic recommendations. Discontinuing medications too soon can result in a relapse of the infection.