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Blastomycosis

Issue Description

Infection occurs by inhalation of the fungus from its natural soil habitat. Once inhaled in the lungs, they multiply and may disseminate through the blood and lymphatics to other organs, including the skin, bone, genitourinary tract, and brain. The incubation period is 30 to 100 days, although infection can be asymptomatic.

Symptoms

Dogs usually acquire blastomycosis by inhaling the spores from the soil into the lungs, where it induces a self-limiting pulmonary infection. Direct inoculation of the spores into the skin through puncture wounds may cause local cutaneous infection. By far, the most common form of blastomycosis seen by veterinarians is the generalized or disseminated form, which spreads via the bloodstream or lymphatic system from the lungs to involve the eyes, brain, bone, lymph nodes, urogenital system, skin, and subcutaneous tissues.

The clinical signs of blastomycosis may vary with the target organs affected and may include one or all of the following: anorexia, depression, weight loss, fever (103 degrees or higher) that doesn't respond to antibiotics, coughing, shortness of breath, exercise intolerance, enlarged lymph nodes, eye disease, or skin lesions that drain bloody or purulent material.

Diagnosis

Once suspected, the diagnosis of blastomycosis can usually be confirmed by demonstration of the characteristic broad based budding organisms in sputum or tissues by KOH prep, cytology, or histology. Tissue biopsy of skin or other organs may be required in order to diagnose extra-pulmonary disease. Commercially available urine antigen testing appears to be quite sensitive in suggesting the diagnosis in cases where the organism is not readily detected. While culture of the organism remains the definitive diagnostic standard, its slow growing nature can lead to delays in treatment of up to several weeks. However, sometimes blood and sputum cultures may not detect blastomycosis; lung biopsy is another option, and results will be shown promptly.

About 65 percent of dogs diagnosed with blastomycosis do survive. Because the treatment is long, complicated, and expensive with the potential for serious side effects, some owners elect to euthanize affected pets. In treated dogs, survival rates are approximately 85 percent, with up to 25 percent suffering relapses. Dogs with brain or eye involvement have a worse prognosis, and dogs with poor liver or kidney function may not be able to tolerate the necessary medications that must be metabolized by these organs. If an eye is involved, it usually must be removed since eyes don't respond well to therapy and serve as a source of infection.

Treatment

Blastomycosis must be treated or it will gradually lead to death. Treatment with the fungicidal drug ketoconazole (Nizoral) taken orally is effective in about 75% of patients. Amphotericin B (Fungizone) given intravenously is also very effective, but it has more toxic side effects than ketoconazole. Treatment with amphotericin B usually requires hospitalization, and the patient may also receive other drugs to minimize the its side effects.

Alternative treatment

Alternative treatment for fungal infections focuses on creating an internal environment where the fungus cannot survive. This is accomplished by eating a diet low in dairy products, sugars, including honey and fruit juice, and foods that contain yeast. This is complemented by a diet consisting, in large part, of uncooked and unprocessed foods. Supplements of vitamins C, E, A-plus, and B complex may also be useful. Lactobacillus acidophilus and Bifidobacterium will replenish the good bacteria in the intestines. Some antifungal herbs, like garlic (*Allium sativum*), can be consumed in relatively large doses and for an extended period of time in order to increase effectiveness. A

variety of antifungal herbs, such as myrrh (*Commiphora molmol*), tea tree oil (*Melaleuca* spp.), citrus seed extract, pau d'arco tea (*Tabebuia impetiginosa*), and garlic may also be applied directly to the infected skin.

Prognosis

Left untreated, blastomycosis gradually leads to death. When treated, however, patients begin to improve within one week and, with intensive treatment, may be cured within several weeks. The highest rate of recovery is among patients who only have skin lesions. Patients with the disseminated form of the disease are least likely to be cured and most likely to suffer a relapse.

Prevention

Because the fungus that causes blastomycosis is airborne and microscopic, the only form of prevention is to avoid visiting areas where it is found in the soil.

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