

at the heart of critical care

ANIMAL EMERGENCY CENTER

2100 W. Silver Spring Drive

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Aspergillosis

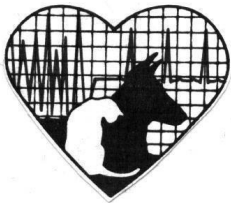
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Aspergillosis in birds is an infection by a mold found in air, soil, animal feeds, and animal bedding. In nature, this fungus derives its nutrition from decaying plant and animal material. *Aspergillus* is considered infectious, capable of growing inside a living animal. It is, however, not considered contagious because most birds pick it up from the environment. The mold is an opportunistic invader, causing disease only under special circumstances.

Infection usually occurs when the bird inhales airborne spores. If the inhaled dose is high enough to overwhelm the immune system, the bird becomes ill. A bird with a weakened immune system does not require a very high dose of spores. Stressors such as a new cage, moving to a new home, boarding, or a new pet in the home can suppress the immune system. Prolonged illness, traumatic injuries, smoke inhalation (cigarettes), and treatment with immunosuppressive drugs will also compromise the immune system. Nutrition is paramount in preventing illnesses like aspergillosis. An inadequate dietary level of vitamin A will cause a change in the mucus membranes and respiratory tract lining, weakening the front line of defense against infection. Deficient levels of zinc, vitamin C, vitamin E, or B vitamins in the body can also lead to an inadequate immune response and reduce resistance to disease. Antibiotics, when not used properly or given for an extended period of time can also contribute to weakened defenses against aspergillosis.

Avian veterinarians recognize two forms of aspergillosis: acute and chronic. The acute form is uncommon, and is usually found in wild birds or pets kept under unsanitary conditions. It occurs after exposure to an overwhelming number of mold spores, such as when ground corn cobs get wet and moldy. The lungs and airsacs are rapidly colonized by a massive amount of mold. With this form a bird might lose its appetite, drink excessively, urinate excessively, have difficulty breathing, or exhibit a blue discoloration to the skin. Death can occur with few signs of illness. In contrast, the chronic form is more common. Birds with chronic aspergillosis have a weakened immune system and the infection may enter the bloodstream and travel to other organs. Birds that are chronically infected with *Aspergillus* show a variety of respiratory signs, including a runny nose, swollen face, inability to exercise, respiratory click, or a reluctance to talk or vocalize. They may have a lack of appetite and lose weight. Birds might have diarrhea or increased urination. Often birds with chronic aspergillosis are depressed and lethargic. Green discoloration of the urates can occur, and some birds behave strangely or even have seizures.

When a veterinarian suspects that your bird might have aspergillosis, a variety of diagnostic tests are necessary to establish a diagnosis. The white blood cell count may be elevated, and enzymes might be released from tissues damaged by the infection. Some birds become anemic. Radiographs (X-rays) or computed tomography (CT) can pinpoint the location of abscesses, changes in the respiratory tract, or other signs of disease. An examination through a rigid endoscope will allow direct visualization of the airsacs and abdominal organs, and will provide the opportunity to collect biopsy samples for culture and microscopic analysis. Blood tests are available to detect *Aspergillus* and the immune response to it. Inflammatory proteins (detected by electrophoresis) in the blood provide further evidence the bird is fighting infection.



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Once the diagnosis is confirmed, treatment is initiated to begin control of the fungus. In the initial stages, nursing care may be the most important part of treatment. Sick birds require warmth, humidity, good nutrition, and plenty of fluids. Medications target the fungal infection, but often antibiotics are also used to fight or prevent the concomitant bacterial infections common in these patients. Nebulization is sometimes used to humidify the airways and deliver topical doses of medicine deep into the respiratory system. Treatment can include surgery to debride and cleanse the areas where pus, fungus, and debris have collected. In most cases, medications must be given for several months because the bird's immune system must clear the infection while medications simply hold it in check.

In order to protect a bird from infection by *Aspergillus*, stressors must be kept to a minimum. Birds do well when they are brought up learning that changes are a normal part of life and their human family provides clear, consistent, loving guidelines. Of course, proper nutrition is key. A varied diet based on high quality formulated feeds reduces illness over seed-based diets. Good ventilation and cleanliness are also very important because the fungus grows readily in moist, dirty environments. For veterinarians, one way to prevent infection is to routinely prescribe antifungal agents when avian patients are on extended courses of antibiotics or otherwise immunocompromised.

At the Animal Emergency Center, we have a very good success rate in treating birds with chronic aspergillosis. It is important, however to obtain a diagnosis and begin treatment early. Once the infection has progressed it can be very difficult to return a bird to health. Some birds do relapse giving the fungus another opportunity to take their life.