

Aspergillosis

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Species

All back yard birds, ratites (ostrich and emus), pigeon, waterfowl and many other captive-reared species can be infected with this fungus. Certain species kept in zoological collections like penguins, northern raptorial birds (gyrfalcons, snowy owls etc.), and waterfowl are very susceptible. High mortality can also occur in recently hatched baby birds of any species if the incubator or hatcher has been contaminated with fungal spores.

Status in Canada

Very common in zoo collections in any species where eggs are artificially incubated like ratites, turkeys and less commonly chickens.

Etiology

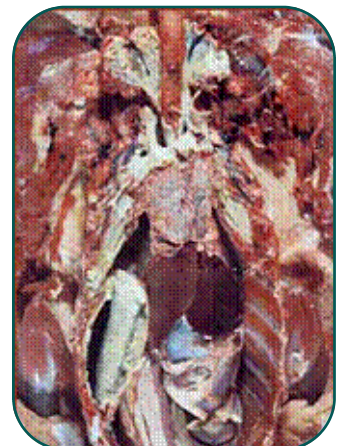
Aspergillosis is caused by a fungus. There are several species of *Aspergillus* fungus but *Aspergillus fumigatus* is most common. This fungus grows in warm, damp environments and loves wet litter, wet areas around spilled or leaky drinkers and areas where manure has built up with a wet base. When the fungus grows it resembles "bread mold" and produces thousands of tiny spores that are released into the environment. Birds become infected by inhaling these spores.

The inhaled spores grow in the lung and air sacs causing severe pneumonia and airsacculitis. Birds with poor or compromised immune systems are highly susceptible.

The Disease

Aspergillosis may be an acute or chronic disease depending on how many spores have been inhaled and initial health status of the bird. Inhaled *Aspergillus* spores localize in the respiratory tract. Occasionally the fungus will grow on the skin and sometimes it penetrates blood vessels in the lung and is carried in the blood stream to other locations in the body like the brain or liver. Birds

BELOW: Turkey with fungal infection of the air sacs. Note the greenish fungus resembling bread mold.



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kept in damp environments may develop infections of the eyes or conjunctiva.

Most commonly, aspergillosis is a chronic disease causing decreased appetite, slow loss of body condition and respiratory signs. Diagnosis is made based on visualization of the fungus associated with lesions. In pet birds, veterinarians may use a variety of diagnostic techniques such as endoscopy, biopsy, sinus, tracheal or air sac lavage and radiology to diagnose the disease.

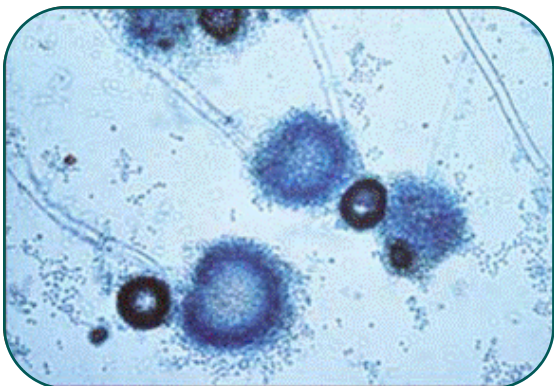
Aspergillosis can be an important disease in commercial poultry and ratite producers if the incubator or hatcher has been contaminated with fungus. Baby birds inhale spores shortly after hatching and severe outbreaks of fungal pneumonia referred to as "brooder pneumonia" are quite common in the turkey industry, ostrich and emu operations or smaller "back-yard" hatchery operations.

Treatment and prevention

Good husbandry in the hatchery including proper egg collection, egg storage, incubation and hatchery sanitation and appropriate fumigation between clutches are crucial preventative measures.

At the barn level, good husbandry is essential to prevent build-up of moisture and substrates necessary for fungal growth. For example, maintaining adequate ventilation in barns, proper clean-out and sanitation between flocks, regular checking for and repairing leaky watering systems, and the removal of wet litter around drinkers is important.

The prognosis for birds infected with aspergillosis is very poor. Treatment requires a prolonged course of antifungal drugs administered either by inhalation or by injection. Flock treatment is generally impractical.



LEFT: Microscopic photo of Aspergillus fungus showing the fungal hyphae and the rounded conidial heads each containing thousands of small round infective spores.



LEFT: Lung from a duck with multiple raised white nodules scattered throughout caused by Aspergillus fungus.

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