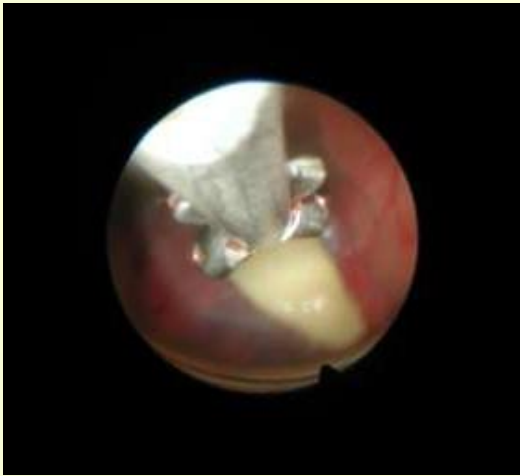




ASPERGILLOSIS



Respiratory system air-sacs granuloma, endoscopy surgery

Etiology:

The name derives from the fungal genus “*Aspergillus*” which is regarded as the main cause of this disease. In that genus, *Aspergillus fumigatus* causes most cases in raptors. This fungal organism can be found everywhere, hence raptors are constantly exposed to it. Despite overwhelming fungal exposure, usual environmental fungal concentrations are not dangerous for healthy animals. Weak animals (e.g. young or immunosuppressed individuals) or birds suffering from injuries, illnesses, or suboptimal and unhygienic husbandry conditions. Likewise, prolonged antibiotic treatment and corticosteroid treatment may predispose falcons to develop aspergillosis, which is not regarded as transmissible among birds.

Clinical signs:

Aspergillosis usually affects the respiratory tract but may spread to other organs and the entire body.

Hence generalized forms are described besides local forms (e.g. trachea) with acute and chronic courses. As for its chronic course, affected animals are usually weak (they may be anorexic and tend to vomit). Many times, clinical signs of aspergillosis are subclinical (not detectable) for a long time; hence, clinically affected raptors usually have already developed granulomas and fungal masses in their respiratory system upon admission to a veterinary hospital.

In its acute course, aspergillosis is the result of the inhalation of a high number of fungal spores (conidia) which germinate in the bird’s respiratory tract and cause miliary necrotic to granulomatous nodules. One local form is the tracheal form, which brings to the development of granulomatous lesions in the lumen of the trachea. This may be associated with dyspnea and sometimes with a loss or changes of the animals' voice.

Diagnosis:

There are several methods to diagnose Aspergillosis: initially radiographies or CT scans, hematology and serologic tests are performed besides a throughout clinical examination.

Cytological examination, histology and microbial culture from biopsied lesions, obtained during endoscopies, are regarded as the most effective and most specific method.



Respiratory air-sacs big granuloma with aerosacculitis

Treatment:

Aspergillosis needs to be treated as fast as possible. The systemic (oral or injection) and local (per inhalation) use of antifungals is very important, preferably in combination. Azoles (e.g. itraconazole and voriconazole) are most commonly used as antifungals in falcons. Additionally, during endoscopy, topical antifungal treatment upon the lesions and/or surgical removal of granulomas may be indicated.

Therapy usually requires minimum 4 weeks of medical treatment but may need to be expanded longer in severe cases. Severely affected animals should be stabilized using an air sac tube and supportive care including fluid therapy, anti-inflammatory drugs, vitamin A supplementation and antibiotic treatment in case of secondary bacterial infection.

Prevention:

This disease can be best prevented by avoiding the predisposing causes. To this end the bird should be kept in a ventilated and hygienic environment; the bedding must not have organic parts, which support fungal growth.

Birds should not be exposed to dust and emissions from agricultural harvesting, hay, compost or dirt during cleaning of enclosures to avoid increased inhalation of fungal spores. Additionally, the animals should be kept healthy, fed on a good diet and stress should be minimized.



Respiratory air-sacs multiple granulomas

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