Aspergillosis in cats

**What is aspergillosis?**
- Aspergillosis is caused by *Aspergillus* spp., saprophytic fungi that sporadically cause mycosis in birds and in mammals.
- Although humans are susceptible to aspergillosis, the infection is not considered a zoonosis, because humans, like cats, usually acquire infection through environmental contamination.
- In cats, aspergillosis is relatively uncommon and less common than in dogs. However, in some parts of the world (e.g. Australia) feline aspergillosis is considered an emerging disease.

**Infection**
- *Aspergillus* spp. are ubiquitous. They can be found in soil and decaying vegetation worldwide.
- Infection usually occurs through the accumulation of *Aspergillus* spp. in pet food or litter.
- The spores are inhaled and deposited in the sinonasal cavity. The fungus adheres to the respiratory epithelium, penetrates it, destroys surrounding cells and resists phagocytosis.
- Infections are common in cats that have predisposing local or systemic factors, e.g.:
  - Brachycephalic respiratory tract (especially in Persian and Himalayan cats)
  - Innate defects of mucosal immunity, previous viral upper respiratory tract infections and antibiotic treatment
  - Immunosuppression (although not proven in cats)

**Clinical signs**
- Feline aspergillosis occurs in two main forms, sinonasal aspergillosis (SNA) and sino-orbital aspergillosis (SOA).
  - SNA is characterized by local signs of chronic nasal infection, e.g. sneezing, nasal discharge, epistaxis.
  - SOA is the invasive form, characterized by signs of orbital and surrounding tissue invasion, including unilateral exophthalmos, third eyelid prolapse, conjunctival hyperaemia, keratitis and even neurological signs.

- Atypical courses of feline aspergillosis have been described in case reports (e.g. pneumonia and pyothorax, generalized systemic infection, ulcerative keratitis).
- Laboratory abnormalities are non-specific and the result of chronic inflammation. Hyperglobulinaemia is the most frequently reported abnormality.

**Diagnosis**
- Diagnosis is confirmed by histology and detection of the organism in biopsy samples obtained by rhinoscopy.
  - Advanced imaging techniques (CT or MRI) before taking biopsies are helpful to assess disease extension and to find the best location for obtaining diagnostic samples.
  - Samples should be taken from a deep layer of affected areas.
- Cytological examination of mucosal swabs, brush specimens, nasal biopsies or retrobulbar masses can demonstrate fungal hyphae. However, a negative result does not rule out aspergillosis.
- A single positive culture from swabs or nasal secretions without histological evidence is not diagnostic.
- The relevance of PCR for the detection of *Aspergillus* spp. is not yet clear.
- Antibody tests may be useful, but are not considered diagnostic.
  - As false positive results are common, positive test results should only be evaluated in combination with clinical signs and histology results.
  - Negative results should also be interpreted with caution, as some individuals only produce low amounts of antibodies.

**Disease management**
- In SNA, treatment of choice is systemic antifungal treatment (itraconazole alone or in combination with amphotericin B, or posaconazole and voriconazole) in combination with local topical infusion treatment, using clotrimazole under GA.
  - Systemic treatment without local infusions is not as successful.
  - A single intranasal clotrimazole infusion is sometimes sufficient for long-term resolution.
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Disease management (cont.)
- In cats with SOA, additional surgery may be necessary.
- In cats with keratomycosis, local treatment with 1% voriconazole solution is recommended in addition to systemic treatment.

Prevention
- Due to the ubiquitous occurrence of Aspergillus spp., specific prophylaxis is not possible.
- Keeping immunosuppressed cats indoors minimizes the risk of exposure.

- Exophthalmos of the left eye in a cat with a left retrobulbar fungal granuloma (sino-orbital aspergillosis). There is prolapse of the third eyelid. A partial lateral tarsorrhaphy was performed to prevent exposure keratitis.
- Right exophthalmos, third eyelid prolapse and oedema and swelling of the right side of the face in a cat with a right retrobulbar and paranasal fungal granuloma.