

Ear & Nose Disease

Nasal Aspergillosis

Dr.G.ter Haar

*Department of Clinical Sciences of Companion Animals
Faculty of Veterinary Medicine
Utrecht University
The Netherlands*

Etiopathogenesis

Mycotic rhinitis is a common disease in dogs and is usually caused by *Aspergillus* species. This disease is rare in very young and brachycephalic dogs, but is often seen in Golden Retriever and Rottweiler dogs in the Netherlands, male and female dogs are equally affected. *Aspergillus fumigatus* is the most frequently encountered pathogen. Although a normal inhabitant of the nasal cavity in many animals, in some dogs *Aspergillus* becomes a pathogen for unknown reasons.¹ Other nasal disease, such as neoplasia, foreign body, prior trauma or immune deficiency is rarely encountered. Excessive exposure to *Aspergillus* organisms is possibly a factor in the etiopathogenesis.^{1,2}

Symptoms

Sneezing, reverse sneezing and mucopurulent, sanguinopurulent or hemorrhagic nasal discharge, usually unilateral, is fitting with chronic nasal disease, yet not specific for Aspergillosis. Highly suggestive for Aspergillosis are a chronic onset of the symptoms, temporary and only slight improvement with antibiotic therapy, and erosion of the nasal planum with depigmentation.

Diagnosis

After the history has been taken, a thorough clinical examination of the respiratory tract has to follow. Nasal plane depigmentation can be associated with inflammation of the nasal plane or can be the result of a severe or very chronic rhinitis, but is often seen in patients with fungal disease. Because of the destruction of conchae with fungal disease, the air passage usually is normal. Other abnormalities are rarely found. A definitive diagnosis can be made with additional examination of the nose and nasal cavities. No single test is diagnostic for Aspergillosis however.¹ Diagnosis is based on the finding of typical signs during additional examinations in an animal with a fitting history. Additional exams primarily consist of diagnostic imaging (radiography, CT-scan, MRI) and endoscopy. Culture, cytology and histology are only used in conjunction with nasal endoscopy. Finally, when a diagnosis cannot be made with the diagnostic procedures discussed above, a surgical exploration of the nasal sinuses or frontal sinuses can be necessary.



Figure 1: Dog with Aspergillosis being treated with 1-hour soak with clotrimazole

Diagnostic imaging of the nose

Radiography is the number one additional diagnostic procedure to perform for patients with nasal disease. The intra-oral dorsoventral view is the most informative and helpful view for assessment of the nasal cavity. Radiographs of the nasal cavity and frontal sinus of dogs with Aspergillosis show evidence of turbinate destruction and irregular areas of increased and decreased radiolucency. CT-scan imaging is a more expensive technique, and requires general anesthesia as well, but produces images that represent thin, cross-sectional slices of the skull without problems of superimposition inherent to survey radiography. Although not necessary for diagnosis (radiographs suffice), CT-scan imaging is very helpful in therapy planning and necessary for determining the integrity of the cribriform plate.³

Endoscopy of the nasal cavities

For a complete rhinoscopy, a variety of rigid and flexible instruments can be used, but a rigid scope is preferable and provides adequate visualisation of the nasal sinuses. Wolf and Storz endoscopes are the most used types, a 2.7 mm rigid scope can be used for cats, a 3.5 mm scope for big cats and small dogs and the 4.5 mm scope can be used in very large dogs. Different types of grasping and biopsy forceps can be brought into the nose, next to the scope itself (rigid forceps), or through the working canal of the scope (flexible forceps). A systematic approach to examination of the nasal cavity should be taken to ensure visualization of all accessible areas. Knowledge of the regional anatomy is therefore very important and should be mastered before engaging in the use of this technique. On rhinoscopy cavernous areas caused by marked destruction of turbinates and conchal atrophy can be seen, as well as chronic inflammation of the nasal mucosa with usually obvious mats of fungal hyphae. When there is no macroscopical evidence of fungal hyphae in the nasal sinus, trephination of the frontal sinus should be done. Samples for culture and cytologic and histopathologic examination should always be collected.

Therapy

Oral administration of azole antifungal agents is effective in only 43% to 70% of cases, requires months of therapy and is costly. Topical therapy is therefore indicated and advised by most specialists.¹⁻⁴ Success rates up to 90% have been described after surgical tube placement and treatment with enilconazole; after trepanation of both the nasal and frontal sinus on the affected sides, tubes are sutured in place for topical instillation of an enilconazole solution (2dd 10 mg/kg, dilute 1:10) for 14 days. Subsequently, it was discovered that clotrimazole was equally effective as enilconazole when infused through surgically placed tubes over a 1-hour period. Recently, similar success rates have been reported with non-invasive tube placement and 1-hour soaks as well.² Most recently reported adaptations of the technique involve placement of a depot of clotrimazole crème in the frontal sinus after trephination.⁴ In some refractory cases, surgical exploration and debridement are reported to have been beneficial.⁵

References

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