

INTERNAL MEDICINE NEWS

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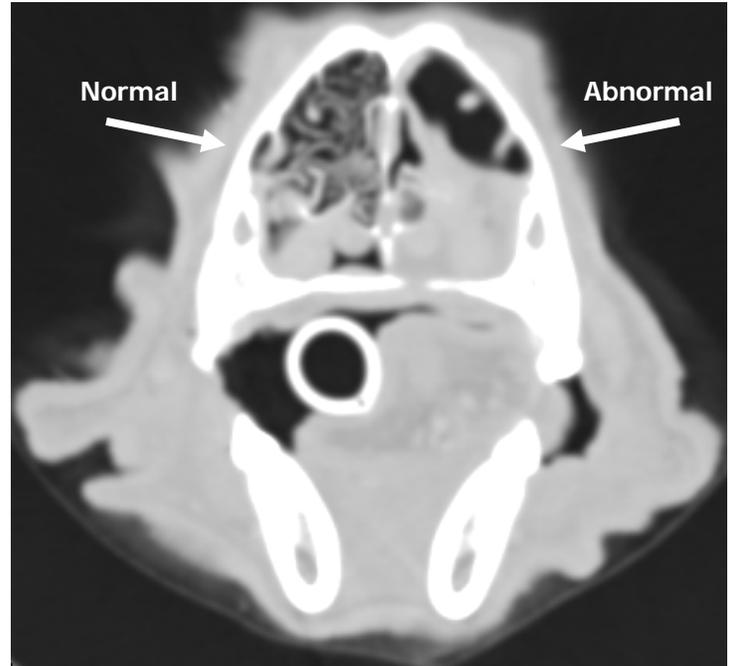
CANINE SINONASAL ASPERGILLOSIS

Aspergillus spp. (most commonly *A. fumigatus*) is a ubiquitous fungus widely encountered in the environment and spores can be found in vegetation, soil or water. The disease is not widespread due to host resistance, with cats being particularly resistant to infection. In the dog, the disease can be localized (typically sinonasal) or disseminated (involving 2 or more noncontiguous organs).

Canine sinonasal aspergillosis is often seen in adult dogs of either sex. Typically, dogs with longer noses are most commonly affected. The fungus directly colonizes the nasal mucosa with resulting destruction of the nasal turbinates and extension into the frontal sinus, cribriform plate and palatine bones. The clinical signs include a chronic unilateral or bilateral nasal discharge that is often mucopurulent with concurrent epistaxis. The nasal discharge is often refractory to antibiotic therapy, although there may be some improvement if there is a secondary bacterial rhinitis. There is often sneezing, facial pain and depigmentation of the nares. Neurological signs are uncommon, but can occur if there is invasion through the cribriform plate.

The clinical signs of sinonasal aspergillosis are typical of any nasal condition and the "usual suspects" need to be considered including an infestation with nasal mites, idiopathic lymphocytic-plasmacytic rhinitis, allergic rhinitis, bacterial rhinitis, chronic nasal foreign body and nasal neoplasia. The diagnosis of sinonasal aspergillosis is best made by a combination of tests including:

- Computed tomography (CT), which has largely replaced radiography as the preferred imaging modality. The CT lesions in dogs with aspergillosis are quite typical and include loss of fine nasal turbinate detail and fluid density in the nasal passages. CT is invaluable in identifying the extent of lesions in the nasal cavity, frontal sinus and allows assessment of the integrity of the cribriform plate which is a concern if nasal flushing is performed.
- Rhinoscopy allows direct observation of invasive fungal plaques on the nasal mucosa
- Biopsy of affected tissue demonstrating mucosal invasion by the fungus
- Culture of *A. fumigatus* from affected tissues is supportive of the diagnosis, but fungi can be cultured from the nasal mucosa in other diseases



An aggressive approach is needed to successfully treat dogs with sinonasal aspergillosis. Treatment typically involves:

- Extensive debridement of the nasal cavity and frontal sinus via rhinoscopy with an attempt to remove as much of the fungus as possible
- Infusion of 1% clotrimazole in polyethylene glycol through polypropylene catheters placed into the nares. For this procedure the patient is anesthetized. A Foley catheter is placed in the nasopharynx and the balloon inflated. Gauze sponges are inserted in the oropharynx and a well-fitted cuffed endotracheal tube is in place to minimize leakage of infusion caudally. Inflated Foley catheter balloons obstruct the nares to diminish leakage of infusion rostrally. The 1% clotrimazole is then infused into the dorsal nasal meatus via polypropylene infusion catheters. The procedure takes about 1 hour
- If there is CT evidence of frontal sinus involvement then surgical debridement is warranted. The frontal sinus is then infused with a 1% clotrimazole cream.
- Systemic antifungal agents have limited success when used alone, but there may be a role for itraconazole when used adjuvantly with an infusion of 1% clotrimazole
- Antibiotic therapy is often given concurrently to prevent secondary infections
- Cases selected for topical therapy should have aspergillosis limited to the frontal sinuses and nasal passages, with no CNS involvement. Pretreatment CT scans are encouraged so that the extent of the disease is determined and the integrity of the cribriform plate can be assessed. Meningitis and encephalitis can result in cases where the cribriform plate has been compromised.

A success rate of 86% has been reported and although most dogs only require a single treatment, in some case multiple treatments may be necessary. Symptoms usually resolve within 2 weeks of therapy and when the nasal discharge persists this is an indication for a second clotrimazole infusion.

The Internal Medicine Service sees appointments Monday to Saturday at VEC-South
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