Aspergillosis/Fungal Rhinitis

What is aspergillosis/fungal rhinitis?

Fungal rhinitis is an infection involving the nose and sinuses (air spaces within the skull). Fungal rhinitis in dogs is usually caused by a fungus species called Aspergillus fumigatus, and this common association has led to the term ‘aspergillosis’ often being used interchangeably with ‘fungal rhinitis’.

Aspergillus fungus is found everywhere in the environment, particularly in soil, with the result that all animals and people are regularly exposed to the organisms and their spores.

Aspergillus most often causes infection in the nasal cavity and in the frontal sinuses of dogs, although it has also been reported as a rare condition in cats. The nasal infection is more common in dogs with long noses (so-called ‘dolichocephalic’ dogs), although all breeds are susceptible. It is not known why certain individuals develop the disease, when most animals never suffer from the condition.

Aspergillus infection in the nose can cause destruction to the normal bony scrolls (turbinates) that are present in the nose, and the fungus can form mass-like lesions called fungal plaques. It is not uncommon for the infection to spread from the nose into the frontal sinuses where it can be more difficult to treat effectively.

In rare situations aspergillosis can become a systemic problem (affecting many different body systems), but this tends only to occur in dogs that have a problem with their immune system or that are receiving treatment to suppress the immune system.
What are the signs of aspergillosis/fungal rhinitis?

The most common clinical signs of nasal aspergillosis relate to signs of nasal disease:

- Nasal discharge which can be creamy or green in colour and can affect either one or both nostrils. Blood can sometimes be seen within the nasal discharge.
- Sneezing
- Nose bleeds (epistaxis)
- Pale discolouration of areas of the front of the nose (‘depigmentation of the nasal planum’)
- Discomfort on palpation of the nose or signs that the dog is becoming head-shy
- Reverse sneezing

How is aspergillosis/fungal rhinitis diagnosed?

Fungal rhinitis can be difficult to diagnose because the clinical signs can appear very similar to a number of other nasal diseases (e.g. nasal foreign body, nasal tumour, allergic rhinitis) and there are significant limitations to some of the tests that are available:

- Conventional X-rays are very insensitive at detecting the disease within the nose
- Blood tests for antibodies to aspergillus fungus can only show that a dog may have been exposed to the fungus, and not necessarily be associated with an active infection. False negative results can also occur i.e. a dog can be affected by aspergillosis and not have any antibodies to the fungus in the blood
- Swabs taken from the nasal cavity may be grown in the laboratory and give a positive culture, but since the fungus is found so widely in the environment, its presence within the nose does not confirm an active infection

If you are seeing a specialist at Willows, the likelihood of fungal rhinitis or aspergillosis will be discussed with you at the time of the consultation, along with our recommendations for confirming the diagnosis. If we are suspicious that your dog may be suffering from nasal aspergillosis then we are likely to recommend that he/she has an advanced imaging scan (a CT scan) performed of their head, to include the nasal cavities and the sinuses.

The findings on a CT scan can often be typical for nasal aspergillosis and allow a provisional diagnosis based on the images alone. CT will also help to rule out other conditions such as nasal tumours that can cause similar clinical signs.

In some cases, a camera is used inside the nasal cavity (rhinoscopy or endoscopy) in order to allow us to see the inside of the nasal cavity and, where necessary, to take biopsies in order to confirm the diagnosis.

In some cases, the degree of certainty given by a CT scan can be sufficient for the specialist to recommend treatment of the fungal disease under the same anaesthetic used to perform the diagnostic tests. If there is any uncertainty, or we do not see any fungal plaque lesions, then we may await the result of biopsies before giving treatment.

What are the treatment options for aspergillosis/fungal rhinitis?

The majority of the fungal growths sit on the surface of the affected tissues and are not susceptible to treatment using injections or oral medication. For this reason, all forms of treatment for nasal aspergillosis will involve the instillation of topical anti-fungal drugs into the nasal cavity and the frontal sinuses, and this must be performed under general anaesthesia.

The specialist treating your dog will use the information provided by the CT scan, regarding the location and severity of the disease present in your pet, to advise you on what treatment protocol is appropriate.

The treatments available at Willows vary from a minimally invasive (keyhole) procedure involving small holes made into the frontal sinuses, through to a full surgical procedure used to remove large quantities of fungal disease from the nose and sinuses prior to treatment with anti-fungal medication. Each treatment regime is tailored to the individual case in order to maximise the likelihood of successful treatment of this challenging condition.

If your dog is diagnosed with systemic aspergillosis, then further investigations would need to be performed to establish why this had happened and whether there was evidence of a predisposing immune system problem. Treatment for systemic aspergillosis involves the use of anti-fungal drugs given by mouth.

What is the long term outlook form aspergillosis/fungal rhinitis?

The long-term out-look for dogs with nasal aspergillosis can be very good. Depending on the type of treatment performed, success rates with a single treatment can approach 70 to 80%. The specialist will tailor a treatment plan specifically designed for your pet in order to offer the best chances of success, and in some cases this can involve two procedures carried out three to four weeks apart.

Unfortunately, a success rate of approximately 80% does mean that there are some dogs who, despite our best efforts, continue to suffer from the fungal disease, and the clinical signs either do not improve as we would like or they recur at a later date. In these dogs, repeat treatment can be considered and it is possible that this might involve a prolonged stay with us in the hospital.
Could the signs of the disease return?

Once the infection is eliminated, re-infection at a later date is not common. However, the risk of re-infection cannot be ruled out and therefore owners are advised to be vigilant in the future for signs of the condition.

The damage caused by the fungal infection can render animals more susceptible to bacterial nasal infections in the future. If a nasal infection develops after successful treatment of fungal rhinitis, it is therefore often sensible to visit your primary care practice initially, in case the condition can be treated using antibiotics alone. Persistence of nasal discharge despite antibiotic treatment, or the presence of blood within the discharge is likely to increase the level of concern regarding the presence of an active fungal infection.

The outlook for patients with systemic aspergillosis is more guarded and will depend on whether we are able to establish why your dog was predisposed to develop this condition and whether we can deal with these predisposing causes.

Can aspergillosis/fungal rhinitis be passed on to my other pets or members of my family?

Fungal spores, including Aspergillus species, are present everywhere (ubiquitous) in the environment and we are all frequently exposed to the organisms. For the majority of humans and pets, the risk from contact with a dog or cat suffering from the disease should be very low. Standard hygiene measures, including washing your hands after contact with your pet and cleaning up nasal discharge, should be sufficient to maintain the risk at a negligible level.

People and pets that have a compromised immune system due to drug administration (e.g. receiving chemotherapy or immunosuppressive medication), illness (e.g. diabetes mellitus) or extreme old age should avoid contact with infected animals. As with all infectious diseases, individuals who are concerned they may be at risk of infection should discuss the situation with their doctor at their earliest opportunity.

Figure 1: Photograph of the front of a dog’s nose (the nasal planum) showing some blood-tinged creamy discharge from the patient’s right nostril and ulceration that can occur in some cases.

Figure 2: A computed tomography (CT) image of a cross section of a dog’s nose. The right side (seen on the left in the picture) has a fine lace-like appearance representing the scrolls of bone (turbinates) that are normally present. The arrow is pointing to the left side of the nasal cavity which has suffered from destruction of these turbinates and accumulation of discharge that appears the same shade of grey as the soft tissues of the dog’s head. These changes are strongly suggestive of fungal rhinitis (aspergillosis) and would be very difficult to identify on normal X-rays. CT images such as this are always displayed as if the head was facing you and therefore the animal’s left appears on the right of the image.

Figure 3: This is a computed tomography (CT) image of a cross section of a dog’s nose at the level of the frontal sinuses. The eyes can be seen as circular areas (the eyes have been marked with asterisks). The frontal sinuses are normally air-filled spaces within the skull, just above and behind the eyes. In this image, the dog’s left frontal sinus (arrowed) has become almost completely filled with fungal growth (Aspergillus). Air is seen as black on the scan.