

Mini Review

Rhinosinusitis in Companion Animals

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Introduction

Nasal disease is a frequently encountered problem in companion animals, especially in cats. Typical signs include nasal discharge, sneezing, nasal stridor, dysphagia, mouth-breathing and cough [1-4]. While acute feline nasal disease is commonly caused by infections with herpes or calicivirus, the diagnostic work up for chronic nasal discharge is far more laborious.

A common diagnosis in cats with chronic nasal discharge is Idiopathic Chronic Rhinosinusitis (ICRS). This final diagnosis is based on the exclusion of all known possible reasons for chronic nasal discharge and can only be settled after a thorough diagnostic work-up [1,3-5].

Chronic nasal discharge in cats can be caused by many different diseases like e.g. nasal neoplasia, mycotic rhinitis, foreign body rhinitis, dental disease, congenital malformations (cleft palate), oronasal fistulae, nasopharyngeal polyps, nasopharyngeal stenosis or traumata [1,4-6]. As a targeted therapy is dependent on the underlying disease, systematic diagnostic work-up is crucial.

Nasal Neoplasia

In about 30-50 % of cats with chronic nasal discharge a nasal neoplasia can be diagnosed. 90% of nasal neoplasia are malignant in cats (Figure 1). Although they grow invasive, they rarely metastasize and are often locally restricted. In 90% of cats with nasal lymphoma the nose is the solitary location. Nasal lymphoma is the most often encountered nasal neoplasia, followed by adenocarcinoma. Other tumours (e.g. fibrosarcoma, chondrosarcoma, squamous cell carcinoma) may also be found [2-4,7]. Cats with nasal neoplasia are commonly older (8-10years), more often have unilateral, haemorrhagic discharge, facial deformations and have a shorter duration of signs than cats with other nasal disorders. However there is strong overlap especially regarding cats with ICRS [2-5]. The diagnosis of nasal neoplasia can only be confirmed by histopathology. If staging (thoracic radiographs and abdominal ultrasound) confirms local disease radiation therapy is the preferred treatment. If radiation is not available or the disease is not restricted to the nose cats are treated by systemic chemotherapy (e.g. COP-based protocols in nasal lymphoma). The prognosis is fair, with complete remission in 70% and median survival times of up to 30 months [8-10].

ICRS

Up to 30% of cats with chronic nasal discharge suffer from



Figure 1: Unilateral purulent nasal discharge.



Figure 2: Nasal foreign body protruding in the nasopharynx of a cat.

ICRS and it is the second most common reason for feline chronic nasal disease [2-4,7]. ICRS is a chronic inflammatory disorder. The aetiology of this disease is by definition unknown. It is therefore important to rule out other causes of chronic rhinitis. Although herpesvirus and calicivirus infections commonly cause acute rhinitis, active or re-activated infections do not play a role in chronic nasal disease [11]. However, previous infections with herpes virus and the resulting anatomical alterations in the nasal cavity with partial loss of mucociliary clearance capacity are under discussion as a possible cause of ICRS development [1,2]. Histological examination of samples obtained from ICRS patients mostly reveals a mixed-cell and in rare cases a lymphoplasmacytic infiltration of the nasal mucosa [1]. Treatment is symptomatic with anti-inflammatory medications and antibiotics. Anti-herpes-virus therapies are not effective. Recurrence of signs is common and should be expected. The prognosis for healing is poor but the disease can be satisfactorily managed in many cats.

Others

Juvenile nasopharyngeal polyps are benign pedunculated masses originating from the Eustachian tube or the tympanic bulla, growing into the nasopharynx (Figure 2). Young cats up to 2 years are most commonly affected by polyps; congenital defects or reactions to infections are being discussed as causes [12,13]. Polyps can be removed by traction-avulsion, ventral bulla osteotomy or total ear



Figure 3: Mucopurulent discharge, obstructing the nasopharynx.



Figure 5: Removal of nasopharyngeal polyps in cats. A histopathology should always be performed to secure the diagnosis.

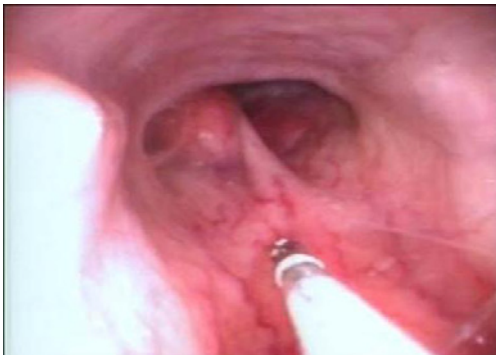


Figure 4: Nasal mass protruding in the nasopharyngeal area of a dog.



Figure 6: Removal of nasopharyngeal polyps in cats. A histopathology should always be performed to secure the diagnosis.

ablation with lateral bulla osteotomy. Traction-avulsion is the most gentle procedure for removing a polyp. However, recurrence is possible and a transient Horner's syndrome or vestibular signs may develop [14,15].

Nasopharyngeal stenoses may develop as a sequela of inflammatory diseases or be present as a congenital defect [16,17], they can be treated by balloon dilatation.

Nasal foreign bodies (most often grass awns or other plant-parts), which travel to the nasopharynx or the nasal cavities *via* the retrograde route, may also cause chronic rhinitis [3,4] (Figure 3).

While fungal rhinitis is very common in dogs, it is more rare in cats. Nasal cryptococcosis is the most common fungal nasal disease in cats. It is quite rare in central Europe but its incidence is dependant of the geographic regions [5]. Contrary to dogs, nasal aspergillosis is uncommon in cats [3,4,18] (Figure 4).

Diagnosis

Since a targeted therapy is dependent on the underlying disease, systematic diagnostic work-up is crucial. The history (age, indoor/outdoor cat, duration of signs, character of nasal discharge, former episodes of "cat flu"), physical examination, imaging techniques and rhinoscopy as well as cytological and histological examination of biopsy samples may shed light on the aetiology of the disease (Figure 5,6).

Blood work is usually unspecific. Testing for feline calicivirus, feline herpesvirus-1, FELV and FIV is of no value due to the equal



Figure 7: Transient Horner syndrome after removal of a nasopharyngeal polyp in a cat.

prevalence in healthy cats (Figure 7). Cytology of nasal is usually unspecific, but fungal organisms or neoplastic cells may be found. Bacterial culture of nasal discharge is of no value as it commonly yields a mixed growth of normal commensal microflora. Culture and sensitivity of nasal flushes or nasal biopsies resemble the mucosal bacterial infiltration more closely but the majority of the spectrum of microorganisms observed in cats with chronic rhinitis can also be identified in healthy cats. The role of *Mycoplasma* spp. in feline chronic rhinitis is under debate.

Imaging may reveal the extent (sinus affection) and character of the disease and help direct biopsy sampling. Disadvantages of radiographs include the need for proper patient positioning and the superimposition of structures. Superimposition can be prevented by obtaining intraoral views. CT/MRI are superior, providing detailed images without the problem of superimposition. However there is substantial overlapping of imaging findings between cats with nasal neoplasia and those with ICRS [3,4,7,19-21].

Rhinoscopy can be performed with flexible or rigid endoscopes. The nasopharynx can easiest be assessed with a flexible endoscope and should be performed first. Lymphomas are often visible in the nasopharynx and samples can be taken under sight in this location. Rhinoscopy can be diagnostic (foreign bodies, polyps, nasopharyngeal stenosis, fungal plaques) as well as therapeutic (removal of foreign bodies, fungal plaques, flushing/suctioning excessive secretions) [3,4]. It allows for tissue sampling under direct visualization. If rhinoscopy is not available a thorough examination of the oral cavity with digital palpation of the soft palate an inspection of the nasopharynx, intraoral radiographs, nasal flush and blind biopsies can be performed. For blind nasal biopsies it is important not to pass the instrument further than the eye level to avoid damage to the cribriform plate.

Summary

Chronic rhinitis may have different aetiologies. Prognosis and treatment differ with the aetiology. A thorough work up is mandatory to reach a diagnosis. Feline ICRS is a common final diagnosis. Treatment of ICRS may be frustrating, since there is no cure.

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