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NASAL DISEASE IN CATS

Rachel Korman

Chronic nasal disease in cats maybe caused by various aetiologies including infection, inflammatory and neoplastic disease. Definitive diagnosis can require advanced imaging and biopsy, yet despite utilisation of these modalities and depending on the disease process, treatment ultimately is about long term management rather than cure in many cases.

Aetiology.

Infectious
- Viral e.g. Feline Herpesvirus & chronic rhinosinusitis
- Fungal e.g. Cryptococcus, Aspergillus
- Mycobacteria
- Tooth root abscess
- Oronasal fistula

Inflammatory
- Nasopharyngeal polyp
- Chronic lymphocytic plasmocytic rhinitis “nasal IBD”
- Foreign body

Neoplasia
- Lymphoma
- Adenocarcinoma
- Squamous cell carcinoma

Congenital
- Choanal atresia
- Nasopharyngeal stenosis

A recent study evaluated 400 nasal biopsy samples from cats in the United Kingdom. The most common nasal disease was rhinitis, followed by neoplasia and polyps. Nasal lymphoma was the most common neoplasia, followed by adenocarcinoma and undifferentiated carcinomas, with benign tumours being very uncommon. There was no association identified between skull conformation and the type of nasal disease. Polyps were more likely to been identified in younger male cats (median age 8 years) with a meocephalic skull and no nasal discharge. A previous older study of 77 cases identified neoplasia most commonly (lymphoma) followed by chronic rhinitis. Unsurprisingly, neoplasia was more likely in older cats. These cats were also more likely to be dyspnoeic and have a haemorrhagic or unilateral nasal discharge.

Clinical signs associated with sinonasal disease are typically fairly obvious and include a combination of nasal discharge, noisy breathing and sneezing. Epistaxis and facial distortion may be seen. Appetite can be variably affected. Acute, intractable sneezing would be suggestive of a foreign body, whereas chronic intermittent sneezing would be suggestive of chronic rhinosinusitis or neoplasia.

Alterations in swallowing, paroxysmal reverse sneezing, stertor and an obstructive respiratory pattern (inspiratory dyspnoea) suggest involvement of the caudal nasal cavity or nasopharynx. Stertor is often most audible during inspiration. Upper airway sounds that are audible during both inspiration and expiration suggest a fixed obstruction (e.g. neoplasia or nasopharngeal stenosis). Owners may also report that their cat has recently started snoring.

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Ocular discharge may occur due to obstruction of the nasolacrimal duct. Peripheral vestibular signs, head shaking or scratching can be seen with nasopharyngeal polyps. Intracranial neurological signs can be seen with neoplasia or fungal infection with extension of disease through the cribiform plate.

Signalment is a major consideration in cats with chronic nasal disease. Young cats are more likely affected with upper respiratory infections, foreign bodies, nasopharyngeal polyps and nasopharyngeal stenosis. Older cats are more likely affected with neoplasia or chronic rhinosinusitis.

Physical examination yields many useful diagnostic clues. A systematic review of all body systems is mandatory in cats presenting with signs of upper respiratory disease as involvement of other organs may yield important information (e.g. lymphoma). Examination of the nasal cavity includes visual inspection and palpation of the head, eyes and muzzle for conformation, symmetry and defects. The external nares are inspected for colour, presence and characteristics of nasal discharge. Evaluation of patency and airflow can be accomplished with a clean compact disc or glass slide observing for condensation during expiration.

The hard palate can be evaluated for conformation change suggestive of a space occupying lesion causing ventral deviation of the palate. The upper dental arcade is examined for dental disease (e.g. tooth root abscess). Careful palpation of the submandibular lymph nodes and an otoscopic examination are also important.

Serology can be performed prior to investigations that require sedation or anaesthesia. A latex cryptococcal antigen agglutination test (LCAT) detects cryptococcal antigen in serum. A positive titre confirms active infection. A bedside IMMY test is also available.

Haemorrhagic nasal discharge needs a separate consideration. In addition to nasal cavity disease (e.g. foreign body, neoplasia, fungal disease), systemic diseases also needs to be given consideration (e.g. hypertension, polycythemia, coagulopathy, hyperviscosity syndrome, immune mediated thrombocytopenia). If the nasal discharge is primarily haemorrhagic, then investigations such as assessment of a manual platelet count, total protein, systolic blood pressure and assessment of clotting times must be performed prior to any invasive testing.

If enlarged local lymph nodes or facial deformity is present then aspiration for cytology and culture can be performed prior to more invasive testing. Fine needle aspirates through the soft palate can also be obtained if there is obvious ventral deviation.

Bacterial culture of superficial nasal swabs is rarely helpful. The nasal cavity of health cats can be colonised with Cryptococcus sp. So definitive diagnosis of Cryptococcus as the causative organism requires a positive LCAT or cytological evidence of a large organism burden and inflammation.

Diagnostic imaging plays an important role in the investigation of nasal disease and ultimately require general anaesthesia. Imaging is performed prior invasive procedures so that haemorrhage does not affected findings.

Nasal and sinus radiography rarely yield a definitive diagnosis but are able to detect asymmetry, bone destruction or the presence of a soft tissue opacity. Typical views include dorsoventral, open-mouth ventrodorsal and lateral views. Oblique lateral views and skyline views are often required for assessment of the frontal sinus and bulla. Patient positioning is important.

Computed tomography (CT) provides extensive detail of the nasal cavity and sinuses and is the gold standard for evaluation of nasal disease, particularly early lesions. It is also superior for evaluating the extent of invasive nasal disease e.g. involving the cribiform plate or orbital involvement and can facilitate guidance for biopsy.

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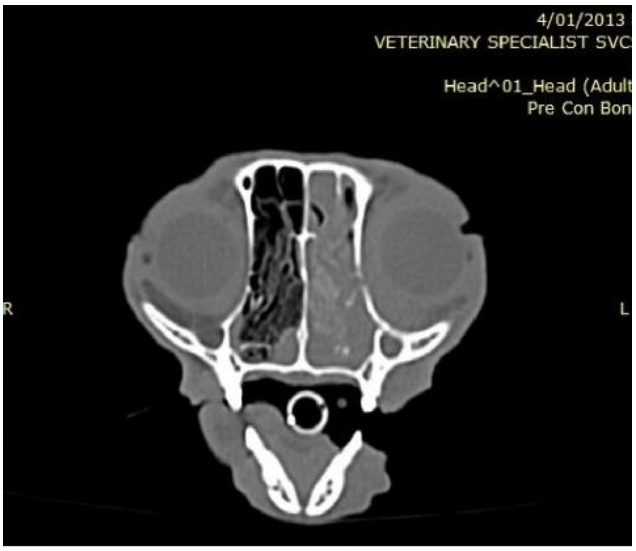
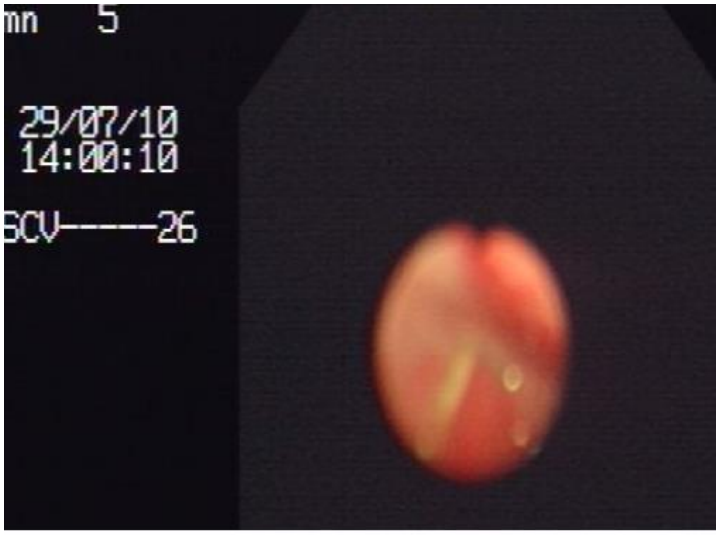


Destructive sinorbital rhinitis on CT in a cat

Magnetic resonance imaging (MRI) also provides a sensitive modality for assessment of soft tissue structures and can readily distinguish between soft tissue structures and fluid or mucous accumulations. However it maybe less sensitive in identification of early bony or cartilaginous changes and slice thickness may affect visualisation of changes to the cribiform plate. If intracranial involvement is suspected however, MRI is superior. Limitations of both CT and MRI include cost, technical skill and availability of equipment.

Rhinoscopy facilitates direct visualisation of the nasal cavity and nasopharynx. This can be limited in cats due to their size, availability of appropriately sized scoping equipment and technical skill. When combined with CT or MRI, rhinoscopy allows complete evaluation of the nasal cavity. Rhinoscopy alone can identify large focal lesions or diffuse inflammatory or infectious disease, but does not allow complete evaluation of the entire nasal cavity (often access to the dorsal meatus is limited) and lesions may be missed.



Retropharyngeal grass foreign body on rhinoscopy

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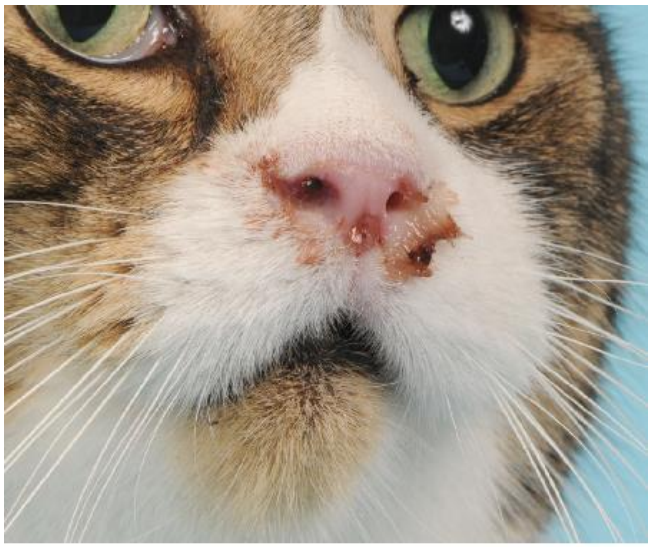
The nasopharynx is examined first to avoid iatrogenic haemorrhage obscuring visualisation as blood will pool in the nasopharynx. The nasopharynx, choanae and caudal nares are evaluated by retroflexing a flexible endoscopy (2-5 mm outer diameter) through the oral cavity and dorsally over the soft palate. Lesions identified in this location include polyps, foreign bodies, nasopharyngeal stenosis, fungal granulomas and neoplasia. Biopsies can be obtained using a flexible endoscopy or a spay hook can be used to retract the soft palate and curved biopsy forceps used to blindly biopsy the nasopharyngeal mucosa. Be ready for bleeding from these locations.

Prior to anterior rhinoscopy biopsy or flushing it is important to protect the airway by packing the nasopharynx with gauze swabs (throat pack) to prevent aspiration of fluid or material. These swabs must be removed prior to recovery and evaluated for evidence of tissue or foreign body material that maybe important for sampling purposes.

The left and right nasal passages are then examined by directing a rigid endoscope through the nares. Soft tissue masses, nasal foreign bodies and turbinate loss suggestive of fungal rhinitis can be identified and appropriate biopsies obtained.



Nasal discharge in a cat with nasal lymphoma

Nasal mass in a cat with carcinoma

Nasal biopsy is vital for a definitive diagnosis and is essential to differentiate chronic rhinitis and fungal rhinitis from neoplasia. Rhinoscopic assessment of nasal disease does not always correlate with the severity of inflammation detected histologically. Biopsies can be obtained via blinded or guided techniques. It is vital to ensure that the cribiform plate is avoided. This is done by measuring the distance from the nares to the medial canthus of the eye and marking this point (e.g. using tape) on the biopsy instrument. Nasal biopsies often result in a large amount of bleeding. It is good standard practice to ensure assessment of a platelet count and ideally coagulation parameters (e.g. APTT, PT or activated clotting time) prior to sampling.

Blind biopsy techniques include the use of cup or pinch biopsy forceps, straight haemostatic forceps. Measuring to the level of a lesion identified on imaging can help guide the location. The forceps are inserted closed, the opened slightly towards the level of the lesion, advanced another few milimeters, then closed again to “grasp” the sample and removed quickly.

Rhinoscopy can also be used to guide nasal biopsies and obtain deep, targeted mucosal biopsies.

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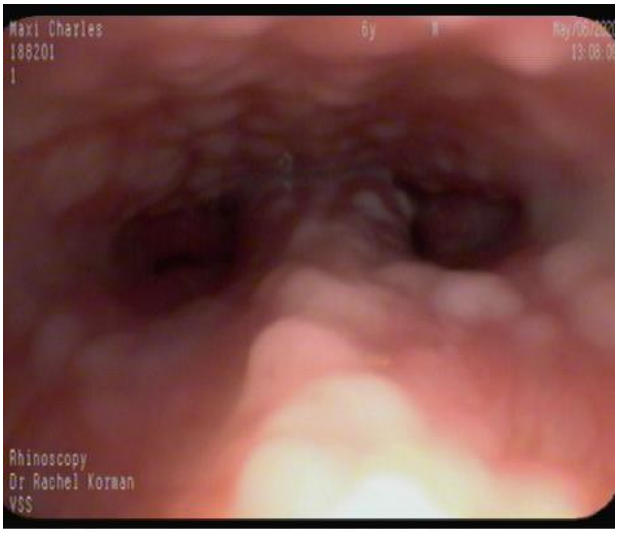

Reactive lymphoid hyperplasia on rhinoscopy in a cat with chronic rhinitis

Nasal flushing can be performed, however nasal flush cytology should may not be reliable for a definitive diagnosis. Samples obtained from nasal flush correlate with histopathological diagnoses in only 50% of dogs with nasal neoplasms. Identification of neoplastic epithelial cells or fungal hyphae or yeast maybe useful however. Certainly, nasal flushing provides relief or inspissated secretions and relief to patients. Flush may also dislodged fragments of friable tumours or granulomas. A 10 ml syringe filled with room temperature, sterile saline is forcefully infused into the ventral nasal meatus with the contralateral naris blocked. This is repeated two to three times on each side. Ensure evaluation of the nasopharyngeal swabs for potential samples.

Haemorrhage can occur following nasal biopsy. Bleeding can be controlled utilising infusions of cold saline, ophthalmic phenylephrine (2.5%) instilled directly into the nasal cavity or the use of cotton tips soaked in adrenaline (diluted 1:100 000).

Biopsy samples are submitted in formalin for histopathology and plain samples in a sterile container for culture (e.g. fungal and bacterial) and PCR. Primary bacterial rhinitis is very rare and most bacterial infections are secondary colonizers. Bacterial culture is likely significant if there is a heavy growth of a single organism. Macerated tissue culture maybe of more diagnostic value than culture of nasal secretions or flush samples. Positive fungal cultures are likely accurate.