

# An uncommon case

**Karen Bailey**, Gribbles Veterinary Pathology, reports on a case of fungal rhinitis in a Birman cat.

## HISTORY

A two-year-old female Birman was referred for rhinoscopy because she had a unilateral discharge that had been present for several months. This had been unresponsive to antibiotic treatment; however, there had been some observed improvement following a steroid injection.

## RADIOGRAPHY

Intraoral radiographs showed some loss of fine detail on the affected side.

A trabecular pattern was still observed but was not as 'sharp' as it was on the unaffected side.

## ENDOSCOPY

Endoscopic examination revealed an accumulation of irregular white material caudal to the soft palate that obstructed the view of both choanae. It was possible to pass a tube and dislodge some material on the unaffected side, but a tube could not be passed on the affected side.

Using an open-ended tom cat catheter, the affected side was flushed and material

was aspirated. Some of the larger pieces were formalin-fixed for histology.

A swab was submitted for culture and several smears were made for cytological examination. A blood sample for CBC was also collected.

## HAEMATOLOGY

The CBC was unremarkable, with individual cell lines all within normal limits and normal cell morphology, although the total white cell count was marginally low at  $5.3 \times 10^9/l$  (reference interval 5.5-20).

## CYTOLOGY

Nine smears made by the referring veterinarian were received for cytological examination. The cellularity was high and the cell types present were mixed, varying greatly in proportion from smear to smear. There was marked background haemorrhage. Neutrophils dominated the nucleated cell population in most areas and many were degenerate. Also present were numerous epithelial cells, arranged individually and in small groups. These

varied from round to low cuboidal cells to tall, columnar, ciliated respiratory epithelial cells. There were also some squamous epithelial cells, mostly large, angular, superficial cells. There was abundant cellular and non-cellular debris and also clumps of mucus. Eosinophils were present in small numbers.

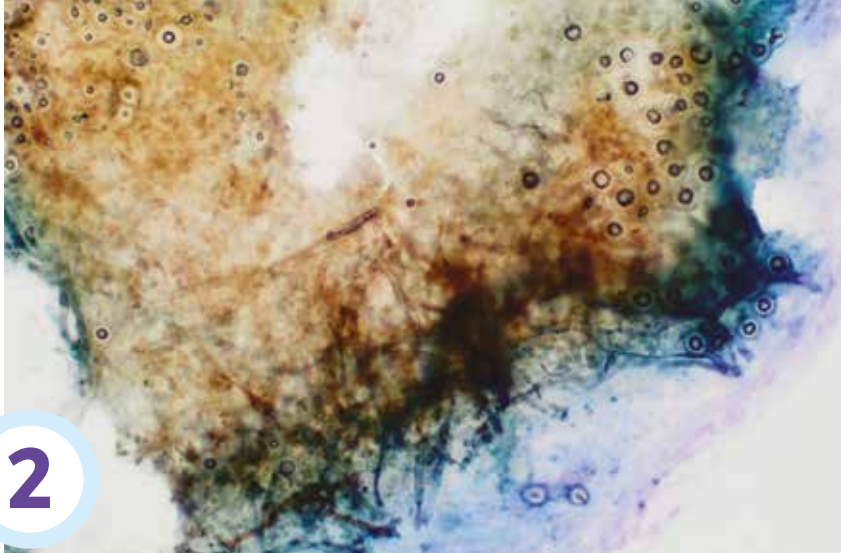
There were moderate numbers of large mononuclear cells and macrophages. In occasional fields, lymphocytes dominated; a moderate proportion of these were larger, more immature types, suggesting lymphoid hyperplasia.

There was some exogenous debris, including plant material and hair. Occasional clusters of spindle cells suggested the presence of some reactive fibrosis.

Bacteria were present in huge numbers, both intracellular and free in the smear background. These were often slender rods but mixed types were present. Some dense colonies were identified. Numerous fungal elements, spores and hyphae could be identified.

The cytological diagnosis was suppurative to pyogranulomatous inflammation with bacterial and fungal involvement.

It was considered that bacteria were likely to be part of the pathogenesis, but not necessarily as primary pathogens. A primary fungal rhinitis was possible, but underlying neoplasia or a foreign body could not be ruled out.



## HISTOLOGY

A histological examination was made of two 2-3mm pieces of material. These consisted of massive numbers of fungal hyphae, which were also forming round clusters. There were also oval structures with thick, pale-yellow walls and basophilic contents and large numbers of bacteria on the surface of these fungal agglomerations.

The histological diagnosis was fungal infection. The morphology of the fungus was not considered typical of *Aspergillus* (or *Cryptococcus*).

## MICROBIOLOGY

A swab was the only fresh tissue submitted. Occasional gram-negative rods were seen in this sample, but there was no growth of any bacteria on aerobic culture (the cat had been receiving antibiotics, which may have affected bacterial culture).

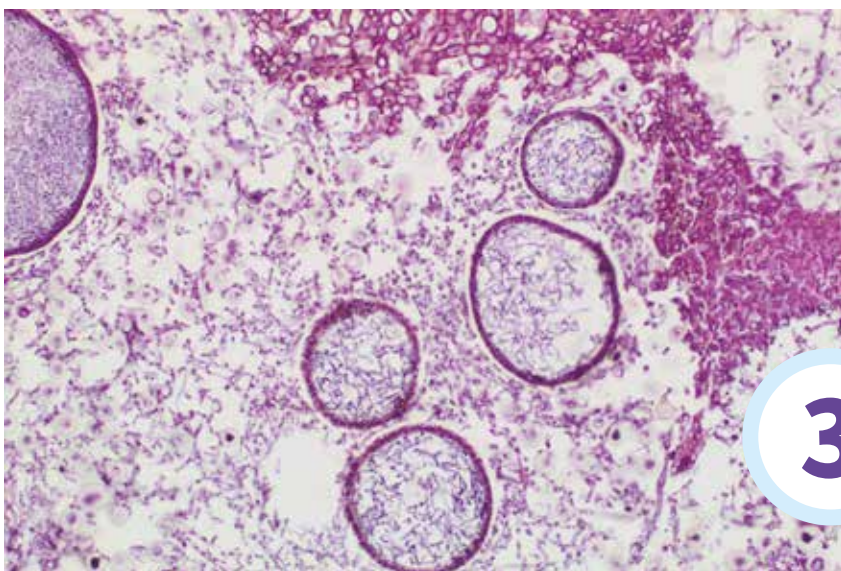
Although fungal culture was attempted in an effort to identify the fungus involved, no fungi were isolated, so the identity of the organism remains unknown.

## CLINICAL OUTCOME

Treatment was initiated with Ozole (oral fluconazole antifungal medication). However, the cat was euthanised two weeks after the diagnosis was made, due to ongoing malaise and recurrent nasal bleeding on the affected side.

## DISCUSSION

Chronic sneezing and/or nasal discharge is not uncommon in cats and the differential diagnoses include neoplasia, nasopharyngeal polyp, foreign body, allergic rhinitis, nasopharyngeal stenosis, trauma, congenital malformation, dental disease and inflammatory polyp of the



nasal turbinates. Fungal infection is a relatively uncommon cause but has been reported with increasing frequency in recent years.

*Cryptococcus* species, *Aspergillus* species and *Penicillium* species appear to be the most commonly identified culprits.

The nomenclature, particularly with *Aspergillus*, can be confusing as different names have been used in the past for the asexual (anamorph) and sexual (teleomorph) forms of the same fungus.

Members of the *Aspergillus* complex cannot be reliably identified by phenotypic features alone, but the use of molecular techniques is making accurate identification easier.

Treatment and prognosis are dependent on the fungus involved and the extent of tissue invasion. Evidence-based treatment protocols have yet to be fully developed. <sup>(v)</sup>

**FIGURES 1 AND 2:** Cytology of fungal mass, Leishman's stain, magnification 200 x.

**FIGURE 3:** Histology of fungal mass, Haematoxylin and Eosin stain, magnification 200 x.

## REFERENCES:

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## ACKNOWLEDGEMENT:

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