

Clinicopathological features of inflammatory nasal and nasopharyngeal masses in three senior cats



Claudia Gil-Morales¹, Sophie Keyte¹, Angie Hibbert²

¹School of Veterinary Sciences, University of Bristol, Bristol, UK

²The Feline Centre, Langford Veterinary Services (LVS), Bristol, UK

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Abstract

Objectives

To describe the clinical presentation, computed tomography (CT) and histopathology findings, treatment, and outcome of three cats with inflammatory nasal or nasopharyngeal masses.

Methods

Retrospective referral-based study. Diagnostic investigations data were collected for three cats presenting with upper respiratory tract signs, where a nasal or nasopharyngeal mass was identified and suspected to be neoplastic based on CT features, in which clinical signs and imaging findings resolved or improved with symptomatic treatment. Data extracted included signalment, history, investigation findings, treatment and outcome. CT images were reviewed by a board-certified radiologist.

Results

Three cats from one UK referral centre were included. Median age was 15.5 years (range 11-15.8yrs). Clinical signs included nasal discharge (n = 3), sneezing (n = 2), coat depigmentation (n = 1) and nasal airflow loss (n = 1); median duration two months.

Initial CT revealed a contrast-enhancing, soft tissue mass lesion affecting the nasopharynx (n = 2) or nasal cavity (n = 3). Histopathology revealed mixed inflammation with no evidence of neoplasia (n = 3).

Medications included doxycycline (n = 2), amoxicillin/clavulanate (n = 2), clindamycin (n = 1), meloxicam (n = 2) and bromhexine (n = 1).

Repeat CT scan showed resolution or marked improvement of the soft tissue masses in two cats (performed at 2 and 9 months) and one cat respectively (performed at 4 months). All three cats survived (18 months of follow-up) with no recorded recurrence of their clinical signs.

Statement (Conclusions)

Focal inflammatory disease should be considered a possible differential for nasal and nasopharyngeal masses in cats, even when neoplasia is considered most likely based on CT findings. Inflammatory masses can carry a good prognosis with resolution of clinical and diagnostic findings with symptomatic treatment.

Introduction

Feline sinonasal disease can be a diagnostic challenge as clinical signs and imaging findings overlap in both chronic rhinitis and neoplasia, furthermore the existence of superficial inflammation associated with neoplasia needs to be considered when interpreting endoscopic features and histopathology. Cats with nasal neoplasia are typically older with nasal discharge,^{1,2} although senior cats with chronic rhinitis have been described in the literature up to 17.1 years.³

Previous studies have shown the utility of CT to determine the extent of disease but failed to identify pathognomonic findings for neoplasia.³ In the literature, most cats with mass lesions seen during endoscopy, were diagnosed with neoplasia.^{2,3} Occasionally, chronic rhinitis has been reported in cases with nasal masses.^{2,3}

Case history

Case 1: A 11y MN Siamese presented with one-month history of right nasal and ocular discharge, right-sided facial coat depigmentation, right nasal airflow loss, halitosis and cough. He had received a course of bromhexine, resulting in a reduction of stertor, and fusidic acid, with improvement of the ocular discharge.

Case 2: A 15.5y MN DSH was referred after three months of left mucopurulent nasal discharge, sneezing, cough and weight loss. He had showed no improvement after receiving cefovecin and methylprednisolone. He had well-controlled hyperthyroidism, systemic hypertension and chronic kidney disease. He had a previous right enucleation following a road traffic accident.

Case 3: A 15.8y FN DSH presented with two months of right mucopurulent nasal discharge, sneezing, occasional mild epistaxis, stertor and inappetence. Clinical signs had improved after a 2-week course of clindamycin.

Physical examination and findings of diagnostic tests

Physical examination revealed nasal discharge in all cases and referred upper respiratory tract noise in cases 1 and 3. Case 1 also had right ocular discharge, changed coat colour on the right side of the face and absent right nasal airflow.

Investigations included blood analysis (haematology and serum biochemistry), infectious disease tests (retrovirus ELISAs, Feline Herpesvirus (FHV-1) and Feline Calicivirus (FCV) PCRs), CT scan of head and thorax, normograde rhinoscopy and/or retroflex pharyngoscopy, and histopathology from nasal and/or nasopharyngeal biopsies. Tissue bacterial culture was only performed in one case.

No cats were co-infected with FeLV and FIV. FHV-1 and FCV were not identified on PCR in the two cats tested.

References

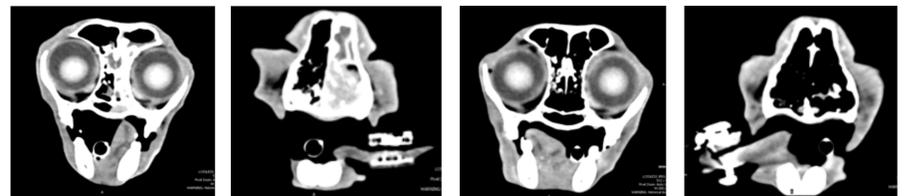
- Henderson SM, Bradley K, Day MJ, et al. Investigation of nasal disease in the cat – a retrospective study of 77 cases. *J Feline Med Surg* 2004; 6: 245-257
- Willard MD, Radlinsky MA. Endoscopic examination of the choanae in dogs and cats: 118 cases (1988-1998). *J Am Vet Med Assoc* 1999; 215: 1301-1305
- Nemanic S, Hollars K, Nelson NC, et al. Combination of computed tomographic imaging characteristics of medial retropharyngeal lymph nodes and nasal passages aids discrimination between rhinitis and neoplasia in cats. *Vet Radiol Ultrasound* 2015; 56: 617-627
- Tromblee TC, Jones JC, Etue AE, et al. Association between clinical characteristics, computed tomography characteristics, and histologic diagnosis for cats with sinonasal disease. *Vet Radiol Ultrasound* 2006; 47: 241-248
- Demko JL, Cohn LA. Chronic nasal discharge in cats: 75 cases (1993-2004). *J Am Vet Med Assoc* 2007; 230: 1032-1037
- Karnik K, Reichle JK, Fischetti AJ, et al. Computed tomographic findings of fungal rhinitis and sinusitis in cats. *Vet Radiol Ultrasound* 2009; 50: 65-68

Table 1 Case summary of CT scan, rhinoscopy and histopathology findings.

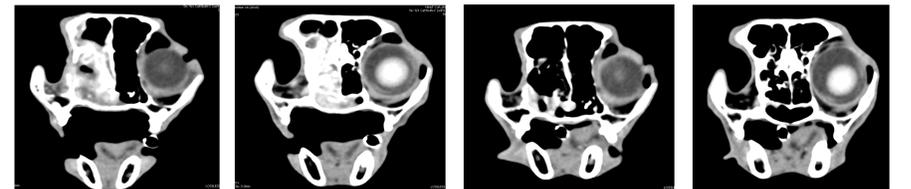
	Mass lesion	Turbinate lysis	Asymmetry local lymph nodes	Bone involvement (lysis)	Rhinoscopy	Histopathology
Case 1	Right-sided, extending into right nasopharyngeal meatus	Moderate	Right submandibular larger than left	Vomer, medial orbit wall	Right nasal mass	Bilateral moderate ulcerative mixed (neutrophilic, lymphoplasmacytic) rhinitis. Atypical population within right nasal mass: reactive histiocytic population on immunohistochemistry
Case 2	Left-sided, extending into rostral nasopharynx	Moderate	Enlarged left submandibular	Left maxilla, medial orbit wall, lateral frontal lobe, focal lysis cribriform plate	Left nasal mass extending into rostral nasopharynx	Left marked mixed (neutrophilic, plasmacytic) rhinitis
Case 3	Right-sided, extending into rostral nasopharynx	Moderate	Enlarged right submandibular and right medial retropharyngeal	None	Right nasal mass extending into rostral nasopharynx	Nodular lymphoid hyperplasia (mass). Left marked mixed (neutrophilic, lymphoplasmacytic) rhinitis

When CT scan was repeated following symptomatic treatment, cases 1 and 3 had complete resolution of the mass lesions, while case 2 had a small region of soft tissue remaining within the rostroventral and caudal nasal turbinates, suspected to be an inflammatory focus. Turbinate and bone lysis were static, and the lymph nodes appeared normal.

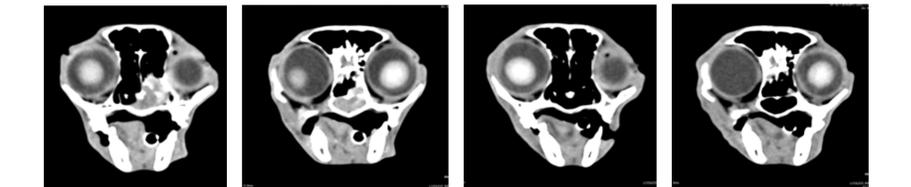
Case 1: Images 1-2 (June 2018), Images 3-4 (August 2018)



Case 2: Images 5-6 (October 2018), Images 7-8 (January 2019)



Case 3: Images 9-10 (March 2018), Images 11-12 (November 2018)



Diagnosis

All cats were diagnosed with moderate to marked mixed rhinitis (neutrophilic and plasmacytic or lymphoplasmacytic). Foreign material, viral or fungal infections were not identified.

Discussion and conclusions

Signalment, clinical presentation and CT findings suggested neoplasia as the most likely diagnosis for these cats. All had CT features that have been previously been associated with neoplasia, including turbinate lysis,^{3,4} mass effect,^{3,4} paranasal bone lysis,^{3,4} and lymph node asymmetry.³ Unilateral nasal secretion, epistaxis and increased upper respiratory tract noise have also been reported in sinonasal neoplasia.¹

However, histopathology results were suggestive of an inflammatory process in each, which was supported by treatment response and survival. Clinical signs resolved in case 1 (including coat depigmentation) apart from mild stertor, following a 1-month course of doxycycline, meloxicam and steam treatment. In case 2, no signs were present after one month of doxycycline and meloxicam, although there has been intermittent mild sneezing since. Case 3 received one month of clindamycin treatment, which cleared all signs. Signs relapsed seven months later but responded to a 2-month course of amoxicillin/clavulanate.

In conclusion, rhinitis should still be considered a possible diagnosis for nasal and nasopharyngeal masses in cats, even when neoplasia is the most likely cause based on signalment, clinical signs and CT findings. Histopathology should always be performed when a mass is detected, as inflammatory lesions can carry a good prognosis if treated symptomatically.