

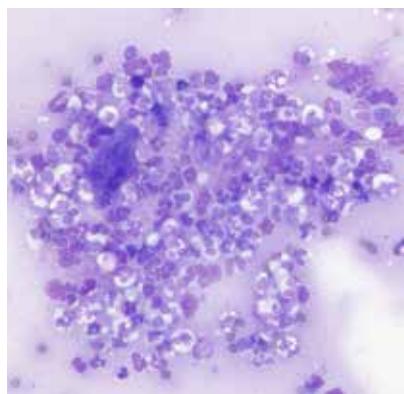
**FIGURE 1:** Cytology from a feline aural inflammatory polyp. Epithelial cells have cilia (arrow) and are consistent with polyps originating from the auditory canal of the middle ear.

# Feline inflammatory aural (nasopharyngeal) polyps

**Lisa D Schmidt**, of SVS Laboratories, discusses the causes, diagnosis and treatment of inflammatory aural polyps in cats.

**INFLAMMATORY AURAL** or nasopharyngeal polyps are non-neoplastic growths that are most commonly seen in one- to three-year-old cats, but have been reported in cats up to 15 years of age. Abyssinian and Himalayan cats may be over-represented. In cats, they are one of the most common causes of middle ear pathology.

The polyps originate from the epithelium lining the auditory tube of the middle ear (aka, the Eustachian tube). The lesions can be confined to the middle ear, protrude through the auditory tube into the nasopharynx, or rupture and penetrate through the tympanic membrane into the external ear canal. Lesions that protrude into the nasopharynx are typically referred to as nasopharyngeal polyps, and those that extend into the external ear canal are referred to as aural polyps.



**FIGURE 2:** Feline aural inflammatory polyps are often associated with chronic inflammation which can be suppurative with myriad neutrophils (as seen here) or can be predominantly lymphoplasmacytic (not shown).

## PROPOSED CAUSES

The origin of aural polyps is unknown, but they are thought to be either congenital or acquired. In the case of congenital lesions, they are thought to be aberrant growths from remnants of the branchial arches. Acquired lesions are proposed to be due to chronic inflammation secondary to upper respiratory tract infections, otitis media, ascending middle ear infections from the nasopharynx, atopic dermatitis or asthma. There is controversy as to whether the polyps are secondary to inflammation or if the presence of the polyps predisposes cats to aural inflammatory disease. Regardless of their origin, defects in the mucosal barrier (including the presence of polyps) can cause dysregulation of local immune homeostasis, which results in microbial colonisation, increased allergic stimulation and self-perpetuating inflammation (Moosavian et al., 2019).

## CLINICAL SIGNS

Clinical signs vary depending on the location of the polyps. Polyps that are confined to the middle ear may remain clinically silent or cause facial nerve dysfunction, including paralysis or Horner's syndrome. In cats with inner ear involvement, clinical signs include head tilt, ataxia, loss of balance and nystagmus. Aural polyps, where the polyp is in the external ear canal, may present with otoblenorrhoea (mucoid discharge), otalgia (pain), erythematous ear canals and head shaking. Chronic and/or recurrent otitis externa or otitis media are commonly seen with polyps. Nasopharyngeal polyps often present with rhinitis, nasal discharge, sneezing, dyspnoea, stridor or stertor, voice changes, dysphagia, weight loss, and/or

**TABLE 1:**  
**Investigative methods to aid in the diagnosis of feline aural inflammatory polyps.**

METHOD	BENEFITS
<b>Otoscope examination</b>	Examination for otitis externa and polyps in the external ear canal.
<b>Digital palpation</b>	Palpation of the soft palate with the index finger. The soft palate can be gently retracted with a spay hook to look for polyps dorsally.
<b>Dental mirror</b>	Evaluation of the dorsal aspect of the soft palate (instead of endoscopy).
<b>Endoscopy</b>	Evaluation of the caudal nares by retroflexion around the soft palate.
<b>Radiography</b>	Look for soft tissue masses in the nasopharynx, evaluate tympanic bullae for thickening/loss of normal air space. Thoracic radiographs can help rule out lower respiratory disease (depending on the clinical signs).
<b>CT (computed tomography)</b>	Can define the extent of polyps in the nasopharynx and auditory tube.
<b>MRI (magnetic resonance imaging)</b>	Allows for surgical planning and can distinguish between fluid and solid structures.

gagging. Much less commonly, polyps that obstruct the airway can lead to cyanosis or syncope. Other reported clinical signs include mandibular swelling, ocular discharge, and chronic conjunctivitis.

**DIAGNOSIS**

Diagnosis of feline inflammatory polyps is made through a combination of history (signalment, clinical signs), physical examination, rhinoscopy and cytology/histology. Kudnig (2002) described a variety of complementary low- and high-tech methods to aid in the diagnosis of feline aural inflammatory polyps. These are summarised in Table 1.

Radiographs can aid in diagnosis. However, the sensitivity to detect otitis media radiographically is low, and one study reported false negatives in 25% of cases (Kudnig, 2002). In comparison, advanced imaging such as computed tomography scans and magnetic resonance imaging has increased sensitivity and can allow early and accurate diagnosis of aural polyps.

Histology and cytology can provide additional confirmation and rule out more nefarious processes such as pedunculated fibroma, papilloma or adenocarcinoma. Common findings on cytology include individual and sheets of epithelial cells.

Epithelial cells are cuboidal to columnar, or pear-shaped with abundant blue cytoplasm and uniform, round to oval, basally located nuclei. In a case recently submitted to the laboratory, most epithelial cells were ciliated (Figure 1). However, squamous epithelial cells may also be present. Inflammation can be a prominent feature of some lesions and can include neutrophils (as seen in this case, Figure 2), lymphocytes, plasma cells and/or macrophages. Histologically, the polyps have a fibrovascular core, with a smooth surface covered by ciliated respiratory or squamous epithelium. The polyps can be oedematous and may contain mixed inflammatory cells, including lymphocytes, plasma cells, macrophages and neutrophils.

**TREATMENT**

Polyps can be removed via traction-avulsion (if the lesions are amenable to this) or via ventral bulla osteotomy (VBO). Descriptions of these procedures are described in articles by Kudnig (2002), MacPhail (2009) and Janssens et al (2017). Polyps recur in up to 57% of cases following traction-avulsion. A combination of traction-avulsion and removal of the epithelial lining from the tympanic cavity through VBO can reduce the risk of recurrence.

Side effects of either traction-avulsion or VBO may be temporary or permanent and include Horner’s syndrome, vestibular disturbances, otitis media, haemorrhage, wound drainage, and damage to the hypoglossal nerve, auditory ossicles, vascular structures and facial nerve. However, careful surgical technique can minimise these complications. Medical management of polyps can reduce associated inflammation and resolve associated otitis media or otitis externa.

**SUMMARY**

Feline aural inflammatory polyps (nasopharyngeal polyps) arise from the ciliated epithelium of the auditory canal (Eustachian tube). These lesions are benign and may stem from chronic otitis media or a congenital lesion. Regardless of their origin, they contribute to recurrent otitis externa and media. Clinical signs include nasal, ocular or otic discharge, sneezing, voice change, head tilt, ataxia, and dysphagia. The diagnosis can often be made from the clinical findings and the gross appearance of the lesion. However, histology is recommended to confirm the diagnosis as pedunculated fibroma, papilloma and adenocarcinoma are differential diagnoses for these lesions. The prognosis for cats who undergo treatment is excellent. <sup>vs</sup>

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