

BULLA OSTEOTOMY FOR FELINE INFLAMMATORY POLYPS

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Inflammatory polyps most commonly occur in young adult cats, although they can occur at any age. The etiology is not always known, although there may be an association with respiratory viral infections.

Proliferative inflammatory tissue grows from either the naso-pharynx behind the soft palate, from the Eustachian tube, or from the middle ear. Clinical signs can be absent when the polyps are small, and may cause sneezing, nasal discharge and upper airway distress if they are located behind the palate. Polyps in the middle ear may cause head shaking, recurrent otitis, and scratching at the ear. Although uncommon, more severe neurological signs such as nystagmus, Horner's syndrome and head tilt can be seen if they interfere with the vestibular system or cause facial nerve palsy. Deafness in the affected ear can occur.

Oral examination under sedation or anesthesia may reveal a mass visible or palpable dorsal to the soft palate or in to the oropharynx. Bilateral otoscopic exam should also be done, and polyps may be seen behind the tympanic membrane or growing through it in the external ear canal.

Radiographs or CT may show opacification of the bulla, possible thickening of the bulla, and a soft-tissue density in the area of the pharynx (Figures 1 and 2).

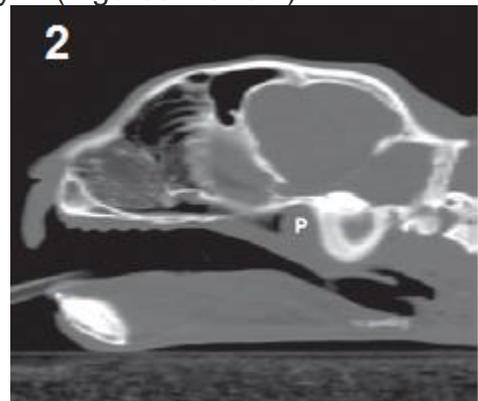
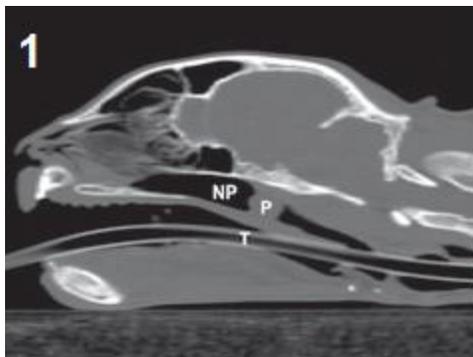


Figure 1 and 2: Sagittal CT images of nasopharyngeal polyp in a cat. NP= nasopharynx, P=polyp, T= trachea

CT is a more sensitive imaging modality (Figure 3), and MRI has been shown to be the most sensitive for evaluating the inner ear and bullae.

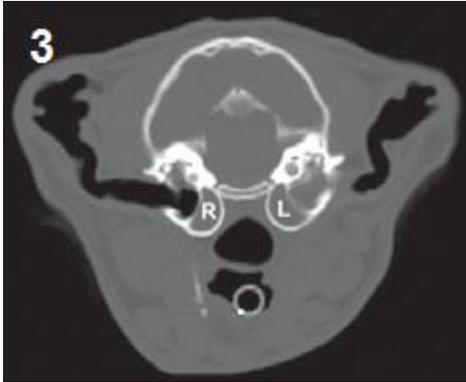


Figure 3: Axial CT images of cat skull/bullae. Left bulla(L) shows soft-tissue opacity in both chambers. Right bulla(R) shows opacity in caudal-medial chamber.

Removal of the polyp can be accomplished by grasping the bulk of the tissue with an instrument, such as an Allis or Babcock forceps, and applying gentle traction until the mass and associated stalk are freed. It is reported that removal by traction alone can be effective in up to 50% of the cases. The use of oral steroids after removal may also help to prevent recurrence, although their efficacy is debated. Any remaining tissue has the potential for regrowth, and symptoms will recur if this is the case.

Ventral bulla osteotomy is indicated when the polyp extends into the middle ear, and if signs recur or persist after traction removal. Bulla osteotomy allows access to the middle ear through the rounded ventral portion of the temporal bone.

The most common indications for bulla osteotomy in cats is for mass removal, either benign polyps or malignant tumors. Surgery may also be indicated to treat otitis media, acquire tissue samples, or remove inflamed or infected epithelial lining.

The feline bulla differs from the canine bulla in that there is a complete septum which separates it into two distinct chambers. The caudal-medial chamber is the larger of the chambers, and contains the Sympathetic fibers along the bony Promontory. Iatrogenic trauma to this area during surgery may give rise to Horner's Syndrome after surgery; with up to 80% of cases subject to this complication and most being self-resolving within 1-4 weeks. The smaller rostralateral compartment communicates directly with the external ear canal, and a lateral entry to this chamber is recommended to avoid damaging the promontory. It is very important that both compartments be explored, since the polyps can grow in both areas. Access to the bulla is best accomplished by using a small pin-drill to make the initial hole in the bulla, and gradually enlarging the opening with larger-sized pins until a small rongeur can be inserted to remove the bone. A power drill can also be used, although the limited exposure and close proximity to large vessels and the hypoglossal nerve may make the pin-drill a safer choice.

A culture should be collected from the bulla to rule out a bacterial infection. Removed tissue is submitted for histopathology. Aggressive curettage of the lining of the bullae should be avoided, as damage to the tympanic plexus or vestibular structures may occur. Complications from either facial nerve palsy or otitis interna are common, but usually temporary. A cat who has either vestibular signs or Horner's syndrome prior to surgery may not see resolution of these signs after surgery, and clients should be advised as such.¹Cats who were deaf prior to surgery have a poor chance of regaining hearing after removal of the polyp.²

Resources

1. Tympanic bulla osteotomy for treatment of middle-ear disease in cats: 19 cases(1984- 1991). Trevor PB et al, JAVMA 1993 Jan 1; 202(1): 123-8. Describes

treatment, complications and clinical outcome in 19 cats with either inflammatory polyps, otitis interna, or neoplasia. 11/19 developed Horner's syndrome, 5 cats developed facial nerve paralysis, and 2 developed otitis interna. Five cats had long-term neurological deficits. Neoplastic infiltration of the bulla had a poor prognosis, and surgery did not change the clinical course in these cases.

2. Analysis of auditory and neurologic effects associated with ventral bulla osteotomy for removal of inflammatory polyps or nasopharyngeal masses in cats. Anders BB, et al. JAVMA 2008 Aug 15; 233(4): 508-5. Prospective series of 21 cats, majority developed Horner's syndrome post-operatively. Auditory function was measured by BAER method, and cats with deafness prior to surgery did not regain auditory function.

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