

Surgical Removal of Feline Inflammatory Polyps

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Feline inflammatory polyps are pedunculated benign fibrous masses that are infiltrated with inflammatory cells. Also known as *nasopharyngeal*, *otopharyngeal*, or *middle ear polyps*, these masses are most commonly found in cats younger than 2 years of age. The masses originate within the auditory tube or from the rostral aspect of the dorsolateral compartment of the tympanic bulla (Figure 1). Polyps may extend into the pharynx via the auditory tube, the external ear canal via rupture of the tympanic membrane, or both.

Clinical signs may include stertor, dyspnea, dysphonia, sneezing, coughing, nasal discharge, dysphagia, head shaking, vestibular signs, Horner syndrome, and purulent or bloody external ear canal discharge. Otoscopic and pharyngeal examination may reveal a mass in the ear canal or nasopharynx, respectively. Nasopharynx examination can be performed with rostral retraction of the soft palate with a spay hook.

Feline inflammatory polyps, most commonly found in cats younger than 2 years of age, may be evident in the ear canal or nasopharynx.

Diagnosis & Treatment Approach

Diagnostic testing for suspected inflammatory polyps includes CBC, serum biochemistry profile, urinalysis, and FeLV and FIV testing. A complete otoscopic evaluation is performed with the patient under general anesthesia. The soft palate should be retracted rostrally to evaluate the left and right auditory tube ostia for a protruding polyp.

Chest radiography can rule out lower respiratory and metastatic disease (if malignancy is suspected). Skull radiographs—including open-mouth,

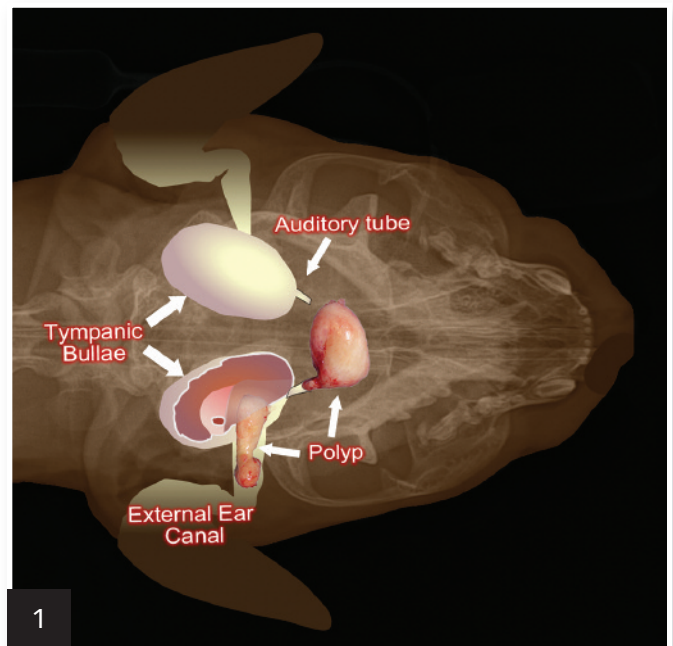


Figure 1. Ventral view of the skull demonstrating the two possible locations of inflammatory polyps: the external ear canal and nasopharynx.

Courtesy Dr. Daniel A. Degner

lateral, lateral oblique (left and right), and ventrodorsal views—are also obtained (Figures 2 and 3). False-negative results are common with bulla radiographs. Computer tomography (CT) is sensitive for the detection of middle ear involvement.

When auditory polyps are confirmed, traction removal followed by medical therapy is often the first line of treatment. If the polyp recurs, a ventral bulla osteotomy may be performed. Clients should be educated regarding the risks associated with both procedures.

Traction removal of nasopharyngeal polyps with medical treatment has a success rate of 89% to 100%, whereas traction removal of polyps extending into the external ear canal with medical therapy has a 50% success rate. The success rate for first-time surgery with ventral bulla osteotomy is about 98%.

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Traction Method of Polyp Removal

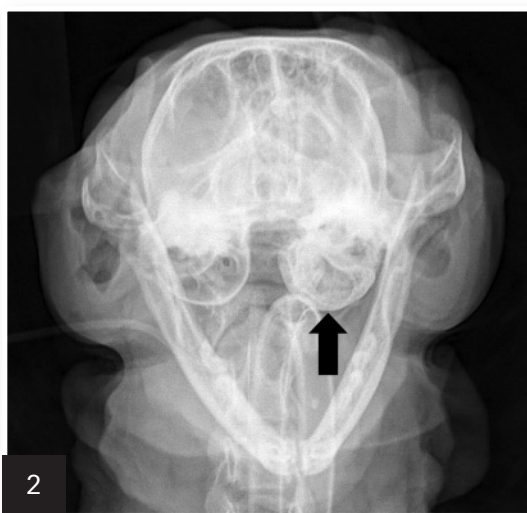
With nasopharyngeal traction, the soft palate is retracted rostrally with a spay hook. The polyp is grasped with curved mosquito or small right angle forceps, and slow, steady traction is applied until the polyp releases.

With external ear canal traction, otoscopy is performed to identify polyp location within the ear canal. The scope is removed, curved mosquito or alligator forceps are placed into the ear canal to blindly grasp the polyp, and steady traction is applied until the polyp releases.

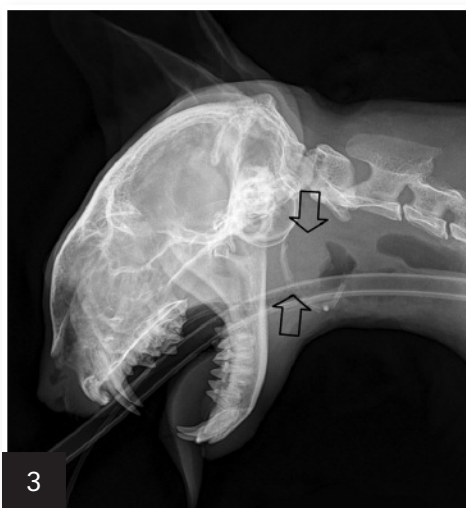
Analgesics are continued for 2 to 4 days after surgery. Oral antibiotics (eg, marbofloxacin) are administered for up to 1 month based on culture and sensitivity testing. If this information is not available, marbofloxacin at 2 to 4 mg/kg q24h PO is prescribed for 1 month.

Prednisolone 1 to 2 mg/kg/day PO should be administered for 14 days, followed by gradual dosage tapering over 14 days. Alternatively, dexamethasone at 0.25 mg q12h PO for 1 week can be used, then 0.25 mg q24h for 1 week, followed by 0.25 mg q48h for 2 more weeks.

In patients that underwent traction removal of a polyp from the external ear canal, a 50:50 mixture of fluocinolone acetonide–dimethyl sulfoxide (Synotic) and injectable enrofloxacin (Baytril, 22.7 mg/mL; bayer-ah.com) can be made as a topical ear medication administered into the affected ear q12h for 1 month. These medications can potentially be ototoxic, although to date this has not been reported as a complication.



Open-mouth radiograph of a cat with inflammatory polyps. Note the thickened bulla (arrow) compared with the contralateral normal bulla.



The very large soft tissue density (arrows) in the pharyngeal region of this lateral skull radiograph represents a large inflammatory polyp.

Ventral Bulla Osteotomy

Indications

While traction with adjuvant medical therapy is a reasonable first-line treatment, ventral bulla osteotomy may be preferred for several reasons:

- The polyp has recurred following manual traction removal and adjuvant medical therapy.
- The polyp was incompletely removed, and the remaining portion cannot be removed with forceps via manual traction (Figure 4).
- The polyp can be seen behind the intact tympanic membrane.
- The client wants the pet to undergo only one procedure with the best possible success rate.
- Marked radiographic changes have occurred in the bulla (although some cats will still respond to traction and medical therapy).
- The polyp extends into the external ear canal (although some cats will still respond to traction and medical therapy).



4 This nasopharyngeal polyp has a long thin stalk, which usually indicates that the root of the polyp has been retrieved.

Postoperative Care

IV fluids should be continued for 24 to 48 hours or until the patient is eating. Analgesia is effectively maintained with transmucosal (oral) buprenorphine. Antibiotic selection should preferentially be based on culture results and sensitivity testing. If these results are not available, a 4-week course of antibiotics (empiric choice) is prescribed. An Elizabethan collar may be needed until external sutures are removed 10 to 14 days after surgery.

Complications

Learning surgical anatomy can help minimize complications when performing ventral bulla osteotomy. Horner syndrome (Figure 5) is seen in about 80% and 40% of cats undergoing bulla osteotomy and polyp traction removal, respectively. This complication usually resolves within weeks to months after surgery.

Vestibular signs are unusual and typically result from aggressive debridement of the bulla with damage to the semicircular canals of the inner ear. This complication frequently resolves with time unless severe irreversible damage to the inner ear has occurred. Vestibular syndrome, when present prior to surgery, likely will not resolve after surgery.

Facial and hypoglossal nerve paralyzes are rare. Infection is rare with appropriate antibiotic therapy. Polyp recurrence can be reduced with adjunctive medical therapy.



5 Horner syndrome in a cat following ventral bulla osteotomy. Note the miotic pupil, drooping upper eyelid, and prolapsed third eyelid.

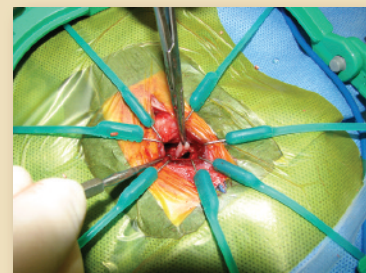
On the Cutting Edge

A CO₂ laser can destroy remnants of the polyp in the middle ear via an aural approach. However, no studies have been published on the efficacy of this technique or any associated side effects.

What You Will Need

- General surgical pack
- Small Gelpi (2), ring (1), or Senn (2) retractors
- Freer elevator
- Suction with Frazier suction tip
- Curved mosquito or alligator forceps
- Spay hook
- $\frac{5}{64}$ " Steinmann pin with Jacobs chuck
- Fine curette (ie, dental/ear curette)
- Fine Lempert rongeurs or Kerrison up-biting rongeurs

Operating telescopes with 2.5× to 3.5× magnification and an operating headlamp will facilitate performing the procedure.

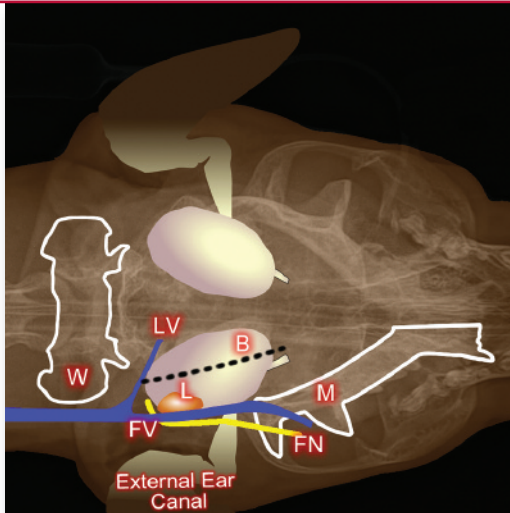


A ring retractor eliminates need for an assistant.

Step-by-Step ■ Ventral Bulla Osteotomy

Note: All images show the ventral view and are courtesy Dr. Daniel A. Degner.

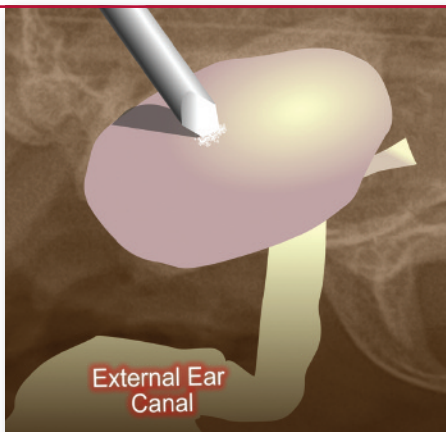
Step 1



Position the patient in ventral recumbency, and place a small rolled towel on the dorsal aspect of the cranial neck. Incise the skin over the palpable extents of the tympanic bulla (**B**, dotted line). This incision should extend through a thin layer of muscle over the bulla, which includes the platysma and sphincter coli muscles. Be careful to minimize transection of the large lingual (LV) and facial (FV) veins located over the lateral and caudal aspects of the bulla. The hypoglossal nerve (not shown) is frequently visualized and can be gently retracted in a medial direction.

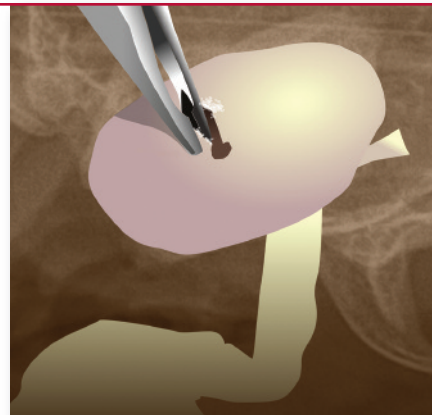
B = bulla, FN = facial nerve, FV = facial vein, L = submandibular lymph node, LV = lingual vein, M = mandible, W = wing of the atlas bone

Step 2



Using a Steinmann pin, make an initial hole in the bulla. Direct the pin laterally to avoid penetrating the oval promontory or other vital structures.

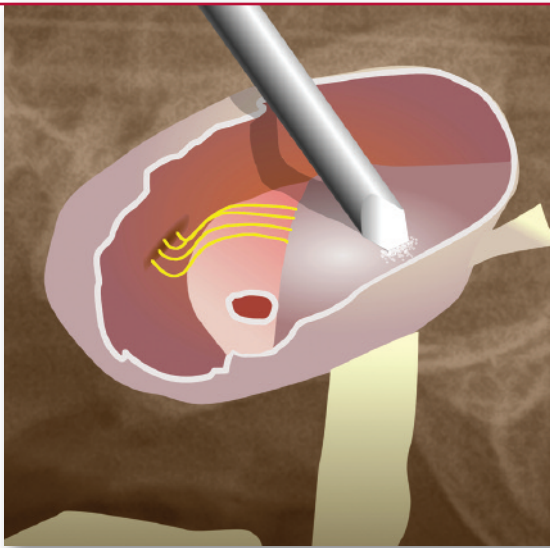
Step 3



Use a Lempert rongeur to continue the bulla osteotomy via the initial hole. Remove a sufficient amount of the bulla wall to expose the ventromedial compartment of the bulla and the septum of the dorsolateral compartment of the bulla.

Author Insight In cats, the bulla is an easily palpable, spherical protrusion located over the caudoventral aspect of the skull; additional landmarks for incision usually are not needed. Some surgeons, however, reference the wing of the atlas as a landmark caudal to the bulla and the caudal aspect of the mandible as a landmark craniolateral to the bulla. A ventral approach to the tympanic bulla is used to expose the bulla.

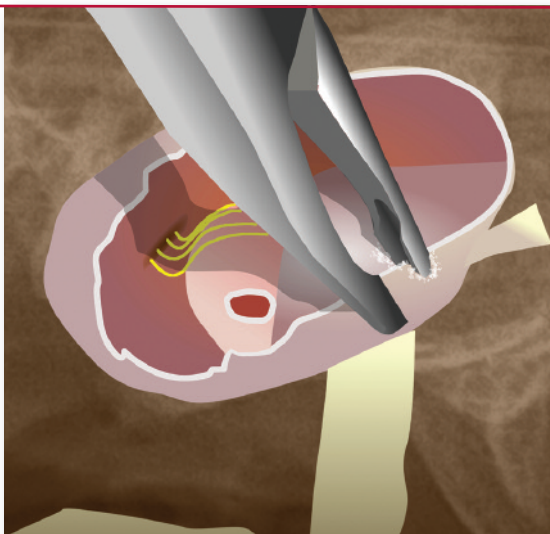
Step 4



Penetrate the septum with a Steinmann pin in order to enter the dorsolateral compartment. Be sure not to disturb the sympathetic nerve fibers (**yellow lines**) that pass through the occipitotemporal fissure located on the dorsal caudomedial aspect of the bulla. In cats, these fibers are spread along the promontory, run dorsal to the bony septum, and exit the bulla rostrally via another foramen.

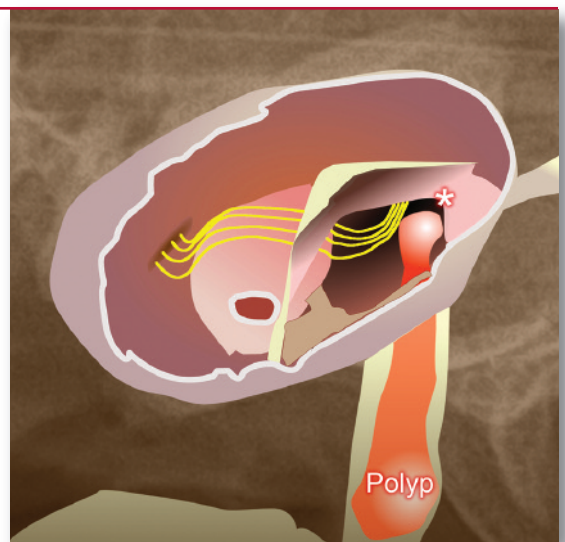
Author Insight Large polyps should be extracted from the nasopharynx or external ear canal using mosquito or alligator forceps immediately before a ventral bulla osteotomy. Smaller polyps extending down the external ear canal may be extracted via the bulla osteotomy.

Step 5



Remove the septum with the Lempert rongeur. The most dorsal aspect of the septum can remain intact, thus protecting the sympathetic nerves as they pass through this region. Submit fluid from the bulla and a portion of the polyp for bacterial, fungal, and mycoplasmal culture.

Step 6



Remove the remaining root of the polyp located in the dorsolateral compartment using a small dental or ear curette or Kerrison up-biting rongeur. The polyp root may be located at the entrance to the auditory tube. Care must be exercised to prevent damage to the sympathetic nerve fibers. Lavage the bulla using saline and close the muscle layer, SC layer, and skin routinely. Surgical drains are not required. ■ **cb**

For More



See an exclusive video of **Ventral Bulla Osteotomy in a Cat** by Dr. Daniel A. Degner at cliniciansbrief.com/ventral-bulla-osteotomy-2012

See **Aids & Resources**, back page, for references & suggested reading.