

seated infection.

The only way to control these infections is to remove the external ear canal and as much of the bulla as possible. This surgery significantly relieves pain and usually eliminates the need for any further treatment of that ear.

The diseased tissue removed at surgery is analyzed to determine the infective agent. Similar to other procedures, drainage tubes may be left in place for approximately two weeks following surgery.

We may also place your pet on a long course of antibiotic therapy to resolve existing infection (Figures 3 & 4).

Ear canal ablation with bulla osteotomy may also be performed as surgical down-staging and palliative treatment for tumors of the ear canal, bullae and peri-aural structures (Figures 5 & 6).

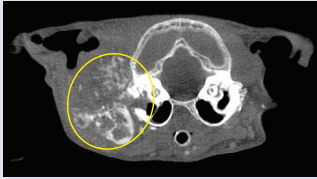


Figure 5: Feline cross sectional CT scan

Note the extreme bony proliferation (circle) of the right bulla into the soft tissues of the head

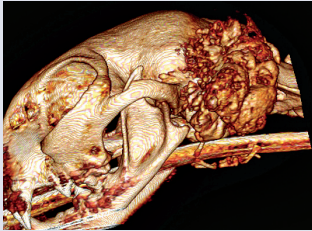


Figure 6: 3-D Reconstruction of Figure 5 (Proliferative feline bulla)

Note the abundant bony overgrowth

Conclusion

Ear infections and the resulting inflammation and pain can be a serious problem for you and your pet. They are uncomfortable or painful to your companion and can significantly reduce quality of life. Further, their management can require significant time, energy and expense on your part- resources that you would doubtless prefer to spend on your pet a different way. Surgery may be a good alternative to reduce the risk of chronic ear disease, hearing loss or neurologic disorders while maintaining a healthy, comfortable lifestyle.

Remember that each ear problem is unique and requires individual examination, diagnosis and treatment by your family veterinarian. Consultation with both your veterinarian and the surgeons at Veterinary Surgical Centers can help determine if a surgical alternative is appropriate for your pet. For an evaluation of your pet's condition or for further information about the diagnosis and surgical treatment of chronic ear disease, please call any of our offices.



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Ear Disease Problems and Solutions



Come. Sit. Stay.
Heal...

Ear Disease

Painful ear disease can be common in companion animals. Bacterial and/or yeast infections, foxtails and other foreign bodies, external parasites, allergies and skin conditions are the most common causes of ear disease. Tumors and other systemic disorders can also damage the ear and related structures. In some breeds, notably the cocker spaniel, the ear canal contains an excessive number of oil and sweat glands that can become blocked or infected, predisposing the ear to problems.

Left untreated, ear disease can result in discomfort or pain, ruptured eardrums accompanied by hearing loss, and extension of infection into the middle and inner ear. Middle and inner ear disease may cause loss of balance and other neurologic problems.

Structure of the Ear

The ear canal in small animals is significantly longer than the external ear canal in people. The external portion of the canal itself is a tube of cartilage lined with skin, hair and glands. Furthermore, the canal is not a straight tube but, rather, bends inward toward the inner ear and brain. It is not unusual for this angle to approach 90° in many dogs and cats. Because of the "L" shape of the canal drainage and air circulation are minimal, creating an environment that is well-suited to the proliferation of bacteria and yeast (Figure 1).

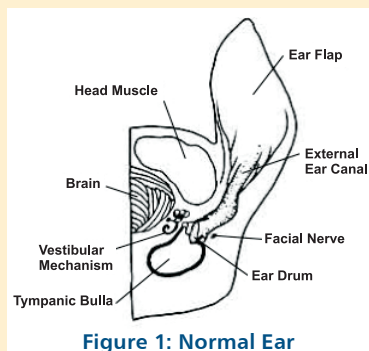


Figure 1: Normal Ear

The external ear canal terminates at the tympanum (eardrum) which separates it from the bulla, or middle ear. The bulla is a circular canal of bone at the base of the skull behind the temporomandibular joint just next to the brain. Openings from the bulla lead to the vestibular apparatus of the inner ear (which helps to control balance, head position and eye movements) as well as to the back of the throat (the Eustachian tube).

Dogs and cats can suffer infection of any of the three regions of the ear: external, middle and inner. Often, infections affect two or more regions simultaneously. Because the very structure of the dog

and cat ear so naturally predisposes itself to infection, surgical intervention may be helpful in preventing chronic or recurrent disease.

Care of the Ear

Keeping the ears clean and dry and regularly checking for foxtails or other debris will reduce the risk of infection or injury. Your family veterinarian will thoroughly examine the ears during routine checkups and can provide you with specific advice for the ongoing care of your pet's ears.

If your companion has frequent ear infections, surgical procedures can help protect hearing, improve drainage, relieve pain and improve quality of life by removing the infected and diseased tissues.

Lateral Ear Canal Resection

This surgery is an option when infection is isolated to the vertical part of the external ear canal only. Removing part or all of the vertical canal improves drainage and air circulation. At the same time, infected tissue can be removed.

While this surgery may not entirely prevent future infection, it helps to reduce its frequency by reconfiguring the structure of the external ear canal. This improves circulation and provides easier access to the ear for routine cleaning and treatment with topical medications.

This surgery is most effective when combined with a comprehensive, vigorous and sustained home care regimen. Effective control of your pet's allergies can be helpful as well.

Ventral Bulla Osteotomy (VBO)

When chronic external ear canal infections are unchecked, the disease can travel all the way down to the eardrum. Sufficiently strong infections or masses can rupture the eardrum and also infect the middle ear (bulla). If the eardrum is recently ruptured the bulla can be cleaned through the tear from the exterior (via the external ear canal). However, as often occurs, if the eardrum has subsequently healed, it must be re-perforated to gain access for the removal of the infected material in the middle ear. Many times this material is so compacted in the bulla that flushing alone is insufficient therapy to resolve the condition.

VBO is most commonly performed for cats with inflammatory polyps growing in the middle ear. Young adult cats with such growths often present for persistent

gagging or head-shaking, and with complete removal of the polyp most will be relieved permanently of their discomfort (Figure 2).

A VBO preserves the intact eardrum (and hearing) while still allowing a thorough cleaning of the middle ear. A small incision is made in the neck of the patient to gain access to the bulla. Once exposed, the bottom section of the bony canal is cut away and the impacted infected material of the middle ear is removed. This material is assessed to identify the mass or microorganism (bacteria and/or yeast) causing the problem so that appropriate medication can be prescribed.

Rubber tubes may be placed in the middle ear and remain in place for several weeks after surgery to allow any residual material to drain to the exterior. If tubes are placed, we will provide you with complete instructions on the care of these tubes and your pet during this recovery period.

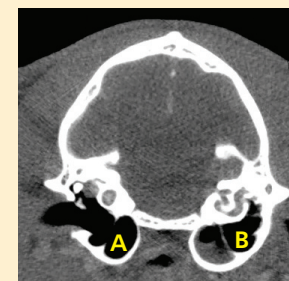


Figure 2: Feline cross-sectional CT. Note the contrast of the normal left bulla (A) versus the fluid density present in the abnormal right bulla (B). This image also highlights that cats have two compartments to their bullae.

Ear Canal Ablation with Bulla Osteotomy

Sometimes chronic or severe infection irreversibly damages the ear canal and eardrum. In such cases, hearing is already diminished or abolished by the disease and your pet suffers considerable discomfort and pain from deep-

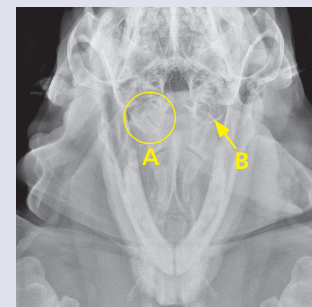


Figure 3: Canine open mouth skull radiographs. Note the extreme thickening of the abnormal left bulla (A) versus the normal right bulla (B).

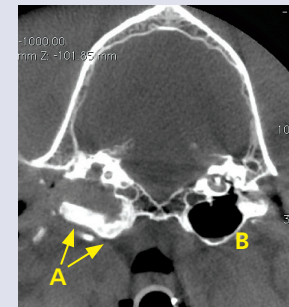


Figure 4: Canine sagittal skull CT scan. Illustrates the excessive thickening of the abnormal left bulla (A) and normal appearance of the opposite right (B).