

Total Ear Canal Ablation (TECA): A Pet Owner's Guide

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Why does my pet need a TECA surgery?

Chronic ear infections are very difficult to control or eliminate. The anatomy of the ear canal predisposes it to trapping bacteria and the pus and debris that comes with infection. Eventually chronic inflammation associated with the infection thickens the tissues lining the ear canal, growing inward such that it becomes closed. This prevents topical ear medications from contacting the bacteria or yeast deep in the canal and, more importantly, prevents the pus and debris from getting out. The end result is a vicious cycle of worsening infection and severe permanent changes in the ear. Usually the ear drum is no match for this degree of infection and will rupture; middle ear infection results. When the disease within the canal and the middle ear reaches this point, it is generally not possible to reverse. Surgery to remove the abnormal tissue and the infection eliminates the problem at the source.

Cocker Spaniels are a unique player when it comes to ear canal disease. They can create canal disease *without infection starting or perpetuating it*. Something like "the chicken and the egg" scenario, the tissue of the ear canal in Cockers will thicken and change and create the environment for infection to brew. **Their ears cannot be reversed with any amount or type of topical medications**; all too often, these dogs suffer many years of ear treatments and discomfort with no chance of recovery without surgery. Veterinary medicine has enough history with this breed and condition to predict this outcome.

Cancer within the ear canal is another reason for performing this type of surgery. In some but not all cases, surgery can be curative for aggressive cancers of the ear canal if the tumor has not invaded through the cartilage or into the middle ear cavity.

Is the TECA surgery the right choice for my pet at this time?

Making the decision to go to surgery with your pet is never easy. Listed below are "pros" and "cons" of information to help work thru this decision.

TECA surgery will do the following:

- Eliminate ongoing ear pain and odor;
- Stop the need for and cost of ear medications and veterinary visits to treat long-term and frequent ear infections;
- Cure most ear canal tumors/cancers;
- Improve your relationship with your pet (no odor, no pain, no difficult ear treatments);
- Improve your pet's attitude, activity and general well being with the removal of chronic pain and inflammation.

TECA surgery is not right for your pet at this time if:

- Your pet has other medical issues that make general anesthesia too dangerous;
- An ear tumor/cancer has already spread to other areas of the body;
- Another ear canal surgery is sufficient to manage the ear disease your pet has;
- You do not wish to accept the surgical risks.

The majority owners with pets having very chronic ear troubles report a dramatic change in their pets' attitude after surgery. "A new dog!" "She is like a puppy again!"

Now that I have decided that surgery is right for me and my pet, what needs to happen before surgery?

Commonly, your veterinarian will suggest performing a *panel of screening blood tests* to evaluate major organ function before anesthesia; this is routine and helpful in choosing anesthetic drugs and postoperative medications.

In some cases, *x-rays of the skull* are helpful in determining the extent of the disease; this is most common in the case of ear tumors or when there is evidence of more advanced neurologic problems (head tilt, abnormal eye movements, facial palsy). In a smaller number of cases, an MRI or CT scan might be helpful to fully understand the nature of the disease.

When there is a tumor in the ear canal, we often suggest *routine chest x-rays to evaluate the lungs for any spread of the tumor*. This is quite rare, but the screening tests are simple and prevent an unnecessary surgery in the case of advanced disease.

And as part of your pet's normal physical exam, your veterinarian will *evaluate the cranial nerves* and their function. Commonly, the facial nerve is negatively affected by ear infection and tumor; this can be identified prior to surgery.

What exactly does a TECA surgery involve?

After your pet is under anesthesia, his/her ears flaps and surrounding skin are shaved, and the ear canal is cleaned. The area is prepared for sterile surgery. An incision is made around the cartilage of the external/outer ear canal, and the canal is removed down to the level of the middle ear. The middle ear (also called the "bullae") is a boney, eggshell-like structure on the side of the skull. The eardrum usually is stretched across the opening between the external/outer ear and the middle ear. In the majority of dogs requiring a TECA, the ear drum has long been ruptured. The middle ear is cleaned of infected material and tissue, and then flushed with sterile saline. A culture sample is taken at this time to help identify any remaining bacteria.

The surgery is completed by sewing the tissues closed in several layers, ending with sutures in the skin completely closing what used to be an open ear canal. Occasionally, a temporary drain will be left in place for 3-5 days if infection was severe.

What is going to happen after the TECA surgery?

Your pet may come home the same day as surgery, or stay in the hospital for 24hrs, depending on the anesthetic recovery. An antibiotic will be prescribed for up to 2-4wks. Pain medications will be prescribed for the first two weeks postoperatively, and your pet may have a pain patch that will continuously release pain medication thru the skin for the first 3-5 days.

Patients are often more comfortable if their head and ears are bandaged snugly to prevent ear flapping or bumping the incision. Since head bandages are sometimes difficult to maintain in place, your pet may have a stockinette "tube" that he/she can wear over the head and ears like a turtleneck

shirt that "isn't pulled all the way on". This will serve the same function of keeping the ear(s) snug against the head.

Sutures will need to be removed 10-14 days after surgery

What are the possible complications associated with a TECA?

Complications fall into four categories:

1) Anesthetic complications-- In general, most anesthetic problems can be foreseen and prevented with advanced planning using the physical examination and the preoperative bloodwork. *There are no anesthesia complications unique to TECA surgery*, although each patient is unique with his/her own limitations and concerns to be managed.

2) Nerve damage-- As mentioned above, the facial nerve (one of the twelve cranial nerves) lies next to the ear canal. When longstanding ear disease has caused the infection or tumor to extend thru the wall of the ear canal, the facial nerve is often trapped in this abnormal tissue. *During the removal of the ear canal, the facial nerve can be temporarily or permanently damaged*. This results in the loss of the "blink" function of the eyelids and a slight facial droop on the side of the ear surgery. Initially after surgery, we recommend eye ointment to keep the eye moist in the absence of the eyelids blinking. Rarely does this palsy last longer than 2-3wks, but it can be permanent and then will require eye ointment lifelong. The more extensive the ear disease at the time of surgery, the more at-risk is the facial nerve. Fewer than 10% of patients experience permanent facial nerve palsy due to surgery.

3) Vestibular problems-- The middle and inner ear are responsible for maintaining our balance and sense of orientation. "Vertigo" is the sense of dizziness we, and our pets, feel when these structures are disturbed. For pets with early ear disease, a normal middle ear and a normal eardrum, surgery that disrupts the eardrum and middle ear can be a sudden enough change to cause vertigo. *For pets with longstanding ear disease, the changes have been gradual enough to the middle ear that surgery does not create any sudden change; they usually do not experience vertigo*. Rarely does this feeling last more than a day after surgery. Some pets with signs of vertigo before surgery (due to their ear disease) will find relief from these signs after surgery, but some signs may remain. The most common is a head tilt to one side.

4) Infection-- The normal ear canal and middle ear are essentially an extension of the skin on the surface of the body. They are lined by tissue (called epithelium) that sheds cells, just like our skin sheds cells. The TECA surgery totally removes the ear canal and closes this opening to the outside. The middle ear (bulla) is also lined by a very thin layer of epithelium; during surgery, this bulla cavity is cleaned of all recognizable tissues, but if any microscopic cells remain, they can grow and expand and begin to shed cells again. *This debris can accumulate in the bulla, sometimes becomes infected, and ultimately will need to find a way out*. This often presents as a swelling on the side of the head months to years later. Treatment is aimed at encouraging this pocket of debris to "head up" and drain like an abscess; thereafter, patients may develop a tiny draining tract where the ear canal used to be that drains small amounts of waxy debris occasionally. If there are signs of infection (fever, pain), antibiotics may be used for treatment too. Approximately 5% of patients will experience this complication.

Will my pet lose the ability to hear after surgery?

This is the most common question asked regarding this surgery. And the answer is "it depends". It depends on the disease status before surgery, and it depends on what one considers "hearing".

The majority of pets with chronic ear disease (like those in Cocker Spaniels) have lost their ear drums, their middle ears are filled with abnormal fluid or tissue and their ear canals are so thick they are no longer open. What we generally think of as "hearing" requires air vibrations to pass thru the ear canal, cause the eardrum to vibrate, which causes delicate, little bones in the middle ear to move against inner ear structures that send signals to our brain registering that we heard something. None of these normal ear hearing things are happening in patients with chronic ear disease. Surgery will not change the status of these patients' hearing.

So, what about those patients with very severe, chronic ear disease who appear to still respond to sound? Are they not hearing? Well, they probably are, and the *type of "hearing" they are experiencing is likely what patients experience after the TECA surgery.* The closest example that we, as humans, can understand is probably hearing under water. The experience is very garbled and indistinct, but with time, we probably could learn to understand things somewhat. Most owners report that their pets appear to experience something like hearing, responding to their food dish and their name and sudden, loud noises such as a car door slamming or the doorbell ringing.

Summary

The total ear canal ablation surgery is a major experience for your pet and you. It is also one of the most rewarding surgery we can perform. *Time and again, we see patients rejuvenated with this procedure, simple because we are eliminating a longstanding and underappreciated source of pain and suffering.* Families, too, experience the dramatic difference with the removal of often profound odor and the improvement of their pet's temperament.

For pets with ear canal tumors with no history of chronic ear disease, it may seem like a dramatic procedure for treatment. But these patients often have an easier time with surgery and fewer complications because they do not have the associated challenge of major, chronic infection. They are also usually cured of their disease.

The TECA surgery should be considered early in the course of ear disease, when complications will be fewest and when benefits can be appreciated the longest.