



Total Ear Canal Ablation/ TECA

Total Ear Canal Ablation or TECA is used to describe a procedure used to manage severe canal or middle ear disease in dogs where other methods of treatment have failed. The full name of the procedure is Total Ear Canal Ablation with Lateral Bulla Osteotomy (TECA + LBO) but most commonly called TECA.

“Dogs that have had long-standing ear infections may develop irreversible damage to the ear canal”

What causes ear disease in dogs?

Canine ear disease usually occurs due to inflammation of the skin that lines the ear canal (otitis externa) which can lead to secondary infection of the middle ear chamber (otitis media).

In the majority of cases, inflammation of the skin within the ears is part of a more generalised skin condition. As a result, dogs suffering from ear problems often lick or chew at their feet or experience irritation elsewhere. Severely affected dogs can suffer from skin allergies over other parts of their body, in addition to the ear disease.

The reason that the ears are often more severely affected by this generalised skin irritation, than other areas of the body, is because of the environment within the ear canal. Initially the hypersensitivity or skin allergy causes a low level of inflammation which allows bacteria and yeast organisms that normally live on the skin to increase in numbers. In mildly affected dogs, most areas of the skin can avoid significant organism overgrowth, but the moist and warm environment within the ear canal provides the ideal environment for these organisms to grow and therefore cause further inflammation. As the organisms increase in numbers, and the infection progresses, the ear canal can become irreversibly narrowed, and the middle ear chamber can also become filled with infected material .

Initial treatment aims to break this vicious cycle using a number of techniques

- Topical ear medication.
- Topical ear anti-inflammatory medication.
- Systemic (oral) antibiotic and/or anti-inflammatory drugs.
- Ear flushing techniques.

The key to successful management of ear disease lies in controlling the bacteria and yeast organisms within the ear canal and soothing the inflammation, as well as addressing the underlying cause of the irritation. Treating the initial or underlying cause will usually involve recognition and correction of predisposing factors that can affect a dog's chance of getting ear disease. This may require allergy testing or dietary management to reduce the level of allergic inflammation in the skin.

"Ear canal surgery is reserved for those cases that cannot be managed satisfactorily by medical means."

The operation involves the removal of the entire ear canal. The outside part of the ear (the pinna) and the hearing organ (inner ear) itself are left in position. Following removal of the diseased ear canal, part of the bony wall of the tympanic bulla (middle ear) is also removed to facilitate removal of infected material from the middle ear chamber. This step is key to the success of the procedure.

How do I know if my dog will benefit from the TECA procedure?

Chronic ear disease can be very painful for your dog and extremely challenging for both you and your veterinarian to manage. This procedure is designed to eliminate the need for ear drops and significantly improve the comfort level of your dog's ear.

"The diseased ear canal is removed entirely during the surgical procedure"

Indications for the TECA surgery:

- Chronic end-stage otitis externa (ear canal inflammation/infection) with obstruction of both vertical and horizontal ear canals. Ear canal narrowing due to chronic ear disease that has resulted in an inability to adequately medicate the ear canal.
- Persistent otitis, following Lateral Wall Resection (LWR) or Vertical Canal Ablation (performed to manage ear canal disease).
- Otitis externa that has progressed to otitis media (middle ear inflammation/infection) and is non-responsive to medical treatment.
- Difficulties in administering topical treatment for ongoing otitis external.
- Tumor involving the vertical and horizontal ear canals.
- Severe trauma to the vertical and horizontal canal.
- Congenital anomalies of the ear canal.

Are there other options?

It is usually appropriate to ensure that all reasonable steps have been taken to manage the condition medically before seeking a surgical solution.

Surgical procedures such as Lateral Wall Resection (LWR) or Vertical Canal Ablation (VCA) are sometimes offered in order to improve the air flow to the remaining ear canal skin and to help control the bacterial and yeast populations. These procedures are simpler than TECA surgery and aim to preserve more of the 'normal' anatomy of the ear canal. Unfortunately, ear disease inflammation and infection often involves too much of the ear canal for these techniques to be effective and therefore they are not appropriate for many dogs suffering from otitis externa.

Pre-operative Tests

- Preoperative tests depend in part on the age and general health of the animal.
- Often a complete blood count, serum biochemical test, a urinalysis, and possibly an EKG will be performed prior to surgery.

Type of Anesthesia:

- This is a surgical procedure that involves removal of the ear canal. General anesthesia is needed to induce unconsciousness, complete control of pain, and muscle relaxation.
- In the usual case, the pet will receive: a) a pre-anesthetic sedative-analgesic drug to help him/her relax; b) a brief intravenous anesthetic to allow placement of a breathing tube in the windpipe; and c) inhalation (gas) anesthesia in oxygen during the actual surgery.

Surgical Procedure:

The operation involves the removal of the entire ear canal. The outside part of the ear (the pinna) and the hearing organ (inner ear) itself are left in position. Following removal of the diseased ear canal, part of the bony wall of the tympanic bulla (middle ear) is also removed to facilitate removal of infected material from the middle ear chamber. This is called a lateral bulla osteotomy. This step is key to the success of the procedure.

“About 50% of the dogs that have chronic ear infections have a ruptured ear drum and infection in the middle ear”

Drains are inserted into the surgical site if the infection is severe. About 98% of the cases that have a bulla osteotomy do not receive drains. If drains have been placed, antiseptic may be needed to be injected through the drains and the bandages changed twice daily for 6 to 7 days.

Aftercare following surgery are usually:

- E-collar to prevent scratching the ear incision.
- Eye drops for two weeks if the blink response is not normal.
- If drains have been placed, the bandage may need to be changed as often as twice daily for 6 to 7 days.
- Oral pain medications.
- Antibiotics may be prescribed if severe infection is present.
- Sutures will be removed 10-14 days after surgery (if present).

- Medical management of underlying diseases, such as allergies or poor thyroid function, will need to be continued for life to prevent recurrence of clinical signs.

Benefits of surgery

- Typically a dog that has chronic deep seated ear infections will be much less active than a normal dog because they do not feel well.
- Most owners report that their dog is much more comfortable **after** the TECA surgery.

Will my dog still be able to hear after the procedure?

The hearing organ itself is not removed during the TECA operation. However, the removal of the ear canal itself will result in reduced hearing sensitivity, similar to the effect of wearing ear plugs or being under water.

Most dogs undergoing TECA have severe changes to the ear canal before the procedure and they have already a significant loss of hearing, thus most owners do not perceive a large difference post-operatively.

TECA surgery on both sides is sometimes required and can result in significant loss of hearing sensitivity.

What is the success rate of this procedure?

When performed by an experienced surgeon, more than 90% of owners report a significant improvement in their dog's quality of life following the procedure.

“Due to the delicate nature of this procedure, an experienced surgeon will have fewer complications during the surgery”

Risks and complications of TECA Surgery ?

- The overall risk of this surgery is low. The major risks are those of general anesthesia, bleeding (hemorrhage), postoperative infection, and wound breakdown (dehiscence) over the incision.
- Overall complication rate is low, but serious complications can result in anesthetic death or the need for additional surgery. With the use of modern anesthetic protocols and extensive monitoring devices (blood pressure, EKG, pulse oxymetry, and respiration rate), the risk of problems with anesthesia is minimal.
- **Facial nerve paralysis**, which is the most common complication of total ear canal ablation, occurs in about 5 to 10% of the patients. The more severe the ear disease, the greater the risk of this problem. The facial nerve wraps around the base of the ear canal and is important for function of facial muscles. If this nerve is bruised from the surgery your pet will not be able to close the eyelids, and the lips will appear droopy on the operated side. Eye drops may be required to prevent drying of the eye until the nerve palsy has resolved. In most cases, facial nerve paralysis is a temporary problem and resolves within 2 months.

- **Bleeding** – there are several important blood vessels in the region and significant bleeding can occur during the TECA operation. Experienced surgeons will take steps to avoid significant bleeding and are well positioned to minimise the risk of life threatening levels of haemorrhage.
- **Pain** upon opening the mouth or difficulty chewing can occur if the joint of the jaw, which is located just in front of the middle ear, gets inflamed from middle ear infection or from surgery. This problem typically resolves within 2 weeks.
- **Horner's syndrome** is where the pupil becomes constricted and third eyelid covers part of the eye. This syndrome is caused by damage or inflammation of the sympathetic nerve that runs through the middle ear. This is an unusual complication as the nerve is fairly well protected in dogs.
- **Vestibular syndrome** (balance problems or Head tilt) can occur as the balance organ is located in the inner ear. Less than 2% of patients develop this problem, but it is more common in those patients that have had previous balance problems or a head tilt.
- **Swelling** after surgery is may occur and be due to oozing of blood or accumulation of clear fluid at the level of the ear. In some cases that swelling occurs shortly after surgery and results in swelling in the throat region which results in breathing difficulty. This is an uncommon complication occurring in about 5% of the patients.
- **Recurrent infection** is an uncommon complication, usually due to unresolved infection at the level of the middle ear or ascending infection from via the auditory tube, and may require a second surgery to clean the bulla (Ventral Bulla Osteotomy).
- **Pinna (ear flap)** position and movement – unfortunately the requirements of the procedure can result in an alteration to the appearance or carriage of the pinna in some cases. This may mean that postoperatively the pinna is carried flat rather than upright in some patients.

Prognosis:

Prognosis is very good following surgery.

Hospital stay following TECA Surgery:

Your pet will stay in the hospital for 24 hours after the surgery providing that recovery is uncomplicated.