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## Ear infections in dogs

What sort of ear infections do we see in dogs?

Most ear infections in dogs involve the ear canal (the tube between the middle ear and the external ear flap), rather than the middle ear itself. This is similar to the condition known as "swimmers ear" in people.

The infection may be caused by bacteria, yeast or a combination of the two.

Ear canal infections (also known as otitis externa) are very painful. The ear may be hot and red, and it is common to notice a smell or discharge from the ear. Most dogs will shake their heads, scratch at the ear and cry when the ear is handled.

Why do dogs get ear infections?

Ear infections usually occur because the ear is abnormal in some way, making it easier for bacteria and/or yeast to multiply and cause infection. Some of the most common underlying causes are:

1. Grass seeds or other foreign objects in the ear
2. Allergic skin disease (including allergies to food, pollens, dust mites)
3. Frequent swimming, leading to a damp environment inside the ear



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4. Floppy ear flaps, hairy and narrow ear canals, all of which lead to poor ventilation inside the ear
5. Ear mites (most common in puppies)
6. Excessive wax production (most common in cocker spaniels)
7. Tumours or cysts in the ear canal

How are ear infections investigated?

Your vet will examine your dog's ears with an instrument known as an otoscope. This allows the vet to check for any foreign material in the ear, assess the ear canal for narrowing, excessive hair or wax, and any tumours or cysts. It is also important to check that the eardrum is not ruptured, as most of the commonly used ear medications should not be used if the eardrum is ruptured.

In the case of a first, simple ear infection, your vet may prescribe ear medication straight away following this examination. However, if the appearance of the ear is at all unusual, or if your dog has already suffered from a recent ear infection, further investigations are required. These may include:

1. Cytology - a sample of the ear discharge is examined under the microscope at the surgery to find out if the infection involves bacteria, yeasts, or both. This result is available immediately.
2. Bacterial culture - if the cytology sample is suggestive of a particular class of bacteria, a sample of the discharge is sent away to the lab for the bacteria to be cultured and tested to see



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which antibiotics are likely to be effective. This result can take up to a week to come back.

3. Examination of the ear under anaesthetic - this is necessary if the ear is too sore to allow a proper examination, or if there is too much discharge, wax or hair to see exactly what is going on.

4. Xrays (or, ideally CT scans) to see what is going on inside the middle ear and the bony parts of the skull at the base of the ear.

How are ear infections treated?

Depending on the results of the above investigations, treatments are likely to include:

1. Ear cleaning (either at the surgery or at home). Sometimes it is necessary to carry out a thorough ear flush under a general anaesthetic - this allows thorough removal of all discharge and debris, flushing of the middle ear if necessary, and soaking the entire ear canal in a potent antimicrobial solution.

2. Medication to go down the ear, containing antibiotic, anti-yeast and anti-inflammatory ingredients. These medications are often given by the owner as a squirt down the ear once or twice daily for 1-2 weeks. Alternatively, a slow-release gel is available that is put down the ear by the vet on two occasions, one week apart - this option is best if ear medications are difficult to give at home (particularly if the ear is very sore or narrow) and for cases where it is desirable to avoid excessive wetting of the ear canal.

3. Pain relief (tablets or oral liquid) until the infection is under control



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4. Anti-inflammatory steroid tablets if the ear canal is very swollen
5. Removal of any foreign material or excessive hair/wax

What can be done to reduce the likelihood of future ear infections?

Depending on the underlying cause, options for reducing the risk of repeat ear infections may include:

1. Regular cleaning (especially for ears that produce a lot of wax)
2. A special anti-allergic diet (for dogs suspected to have allergic ear disease, in case their allergy is to food)
3. Regular application of steroid drops into the ear to control inflammation before it leads to infection
4. Regular plucking of hairy ear canals, and keeping the fur on the inside of the ear flaps short, to help ventilation.
5. Avoiding swimming or areas where grass seeds are likely to be found.
6. Tablets to control allergic skin disease

It is important to bring your dog to the vet at the end of the ear treatment to check that the ear has completely returned to normal before the medication is discontinued.

What if my dog's ear infection does not clear up, or continues to recur frequently?



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If the infection is not clearing up, samples for bacterial culture and antibiotic sensitivity testing and a thorough ear flush under anaesthetic should be performed.

If the infection does clear up with medication, but returns again quickly, efforts should be focused at identifying and correcting underlying causes, as outlined above.

In some cases, an ear infection may fail to respond to treatment, or may respond briefly but recur frequently, despite following all of the guidelines. Sometimes this is because it is impossible to adequately control the underlying causes. Sometimes this is because infections become resistant to medication, or become embedded deep within the bone of the middle ear, where medication cannot really penetrate. Ear infections are very painful, and if the above medical management fails to keep your dog's ears clean and comfortable, further treatment is required. These cases are usually treated with surgery.

What are the surgical options for treating ear disease?

Surgery involves either opening up the ear canal to improve ventilation; or removing the ear canal altogether so that there is no longer any ear canal to become infected.

The first surgery is known as a "lateral wall resection" (LWR) and involves taking away the outside wall of the top, vertical part of the ear canal to improve ventilation. This surgery is particularly suitable for Shar-Pei dogs, and dogs with tumours or cysts affecting the top part of the ear canal only. For most other dogs, it is unlikely to be effective, because the middle ear, the bottom part



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of the ear canal, and the inside wall of the rest of the ear canal are left behind and can continue to cause trouble.

The second surgery is known as a "total ear canal ablation" (TECA) and is the most suitable procedure in most cases. It involves removal of the entire ear canal (but not the external ear flap) and the lining of the middle ear. Around 85% of dogs that have a TECA procedure performed are cocker spaniels.

#### Lateral wall resection (LWR)

This procedure is not performed frequently because it is only helpful for disease affecting one particular section of the ear canal. Dogs having the procedure are usually hospitalised for 24 hours and then need to take pain relief medication and wear a buster collar at home for 14 days. A second, short anaesthetic is then performed to remove the tiny stitches that are used to create the new ear opening.

The most common complication of this surgery is that it is not completely successful at preventing further ear infections because it leaves too much of the abnormal ear behind.

#### Total ear canal ablation (TECA)

In this procedure the entire ear canal is removed and the lining of the middle ear is also flushed and scraped away. Dogs that have had a TECA performed cannot get ear infections because they no longer have any ear canals. The ear flap is not removed during the surgery so the dogs look exactly the same as before the





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surgery - however, if the ear flap is lifted up there will just be smooth skin underneath, no hole.

90% of dogs having a TECA performed have a very good outcome. For dogs that have constantly suffered from ear infections, the surgery can be life-changing in taking away the constant discomfort and repeated visits to the vet for treatment. However, it is a fairly big surgery and there are some possible complications that should be considered.

## WHAT ARE THE POTENTIAL COMPLICATIONS OF TECA SURGERY?

1. Reduced hearing. Because the ear canals and eardrums are removed during TECA surgery, dogs will have significantly reduced hearing and a poor ability to identify where sounds are coming from. We believe that the effect for the dog is quite muffled hearing, like being underwater. However, dogs with narrow ear canals and frequent infections / discharge blocking up the ear canals cannot hear well anyway, so in many cases owners do not notice any dramatic difference in hearing after a TECA is performed.

2. Nerve damage. Nerves affecting the eyelids and eye run through the middle ear and around the ear canal. It is common for these nerves to be irritated or bruised during surgery, particularly if the nerve is tightly wrapped around the ear canal and has to be peeled away during the surgery. Damage to these nerves can lead to drooping of the face, or an inability to blink the eyelid on the side of surgery. This type of nerve damage occurs in around



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20% of dogs having TECA surgery but it is usually only temporary and nerve function returns to normal within a few weeks. If it does not return to normal, it may be necessary to apply eye drops on a regular basis to prevent drying of the eye.

3. Vestibular damage. The middle ear contains a sensitive system of fluid and hairs that control balance sensation. If this system becomes irritated when the middle ear is flushed during surgery, dogs may have balance abnormalities on recovery (a head tilt or wobbliness when walking). This is not a common complication and if it occurs, it is usually temporary.

4. Bleeding. A major blood vessel leaves the skull right next to the middle ear, where the scraping and flushing need to occur. Precautions are taken to identify and avoid this blood vessel, but if it is damaged, there can be significant bleeding which can be difficult to control. Approximately 3% of TECA procedures have problems with bleeding.

5. Abscess formation. It is vital that every bit of the ear canal and the lining of the canal and middle ear are removed during the procedure. If any of the lining is left in place, it will continue to produce wax and discharge, which will be unable to escape because there is no longer an ear canal open to the outside. This leads to abscess formation and repeat surgery is required to remove the abscess and any tiny fragments of ear canal that have been left behind. Surgeons performing TECA procedures are meticulous in excising, flushing and scraping away every bit of ear canal tissue to prevent this complication from occurring.





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The risk of complications is reduced by having an experienced surgeon perform the TECA procedure. At Acorn House we have a surgeon with a Post-Graduate Certificate in surgery, who is able to offer the procedure at our usual premises. Alternatively, dogs can be referred to a specialist centre such as Davies Veterinary Specialists, for their surgery.

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