

## INFORMATION ON OTITIS EXTERNA (ear infections)

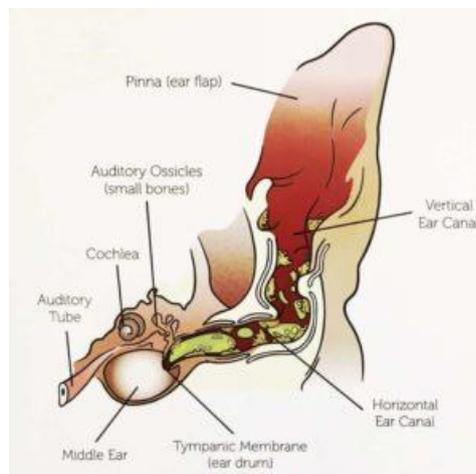
### How common are ear infections?

Ear infections are very common and, in many cases, can become recurrent. They can be very painful and affect your pet's quality of life.

To comprehend better why these infections happen it is important to understand the physiology in the normal ear.

### The normal ear

The ear canal of the dog is an L-shaped structure lined with skin. Just like elsewhere on the body new skin cells are created near the base of the skin layer, and dead cells are continuously shed. These dead skin cells migrate from the ear drum towards the ear entrance. This is called “the self-cleaning mechanism” of the ear, and as well as the dead skin cells, this mechanism removes the cerumen, micro-organisms and allergens, maintaining a healthy environment in the ears.



### When it goes wrong....

When there is inflammation of the skin, this “self-cleaning” mechanism gets disturbed. This leads to swelling and redness of the skin, increased secretions and narrowing of the ear canal. This favours infections and leads to a vicious circle of increased thickening, scar tissue and calcification of the cartilages surrounding the ear canal making it more difficult to treat diseased ears.

## How do we treat ear infections?

**Steroids** are essential to treat the inflammation. The sooner the self-cleaning mechanism is restored, the less likely it is that chronic irreversible changes occur. **Topical treatment** with antimicrobials is needed to treat the infections. Further **pain relief** is often added to the treatment regime.

When treating ear disease it is very important to identify and manage all the causes and factors involved in the development of otitis in dogs, these are:

1. **Predisposing causes:** things that make ear disease more likely to develop, but that are not able to cause ear disease on their own
  - Floppy ear flaps
  - Very long ear canals
  - Hair in the ear canals
  - Swimming
2. **Primary causes:** the conditions causing the initial ear canal inflammation
  - In about 90-95% of the cases we see, this is an allergy
  - Parasites
  - Neoplasia
  - Foreign bodies (like grass seeds)
3. **Secondary causes:** the bacterial and yeast infections
4. **Perpetuating factors:** factors that interfere with the physiological function and alter the anatomical structures of the ear preventing resolution of the otitis
  - Stenosis (=narrowing of the ear canal)
  - Mineralisation of the cartilage surrounding the ear canal
  - Rod-shaped bacteria
  - Biofilm (a slimy layer some bacteria and yeast can produce around themselves protecting them from treatment)
  - Middle ear disease

## Investigation and treatment

A full ear work-up requires a general anaesthetic and consists of the following procedures:

- **Cytology** of an ear swab to assess what type of infection is present
- **CT scan**  
This is the preferred imaging method in most cases as it gives a very detailed picture of the patient's skull. It is used to assess if there is middle ear disease, which can be one of the reasons that an ear infection is not resolving. Around 40% of the dogs with chronic ear infection have changes on the CT scan. If the middle ear is affected a myringotomy would be performed; a small hole would be made in the ear drum to be able to take a sample and/or flush out the discharge. CT scan also provides information on the presence/severity of other perpetuating changes such as the degree of mineralisation of the ear canal cartilages. Overall, the CT scan helps us to establish a more accurate prognosis for the ear disease.



- **Video-otoscopy and ear lavage/flush**



The video-otoscopy is an essential piece of equipment with a light source and magnification that makes clear visualisation of the ear canal and ear drum possible. A tube can be passed through a canal in the scope to safely deep clean the ear canal. Debris (cerumen and leftovers of old treatments) can adhere to the ear canal and ear drum, acting as a nidus for infections. Removing this material and creating a clean ear canal is vital because we want to start treatment in a clean ear canal.

Depending on the severity of the ear disease multiple flushes may be needed to get the ear disease under control

- Possible **culture and sensitivity testing** of the discharge in the ear
- Investigation into the primary cause, which often includes an **allergy work-up**. An allergy work-up includes skin samples, a food trial and once a food allergy has been excluded further allergy testing.
- In some patients **blood tests** will be advised
- **Topical treatment** of the bacterial and/or yeast infection including home **ear cleaning**
- **Steroids** to reduce the inflammation, and extra **pain-relief** if needed

Regular visits are necessary to get ear infections under control and manage these patients long-term. In some cases the changes to the ears are irreversible and a referral to a surgeon may be necessary to perform an operation to remove the ear canal, called a TECA-BO.