How to manage canine otitis

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OTITIS EXTERNA

- Acute or chronic inflammation of the external ear canal
- Incidence in 10-20%, in the cat 2-5% of cases seen in the ambulatory setting

Multifactorial etiology - vicious circle

predisposing factors
primary causes
secondary causes /
perpetuating factors
Otitis - aims

- identification and treatment of the primary cause
- avoid evolution in chronic otitis
- diagnosis - management of the secondary causes, predisposing and perpetuating factors

Acute and chronic otitis

- ACUTE OTITIS
  - < 2-3 weeks
  - identifying 1ry, 2nd causes and predisposing factors

- CHRONIC OTITIS
  - > 2-3 weeks
  - identifying 1ry, 2nd causes, predisposing AND PERPETUATING factors

Chronic otitis

- DERMATOLOGICAL EXAM. and (otologic exam.)
  - identifying the primary cause
  - identifying secondary causes, predisposing and perpetuating factors

- CYTOLOGICAL EXAMINATION
  - identification secondary causes
    - bacteria
      - cocci
      - rods
      - mixed
    - yeasts
      - malassezia
      - mixed with bacteria and yeasts
Otitis – PSPP System©

<table>
<thead>
<tr>
<th>PRIMARY CAUSES</th>
<th>SECONDARY CAUSES</th>
<th>PREDISPOSING FACTORS</th>
<th>PERPETUATING FACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypersensitivity</td>
<td>Bacteria</td>
<td>Anatomic configuration</td>
<td>Excessive wax production</td>
</tr>
<tr>
<td>Foreign bodies</td>
<td>Yeasts</td>
<td>Excessive humidity</td>
<td>Impaired or absent migration of ear wax</td>
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<tr>
<td>Parasites</td>
<td>Excess cleaning</td>
<td>Consequence of treatment</td>
<td>Progressive pathological changes</td>
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<tr>
<td>Keratinisation defects</td>
<td>Drug Reaction</td>
<td>Obstructive disorders of the duct</td>
<td>Otitis media</td>
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<td>Metabolic diseases</td>
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<td>Viral diseases</td>
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Otitis externa - multifactorial etiology -

predisposing factors

primary causes

secondary causes

perpetuating factors

Chronic otitis

- PRIMARY CAUSE
  - persistent itchy in allergic subjects
  - bacterial and / or yeast poorly managed
  - tumors (inflammatory polyp, cancer)
  - foreign bodies or debris undiagnosed
  - metabolic diseases (hypothyroidism, hyperadrenocorticism)
  - disorders of keratinization (primary and secondary)
Algorithm Chronic Otitis

**Secondary cause:**
- Topical therapy
  - Ear cleaning
  - Topical medications SID × 2 wk.
  - TX systemic gi PO × 2 wk.

**identification and management of primary causes, predisposing and perpetuating factors:**

**Clinical and cytological control:**

**Improvement and Compliance**

**Otoendoscopy and Ear Cleaning**

**RX / CT / MRI**

**Continuing Care and Monitoring Over Time Until Healing**

- If the ear canals / bullae are open and clean: cont. therapy at home
- If the ear canals are stenotic: use ear wicks
- If the ear canals are stenotic with calcifications: TECA
- If the ear canals are stenotic with calcifications and signs of bulla walls' osteomielitis: TECALBO

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**Time:** > 2-3 wk or relapse:

**CHRONIC OTITIS**

- Ear cleaning → ear detergents
- Topical drug therapy → topical drugs

1. Explain to the owner modality of therapy
2. Show to the owner how to do an ear cleaning
3. Fix clinical and otological check after 2 weeks
4. Prepare patient to an eventual otoendoscopy

**DERMATOLOGICAL / (Otological) / cytological EXAMS**

- Ear cleaning → essential step in therapeutic protocol of otitis
- Ear cleaning → recovery of the normal ear environment
- If not correctly performed → impediment to resolution of otitis

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**Ear Cleaning**

**Aim**

- Ear cleaning →
  - Essential step in therapeutic protocol of otitis
- Ear cleaning →
  - Recovery of the normal ear environment
- If not correctly performed → impediment to resolution of otitis
**WARNINGS**

- Ear cleaning in a normal ear is not necessary.
- May contribute to the increased moisture and maceration predisposing to secondary infections, especially aqueous solutions without astringent (physiological solution, drinking water...).

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**DEEP and COMPLETE EAR CLEANING IN CLINIC**

- Cytology and/or culture
- X-ray examinations and/or MR - CTs
- Otoscopic examination
- Cleaning with cerumenolitic
- Washing with physiological solution lukewarm
- Otoscopic examination
- Therapy with indicated cleaning agent (OE vs. OM)
**EAR CLEANING**

**Cautions**

- Avoids risk to the patient
- Avoids risk to the operator
- Allows you to perform in a single session sample collection, cleaning, the inspection of the duct and treatment
- Reduces, in the case of rupture of the tympanic membrane, the risk of aspiration of the washing liquid through the Eustachian tube and aspiration pneumonia

**EAR CLEANING**

**Cautions**

- General anesthesia with endotracheal intubation

**DEEP and COMPLETE EAR CLEANING IN CLINIC**

- Operator: wear gloves, mask and protective glasses (risk of contamination around ear secretion)
- Patient: eye protection (to prevent contact with the washing liquid during the procedure)

**EAR CLEANING**

**Remarks**

- Specimen Collection: Additional tests: ear cytology, bacteriology
- Any diagnostic for image investigation: radiography, magnetic resonance, CTs, echography...

**must be done before to make the ear cleaning**
**EAR CLEANING**

**DEEP and COMPLETE EAR CLEANING IN CLINIC**

- Avoid hair removal from ear canal, if not necessary, further inflammatory stimulus.
- Avoid depilatory creams, potentially irritating and sensitizing.
- Shear hairs of the inside face of pinna, helps cleaning and “makes visible” to the owner the work.

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**Ear Cleaning**

- Cerumenolitic agent facilitates the removal of wax from the ear canal: 2-5 minutes.

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**Ear Cleaning**

- Ceruminolitics oil-based:
  1. propylene glycol
  2. vaseline oil
  3. glycerine
  4. squalene

  exert a mild action softening and thinning the wax.

  *not ototoxic*
1. ceruminolitics a water-based
   1. urea peroxide
   2. carbamide peroxide
   3. dioctilsodiosuccinate

   * surfactants properties - greater penetration with the destruction of ear integrity of ceraux; ** foaming agents

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**DEEP and COMPLETE EAR CLEANING IN CLINIC**

- **Isotonic saline**: safely washing liquid (also in subjects where it is not possible to evaluate the integrity of the tympanic membrane)

  before being used must be warmed to body temperature to reduce the stimulation of the patient and to avoid vertigo’s phenomena

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**DEEP and COMPLETE EAR CLEANING IN CLINIC**

- **Isotonic saline**: ear cleaning provides a technique of suction-irrigation of the ear canal

  1. bulb
  2. Syringe (with and without vacuum)
  3. Earflasks
  4. Otoscopy (Vetpump2® or physiological solution with squeezing bag)

   without vision!!!
DEEP and COMPLETE EAR CLEANING IN CLINIC

VIEWING AND REMOVING FOREIGN BODIES

VIEWING TYMPANIC MEMBRANE

foreign body

prominent pars flaccida
Eardrum intact after ear cleaning

Meningitis

Otitis media
Cellesteatoma

Otitis media
Inflammatory polip
rupture of the eardrum

Otitis media

washing technique with 5 fr catheter
NEOFORMATIONS

inflammatory polip  adenocarcinoma

adenoma c. gl.  cistoadenomatosis

USE DIODES LASER

diodes laser on tumors and ductal stenosis

STENOTIC OTITIS

edema and fibrosis stenosis
EAR WICKS (stenotic ear canal)
DEEP and COMPLETE EAR CLEANING IN CLINIC

Ear cleaning finishes with:
- astringent and drying agent (10 minutes at least)
- reduces the residual moisture and prevents maceration!!

1. isopropyl alcohol
2. boric acid
3. benzoic acid
4. salicylic acid
5. acetic acid

DEEP and COMPLETE EAR CLEANING

• deep ear cleaning → can be painful
  ✓ 5-7 days pain medication (tramadol 2-4 mg / kg)
  ✓ warn and do sign the informed consent of the risks:

1. clinical signs of neurological vestibular
   • head tilt, lack of balance, circling, Horner syndrome
2. deafness
   • as a result of the use of ototoxic molecules, not properly removed by washing, in the presence of eardrum perforation

DEEP and COMPLETE EAR CLEANING

IN CLINIC

EAR CLEANING AT HOME

• information sheet and/or images of the methods:
EAR CLEANING

**EAR CLEANING AT HOME**

- Information sheet and/or anatomical pictures
- Explain to the owner the methods of cleaning
- Perform how to clean the ear in front of the owner
- Make an appointment to check
- Prescribe appropriate detergents (quantity, timing)
- Prescribe local medications (in CLEAN ears !!!)
**EAR CLEANING**

**EAR CLEANING AT HOME**

According to the type of otitis:

- Antibacterial agent: bacterial otitis
- Antifungal agent: yeast otitis

In almost all triphasic agents: ab, am, anf

*Choose on the basis of ear drum integrity and compliance.

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**TOPICAL THERAPY**

Topical products on the market in Italy

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<thead>
<tr>
<th>Name</th>
<th>Active ingredients</th>
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**BATTERIOLOGIA**

Culture vs. cytology

Bacteriological examination vs knowledge:

1. Relapsing otitis or severe proliferative alterations in which cytological examination has revealed the presence of rod-shaped bacteria (Proteus, Pseudomonas)
2. Otitis media (ideal with pathology tympanic membrane but not damaged)
3. Failure to respond to an initial adequate therapy after deep ear cleaning (MRSP, MRSA)

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**Culture vs. cytology**

- No routine examination
- Does not replace cytology
- Indicated:
  1. Relapsing otitis or severe proliferative alterations in which cytological examination has revealed the presence of rod-shaped bacteria (Proteus, Pseudomonas)
  2. Otitis media (ideal with pathology tympanic membrane but not damaged)
  3. Failure to respond to an initial adequate therapy after deep ear cleaning (MRSP, MRSA)
Bacteriological examination and sensitivity test:
- sampling using a sterile swab (external ear canal)
- sampling through a sterile catheter
- myringotomy (o.m.)
- making always ear cytology in the same time
- placed in appropriate transport medium
- sent to the microbiology laboratory.

BATTERIOLOGIA

Culture vs. Cytology

*Minimum inhibitory concentrations (MICs) are defined as the lowest concentration of an antimicrobial that will inhibit the visible growth of a microorganism after overnight incubation.*

Kirby-Bauer's method (S-I-R) - inexpensive
*MIC's method (dilution title) – expensive
Antibiotic molecules tested x MRS
- vancomycin, oxacillin,
- genetic (Staphylococcus mecA +) x MRS

WHAT IS 'MORE' IMPORTANT AND USEFUL?

Sensitivity test
Ear cleaning
Thanks for your attention