Canine Otitis Externa
What’s Your Treatment Plan?
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Background

- Otitis externa (OE) in the dog represents 10-20% of all case admissions* and even greater for dermatologists
- Primary, predisposing and perpetuating factors represent the underlying reason for OE in dogs

* Logas. Vet Clin NA 1994

Otitis Externa

- United Kingdom study*
  - 1998-2001
  - 795/3,707 (21.4%) dermatologic problem
  - 62.6% dogs
  - 22% dogs had otitis

Primary Factors

- Parasites
- Microorganisms
- Hypersensitivity diseases
- Keratinization disorders
- Foreign bodies
- Glandular disorders
- Autoimmune disorders
- Viral diseases
- Miscellaneous conditions

Predisposing Factors

- Confirmation
- Excessive moisture
- Excessive cerumen production
- Obstructive ear disease
- Systemic disease

Perpetuating Factors

- Pathologic responses
  - Altered epithelial migration
- Tympanic membrane changes
  - Scarring
- Middle ear cavity
  - Masses
Diagnostic Plan

• SOAP every case
• Subjective- should include thorough patient history
  – Duration of disease?
  – Age of onset?
  – What med worked? Didn’t work? Made worse?
  – Other animals/humans affected?

Diagnostic Plan

• Objective – examination of the patient
• ALWAYS otoscopically examine BOTH ears
  – Ruptured tympanic membranes?
  – Stenotic portions of the canal?
• Other dermatologic conditions?
  – Paw licking

Diagnostic Plan

• Assessment – overall these are the thoughts of differential diagnoses along with secondary problems
  – For example: Pemphigus foliaceus with secondary bacterial otitis externa
Diagnostic Plan

• Plan – this is of great importance to the owner, associates and the primary vet involved
• Should describe on outline of treatment of the patient
• Medications, instructions and follow-up exams

Diagnostic Plan

• Investigate!!!
  – Seasonality
    • Only has ear disease in spring/summer could be atopic
    • Non-seasonal, year-round ear disease may have a food allergy
  – Unilateral disease
    • CHECK FOR EAR MASSES
  – Pruritic or non-pruritic?
Examination Guidelines

- ALWAYS begin with the less affected ear
- Good restraint is critical
  - Head level with floor and nose in parallel with the spine

Tympanic Membrane

- Specialized epithelial structure
- Most medial structure of the external canal
- Often large primary hairs are present immediately adjacent to the TM
  - Good landmark
- Sits at about a 30-45° angle

Tympanic Membrane

- Two parts
  - Pars flaccida
  - Pars tensa
- Pars flaccida – dorsal aspect of TM, vascular, can bulge (cystic?), rapid healing time
- Pars tensa – otoscopically seen, translucent, striations, manubrium of the malleus ("C" shaped)
Pars Tensa

- Open end of “C” points toward nose
- Distal end of “C” = umbo membranae tympani
  - Epithelium at this region is the most mitotically active and source of migration of pars tensa*
- Line of the “C” = stria mallearis
- Cats have a straighter “C” vs dogs

* Evans 1993

Sample Collection

- Ear cytology is extremely important
- Every case of OE should have cytology
- Use cotton-tipped applicator to take samples
- Roll debris onto a glass slide, heat fix and use quick stain
Sampling Techniques

- Swabs
Cytology Interpretation

- Keratinocytes
- Acantholytic cells
- Bacteria (rods and cocci)
- Yeast
- Dermatophytes
- Demodex

Keratinocytes

- Squamous keratinocytes “stop signs”

Keratinocytes

Did this come from a cheetah?

Keratohyaline granules

Nucleus
Keratinocytes

What species?

Pyogranulomatous Syndrome

Keratinocytes

Unstained KCs

Stained KCs
Keratinocytes

Acantholytic cells

[Images of dogs]
Culture/Susceptibility Testing

- **When?**
  - RODS
  - RECURRENT BACTERIAL INFECTIONS
  - TREATMENT FAILURES

Culture/Susceptibility

- **Remember:**
  - MIC breakpoints are determined from serum antibiotic concentrations
  - Topical antibiotics achieve much higher concentrations than serum
  - Thus, it is possible to have different breakpoints for topicals vs systemic antibiotics
- **Message:** topicals may be effective even in reported “R” serum MICs

Yeast (*Malassezia spp.*)
Normal vs Abnormal

- Yeast
  - Normal = 0-2 yeast/oil immersion field
  - Abnormal = >4 yeast/OIF
- Bacteria
  - Normal = 0-3 cocci/OIF
  - Abnormal = >5 cocci/OIF or any rods

Treatment Plan

- Find underlying cause
  - Infectious
  - Inflammatory
  - Immune-mediated
  - Parasitic
- Is the OE only inflammation or does it also have yeast or bacteria present?

Glucocorticoids

- Most cases of OE respond well
- Closed system with stenosis is a common result of OE
- Decreases pain and inflammation
- May allow antifungal or antibiotic to work better and heal faster*

* Rhinology. 2009 Sep;47(3):280-6
Client Education

- Good education
  - Complexity of chronic ear disease
  - Realistic expectations
  - Importance of complete follow through
  - Possible requirement for long term maintenance therapy

Recheck and stop treatment

- Recheck 2–4 weeks
- If no improvement
  - Culture the ear
  - Switch topicals
  - Add orals
  - Deep ear flush procedure
- Treatment termination
  - Based on cytologic findings (e.g., no yeast/bacteria/fungal organisms)
  - Controlled pruritus

Topical Glucocorticoids

- Easy to administer
- Effective therapy
- Once or twice daily administration
- Several formulations available
Topical Glucocorticoid Potency

- Function of both physical and chemical properties of drug and vehicle
- Ranking based on skin blanching assay
- American classification \(\rightarrow\) 7 groups
  - TG, TG conc, and vehicle
- British National Formulary \(\rightarrow\) 4 groups
  - TG and TG conc, irrespective of vehicle

Relative Potency*

- Mometasone furoate
  - Class 2
- Betamethasone valerate
  - Class 3
- Dexamethasone\(^*\)
  - Class 7
- Triamcinolone acetonide
  - Class 4

\(^*\) National Psoriasis Foundation, 2/2008
\(^+\) AAFP 1999

Lower Class = Higher potency

TG Vehicle

- Ointments generally more potent than creams
- Vasoconstrictor assay studies found huge differences between generic and original formulations containing the same TG
- Example, betamethasone dipropionate has 4 classes based on vehicle used
Topical GC Studies

  - 4 groups dogs, ~10/group, all with otitis externa
  - Mometamax, Panolog, Tresaderm, DVMax
  - 7 days
  - Tresaderm had the largest decrease in plasma cortisol levels, No decrease in plasma cortisol with Mometamax

Malassezia

- Miconazole 1% (Conzol®, Vet One)
- Posaconazole 0.1% (Posatex®, Merck)
  - Superior efficacy against *Malassezia*
- Nystatin, clotrimazole and thiabendazole
Bacteria

- Enrofloxacin, orbifloxacin
- Neomycin, gentamicin
- Thiostrepton
- Culture if rods are seen or recurrent cocci infections
- Possibly need compounded antibiotics for ear disease (e.g. chloramphenicol drops)

Stenosis

- Severe stenosis makes ointments less desirable
- In-house drops may be better
- Common mixtures –
  - Dexamethasone 6cc + miconazole 1% 14cc for yeast otitis
  - Enrofloxacin (Baytril® 2.27%) 4cc + miconazole 15cc + Dexamethasone (2 mg/ml) 4cc
  - REPLACE with Posatex® (orbifloxacin, mometasone, posaconazole)

Systemic Glucocorticoid Therapy

Preparing the Ear Canal for Cleaning

Edema
Hyperplasia
Stenosis
Ulceration

Prednisone
Synotic
Triamcinolone

2-3 weeks

Cleaning
Recheck
Surgery

8/8/2012
Compounded Drops

- Methicillin-resistant *Staph.* Species
- Resistant *Pseudomonas*
- Common drops compounded:
  - Chloramphenicol drops 1% solution, obtained from compounding pharmacy
  - Amikacin drops (4ml amikacin + 4ml H2O + 3ml propylene glycol + 1ml dex)
  - Ceftazidime drops (Tazicef®, Fortaz®) 40ml saline + 4ml dex

Systemic Therapy
Oral Glucocorticoids

• Used if:
  – Topicals are ineffective at reducing the inflammation
  – >50% stenosis of the ear canal
  – Dog too painful to instill drops
  – Possible topical reactions to ear drops
  – Otitis media

Oral Glucocorticoids

• Good for longer lasting antiinflammatory/antipruritic
• May help further to control the primary disease
• Tapering schedules often used
• Dosing
  – Prednisone 0.3 – 1 mg/kg/d
  – Triamcinolone 0.05 – 0.1 mg/kg/d
  – Methylprednisolone 0.5 – 1.2 mg/kg/d

Injectable Glucocorticoids

• Indications:
  – Short term effects
  – Difficult animal to medicate orally
  – Alone will be suitable to reduce the inflammation for the disease present
• Typically a single injection SQ is given
Injectable Glucocorticoids

- Triamcinolone acetonide
  - Dose: 0.1 – 0.2 mg/kg SQ
  - Lasts about 2-3 weeks
  - Used when longer anti-inflammatory effects are needed
- Dexamethasone
  - Dose: 0.025 – 0.1 mg/kg SQ
  - Last 2-3 days
  - Used for short term anti-inflammatory

Treatment Failures

- No cytology  Every exam needs
- No culture  Rods, lack of response, recurrent
- Not long enough treatment  2 week minimum, some need months
- Owner compliance  Owner not instilling meds or pet won’t allow treatment
- Patient compliance
- No recheck  One of the most common reasons for treatment failure

THANK YOU
Merck Animal Health
Cleansers/Flushes

- **FAVORITES** -
  - Cerumene® (Vetoquinol)
  - Douxo micellar® (Sogeval)
  - 0.9% Sodium chloride

Cleansing/Flushing

- **Non-sedated in-hospital**
  - Douxo micellar® (Sogeval) is a favorite
  - Massage ear base and wipe with cotton balls
- **Sedated in-hospital**
  - General anesthesia generally needed
  - Handmade suction/irrigation devices or commercial suction/irrigation used

Irrigation Devices: Pros & Cons

- **Hand held device**
  - 6 to 12cc syringe
  - 5 – 8 fr foley catheter
  - Must feel comfortable using manual flush and suction
  - Must remove and replace after each flush
  - “Feel” the flushing
- **Unit device**
  - No syringe needed
  - 5 fr foley catheter
  - Adjust suction very specifically
  - Adjust flush very specifically
  - Left attached
  - No “feel” of how flushing
Tube Flush Instruments

- 6 or 12 cc syringe
- 8 Fr or 5 ½ Fr red rubber feeding tube*

Ear Curettes

- Buck
  - Straight, angled, dull or sharp
  - Must be small enough to pass through Otoscope cones (1.5 – 2.5 mm most common)
- Billeau
  - Wire loop
- Shapleigh

Ear Loop Tips
Home cleaning

- Over cleaning is a problem
- Twice weekly at most
- Disrupts the normal keratinocyte exfoliation and "self-cleaning" mechanism
- Pre-treatments (e.g. Triz products) are NOT flushes and can be used daily or twice daily
Enrofloxacin/Ketoconazole/Triamcinolone Otic Ointment
Prescribed For: Dogs and Cats
Commonly Prescribed For: Infection-Combination

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THANK YOU!!!