Otitis Externa in Canine and Feline Patients

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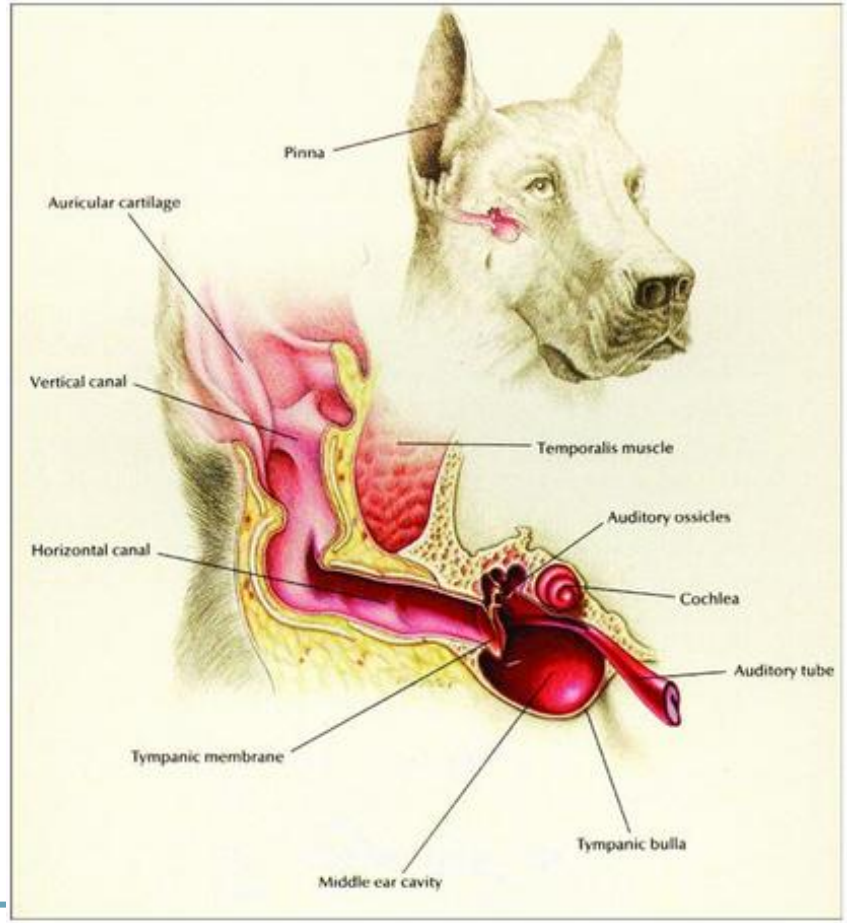
MEDVET
Leading Specialty Healthcare for Pets

Otitis Externa (OE), Otitis media (OM), Otitis Interna (OI)



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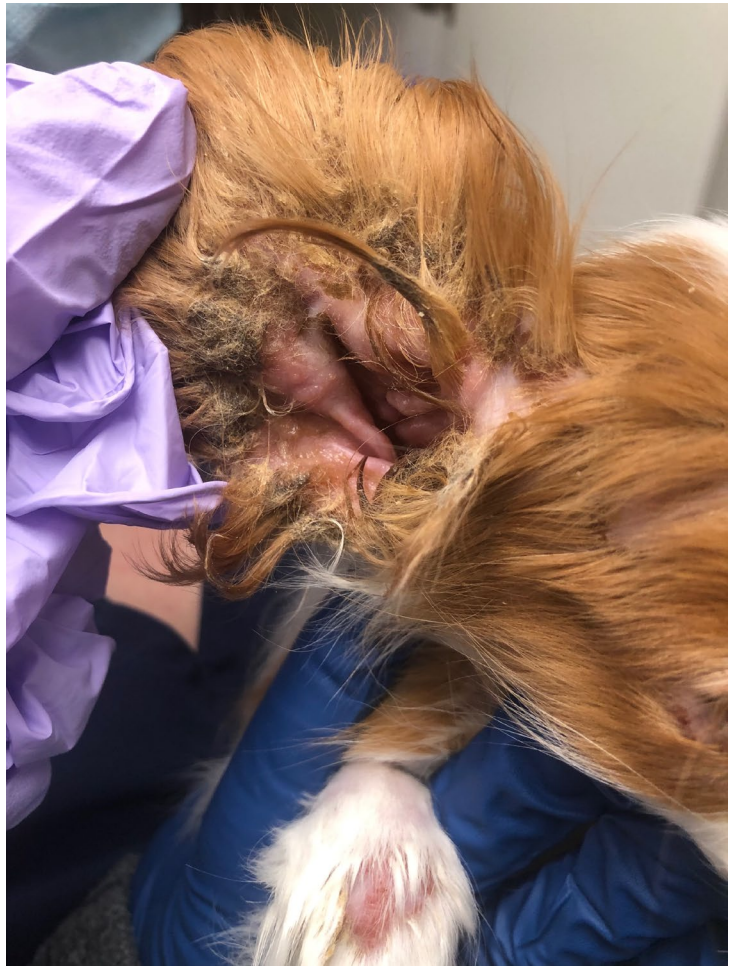
Causes of Otitis Externa

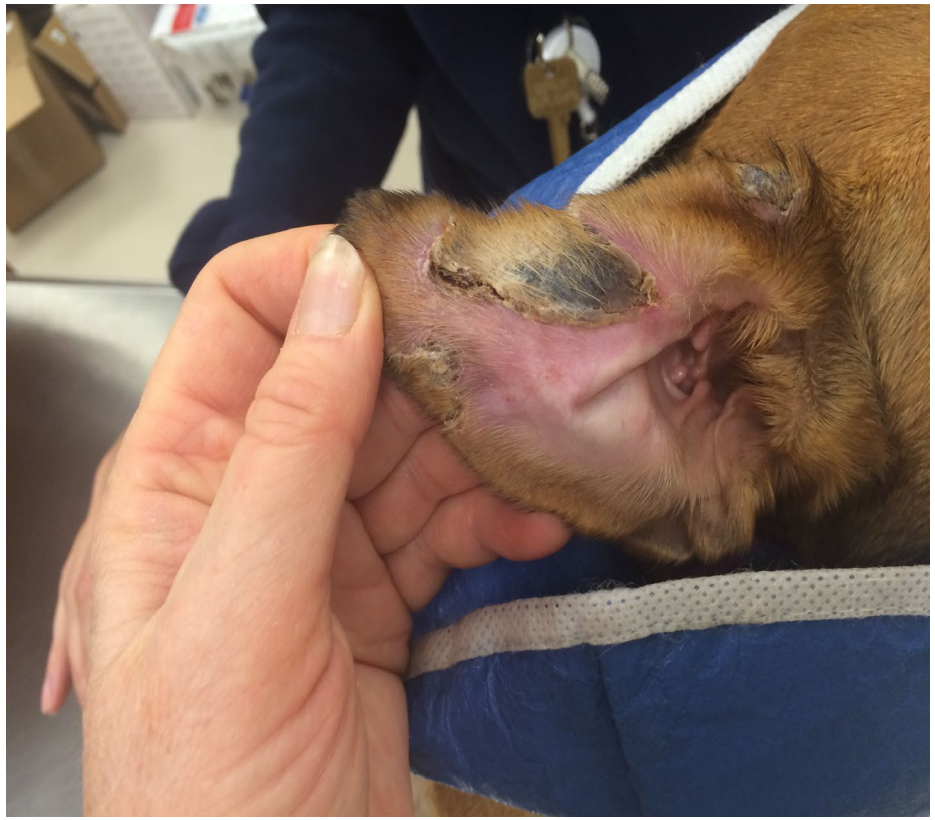
- Allergy (food, environmental, infectious (flea/tick/mites/lice)
- Endocrine (Hypothyroidism, Hyperthyroidism, or Cushing's disease)
- Foreign bodies (Grass awns, Fox tails, Ceruminoliths, literally anything)
- Tumors [benign (aural polyp or papilloma) vs malignant (carcinoma, lymphoma, MCT)]
- If only the pinna-topical reaction vs immune mediated disease (pemphigus vs vasculitis) vs tumor
- Swimming and not drying them after, moist dermatitis from an e-collar
- Feline specific diseases: Ceruminous Cystomatosis or Feline Proliferative and Necrotizing Otitis
- Idiopathic fungal ex. Aspergillus or Malassezia
- King Charlies Cavalier Spaniels or Brachycephalics: Primary Secretory Otitis Media (PSOM)

Need a Good History!

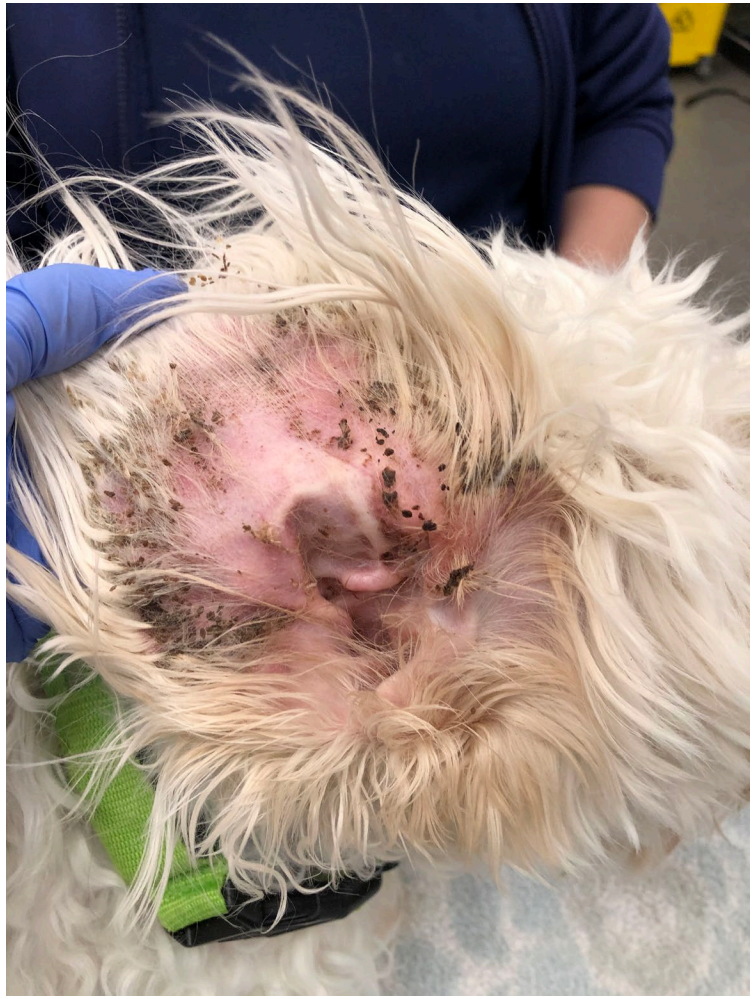
- If unilateral you need to do a good p/e and look down the canal
- Starting to get older check labwork: thyroid issues or Cushing's disease
- Under a year of age or older starting to just get ear infections: Food trial
  - Hydrolyzed (Hills Z/D, Royal Canin HP, Purina HA, or Blue Buffalo HF)
  - Novel Protein (RC PR, Rayne, BB Alligator, RC Kangaroo etc)
  - Home cooked under supervision of nutritionist or balanceit.com

Examples of OE





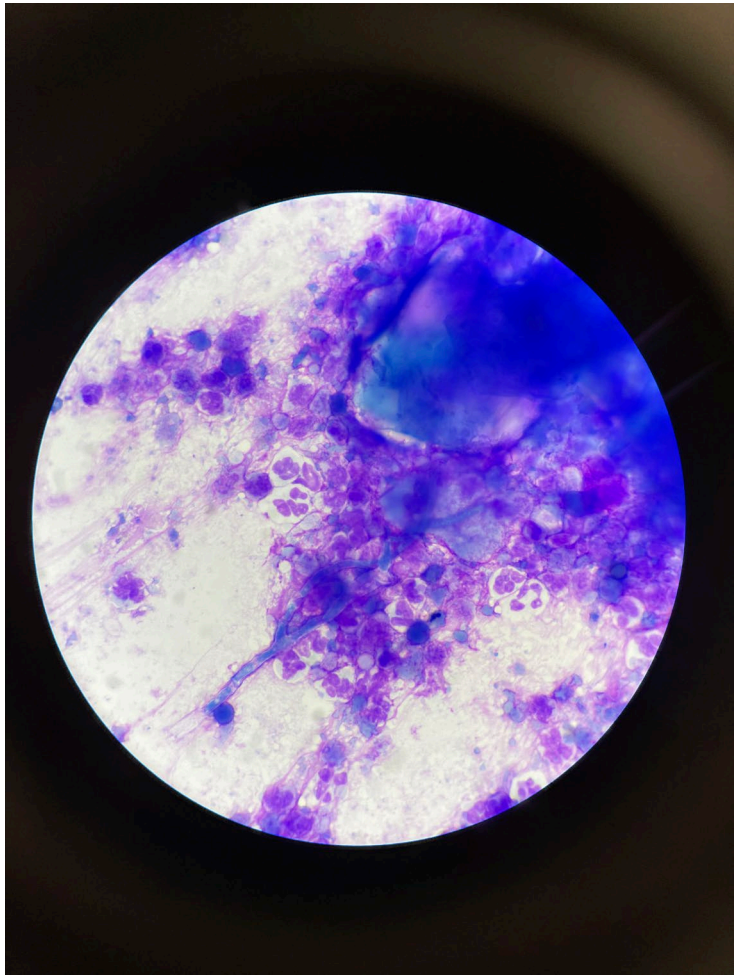
Examples of OE

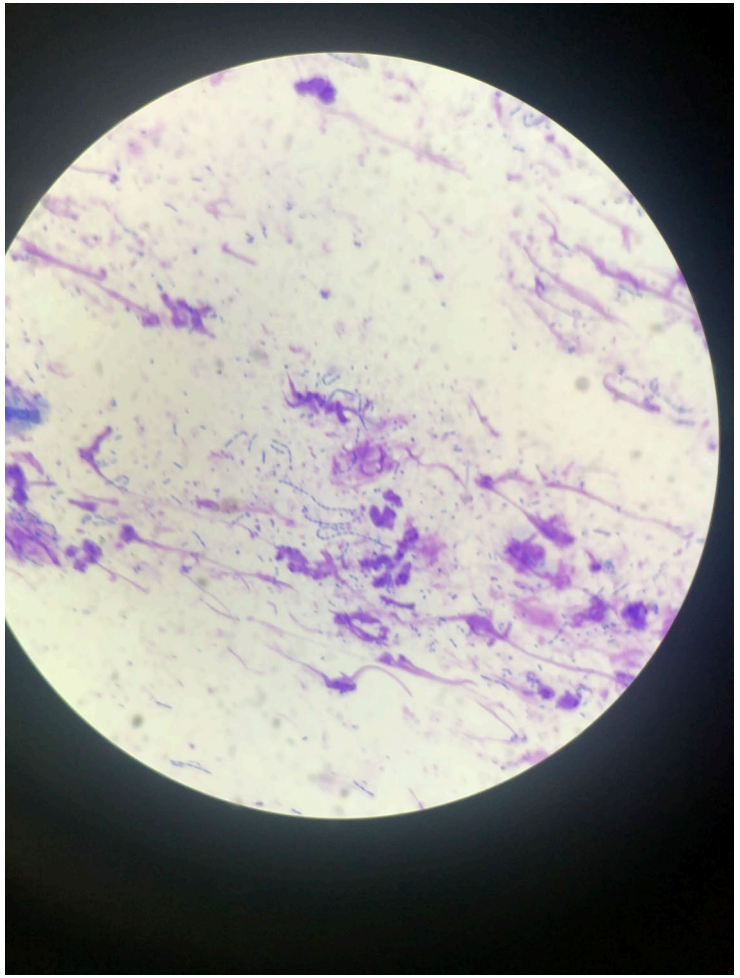


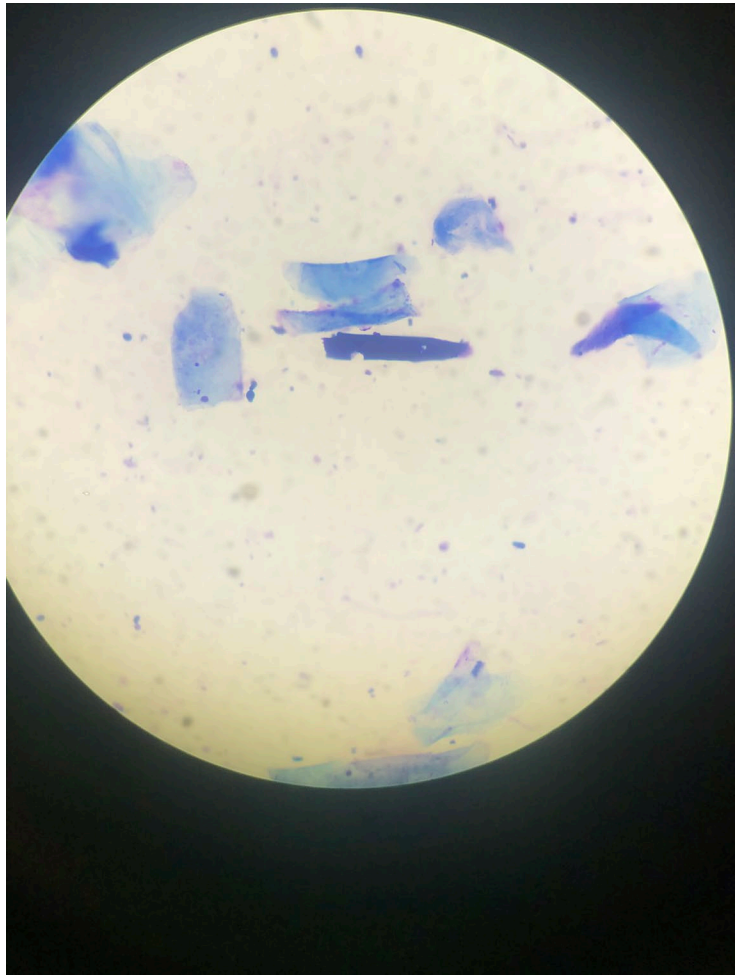
Dermatology OE Work-up

- Try to visualize the tympanic membrane (TM) for any ear patient
- If too painful start steroids for a few days to a week and try again
- Recheck on gabapentin or if need to sedate at recheck
- Most important diagnostic for any work-up is the ear cytology
- Have a good microscope! Not one where it has not been serviced every 6 months and you can't tell the difference between debris and microbes
- Change your stain weekly and differentiate: blood smears vs ears/rears
- Charge for your time and services to review the cytology
- Train your technicians to review: use the free training WACD (wavd.org) or Ashley Bourgeois, @thedermvet on Instagram, free training info

Cytology







Cytology Jargon

- Rare (1 organism) and Occasional (3 organisms) per hpf
- Cytology
  - 1+= 0-3 per hpf, or 0-5
  - 2+= 3-10 per hpf, or 5-10
  - 3+= 10 – 20 per hpf, or 10-20
  - 4+= greater then 20, or too numerous to count (TNTC)

Make a Plan

- Evaluate what is on the slide and make your plan
- If only some waxy debris and few inflammatory cells: probably only need a good ear cleaner
- The type of ear cleaner can make a difference!
- In Europe they manage a lot of cases with a good cleaner and topical steroid (Synotic, dexamethasone, or hydrocortisone aceponate)

First Treatment

- If ear canals are stenotic or closed 1-2 mg/kg prednisone PO or equivalent, prednisolone, methylprednisolone, triamcinolone, on injectable dexamethasone to open them, then taper when they are open
- Can not treat them if canals closed, #1 mistake in GP
- Ear canals should open up in 2 weeks, if not prognosis is poor and TECA BO may be considered
- Cardiac patients for canines patients can still use steroids if approved by Cardiology, but extreme caution with feline patients
- Apoquel or Cytopoint will not treat or prevent ear infection
- If you don’t want to manage on prednisone can be maintained immunotherapy or Atopica (cyclosporine)

Ear Cleaners

- Ceruminolytics break up cerumen-Cerumene by Vetoquinol
  or mild waxy and gentle cleaner Douxo Micellar, caution if open TM
- Epi-Otic Advanced: Drying and good to be use against Pseudomonas and Yeast, not used in open TM
- Dechra TrizUltra+Keto and Dechra TrizEDTA: can be used in TM, synergistic with antibiotics and good against Pseudomonas
- Other good options for maintenance Malacetic or Mal-A-Ket

Treatment Options to Have at Your Hospital

- **Entederm:** Should not be used! (other names Animax or Panalog) or Zymox does not treat active infection, ok for some inflammation
- **Tresaderm:** thiabendazole, neomycin and dexamethasone
  - Good for mild-mod. cocci infection, ear mites, need TM intact not good for yeast
- **Otomax:** gentamycin, betamethasone, and clotrimazole
  - Good for yeast, cocci, and rods, not good if a lot of purulent debris, need intact TM, #1 ab. cause for deafness
- **Mometamax:** gentamycin, clotrimazole, mometasone
  - Good for yeast, cocci, rods, not good if a lot of purulent debris, need intact TM, #1 ab. cause for deafness
- **Easotic:** hydrocortisone aceponate, miconazole, and gentamycin
  - Good for yeast, codci, rods, great applicator and topical steroid , need intact TM
- **Surolan:** miconazole, polymyxin, prednisolone acetate, and paraffin
  - Good for yeast, cocci, rods, need in intact TM and not great if a lot of debris, good for resistant Pseudomonas
- **Posatex:** orbifloxacin, mometasone, and posaconazole
  - Good for yeast, cocci, rods, not good if need a lot of purulent debris, need intact TM ideally but, have used in open TM, good for resistant yeast infection
- **Claro-30 day leave in, florfenicol, terbinafine, and mometasone**
  - Good for mild to mod. cocci, mild yeast, NO rods, questionable use in cats, and need intact TM

Treatment Options to be Made In House

- Amikacin/miconazole/dexamethasone or tobramycin
- Enrofloxacin/miconazole/dexamethasone
- TrizUltra+Keto/enrofloxacin/dexamethasone (4 oz, 10-15 cc of 22.7 or100 mg/ml, 10-25 cc 2 or 4 mg/ml)
- Pseudomonas—Ceftazidine, Piperacillin, Amikacin
- Mupirocin and SSD diluted down
- Miconazole and dexamethasone 4 mg/ml: 1 oz or 2 oz
  - 25:5 mls or 50:10 mls ratio, measured liquid can go in stenotic canals or purulent debris
  - Will get warm to the touch, chemical reaction

Aminoglycoside Toxicity

- Can cause toxicity of vestibular (balance) or cochlear (hearing)
- Gentamycin, tobramycin, and streptomycin Vestibulotoxic
- Amikacin and kanamycin cochleotoxic
- Cochleotoxic-hearing impairment
- Vestibulotoxicity-ataxia, dysequilibrium, and oscillopsia (visual blurring with head movement)

Treatment Length

- Minimum 10-14 days for simple OE, and complicated 30+ days OE
  - Small dog/cat: 4 drops, medium 6 drops, or large 8 drops ointment
  - Compounded small dog/cat: 0.25 mls, medium 0.5 mls, large 1 ml
  - Can be SID or BID dosing depending on med
  - Can be compounded into a flush and the directions is just to fill the ear canal
  - For compounded always attach a stopper for syringe attachment
- OM-can be 1-3 months

When is a Culture Necessary?

- I almost never do it for Otitis externa-because in house compounding choices will overwhelm the MIC on culture
- What I culture, fungal and only aerobic c/s
- You may not get all pathogens. Please do a cytology to ID the primary pathogens.
- Only times I do culture
  - OE-suspect Pseudomonas (small rods) and want an oral
  - OE ulcerated canal
  - OE opening ventral to the canal swollen
  - Contact drug reaction of pinna
  - OM/OI
  - Fungal

Culture Results

- Specify-For ears need to let the lab know and tell them grow out all microbes
- Can call and request extended panel if chronic and know likely to be resistant MRSP
- If you need to culture then normally 4 weeks are needed for topical and oral
- Think about age and species for selection of the treatment
  - I will never use Amoxicillin (unless Actinomyces on culture) for any skin or ear
  - doxycycline (not in young animals)
  - fluroquinolones (enrofloxacin no oral for cats, but yes topically, can use pradofloxacin, ofloxacin, or marbofloxacin for them) (enrofloxacin-not ideal young and growing puppies), no ciprofloxacin
  - Never should use aminoglycosides if cannot confirm TM intact
  - Pseudomonas-special topicals can be made

Antibiotic Options For Staphylococcus

- Tier 1:
  - A: Clindamycin 11 mg/kg or Cephalexin 22-30 mg/kg or Clavamox 14-22 mg/kg PO BID
  - B: Cefovecin: 8 mg/kg or Cefpodoxime: 5-10* mg/kg-not to be used as first line
- Tier 2:
  - TMS 15-30 mg/kg and Doxycycline 5 mg/kg BID or 10 mg/kg SID
- Tier 3:
  - Chloramphenicol 30-50 mg/kg TID or Fluoroquinolones (enrofloxacin 10 mg/kg SID, marbofloxacin 5 mg/kg, pradofloxacin 5-7 mg/kg, orbofloxacin, or moxifloxacin 10 mg/kg, ciprofloxacin is not a good choice)
  - Referral is normally recommended for imaging and VO and cleaning
- Tier 4: Amikacin or Rifampicin
- Vancomycin or Linezolid: should not be used in veterinary medicine

Oral Antifungal Options

- Fluconazole 2.5-10 mg/kg PO SID, 5*
- Ketoconazole
- Terbinafine 30 mg/kg PO SID
- Itraconazole liquid 5 mg/kg PO SID
- Never use the generic itraconazole
- Itraconazole or Voriconazole

Mite Treatments to Keep in Stock

- Isoxazolines:
  - Feline: Topical Bravecto, Oral Bravecto for canines, Revolution Plus
  - Canine: Bravecto, Credellio, Nexgard +/- Spectra, Simparica +/- Trio
- Eradamite topical
- Tresaderm topically for ear mites

Aural Hematomas

- Normally, I do not place mattress sutures/teat canula unless fail this treatment 2x
- I will drain with a butterfly and place 0.1-0.2 mg/kg Vetalog (triamcinolone) into pinna
- Sometimes only need to proparacaine + lidocaine/bicarb block or can use sedation
- 1 mg/kg prednisone taper, gabapentin 10 mg/kg PO BID-TID, and treat microbe based on cytology
- Underlying cause: Foreign body, Otitis secondary to allergy vs endocrine, or Pit Bull's underlying idiopathic flapping
- Sometimes need to order No Flap Ear Wrap (www.noflapearwrap.com or online retailers)

No Flap Ear Wrap

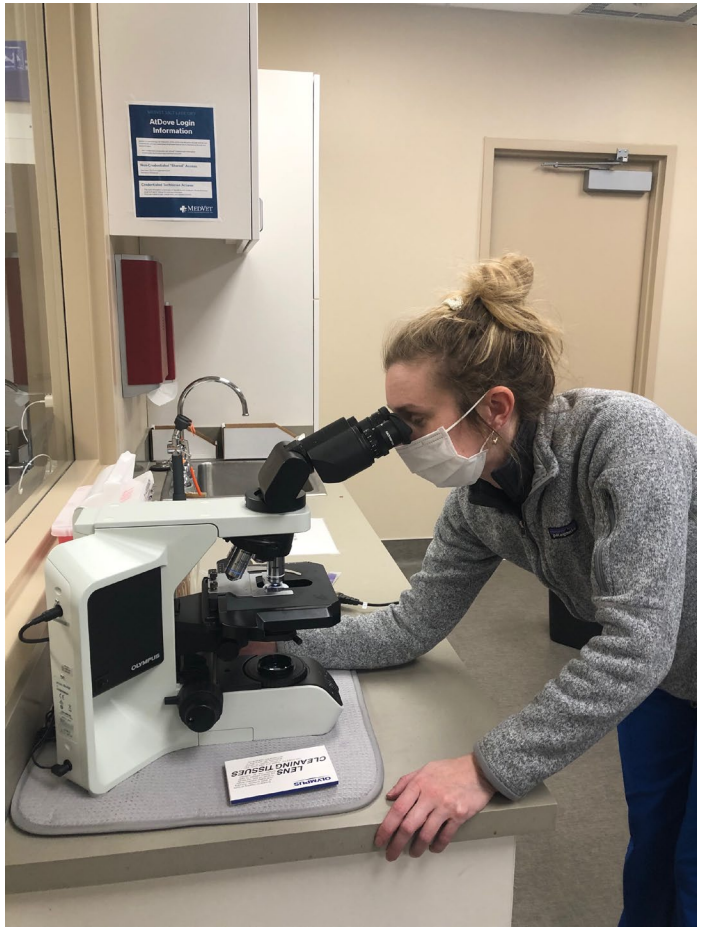
OM

- Inflammation of the bulla, TM, and eustachian tube
- 16% acute OE, and 80% chronic OE
- Dogs most common pathogens: Staphylococcus pseud. and epidermitis, Pseudomonas, and B-hemolytic Streptococcus
- Feline most common pathogens: Aural polyps: Pasteurella multocida, Beta hemolytic streptococcus, Staphylococcus hominis, Bacteroides sp., Pseudomonas sp., and Streptococcus zooepidemicus. Unassociated with polyps have included Pasteurella multocida, Pseudomonas aeruginosa, enterococcus faecalis, Escherichia coli, mixed anaerobes and mycoplasma
- What to do if suspect OM? If chronic otitis, vestibular signs, Horner's signs
- Recommend start Cerenia 1-2 mg/kg PO q 24 or meclizine 1-2 mg/kg PO q 24, cat 12.5 mg PO q 24 and ideally send to your local dermatologist
- If not start oral steroid, abs topical/oral based on the cytology and submit a culture

When is the best time to offer the client/patient referral?

- Normally chronic otitis >1-2 months
- Foreign body can't be safely reached with biopsy forceps or a mass seen
- ER Referral: If felines and canines if Horner's signs or Vestibular signs normally Otitis media and they need imaging, VO, and myringotomy
- ER: Facial paralysis needs imaging ASAP normally means lysis of the bullae and the ear may be salvageable, but Otitis interna may already be present and TECA BO surgery is the treatment of choice

Dermatology at work



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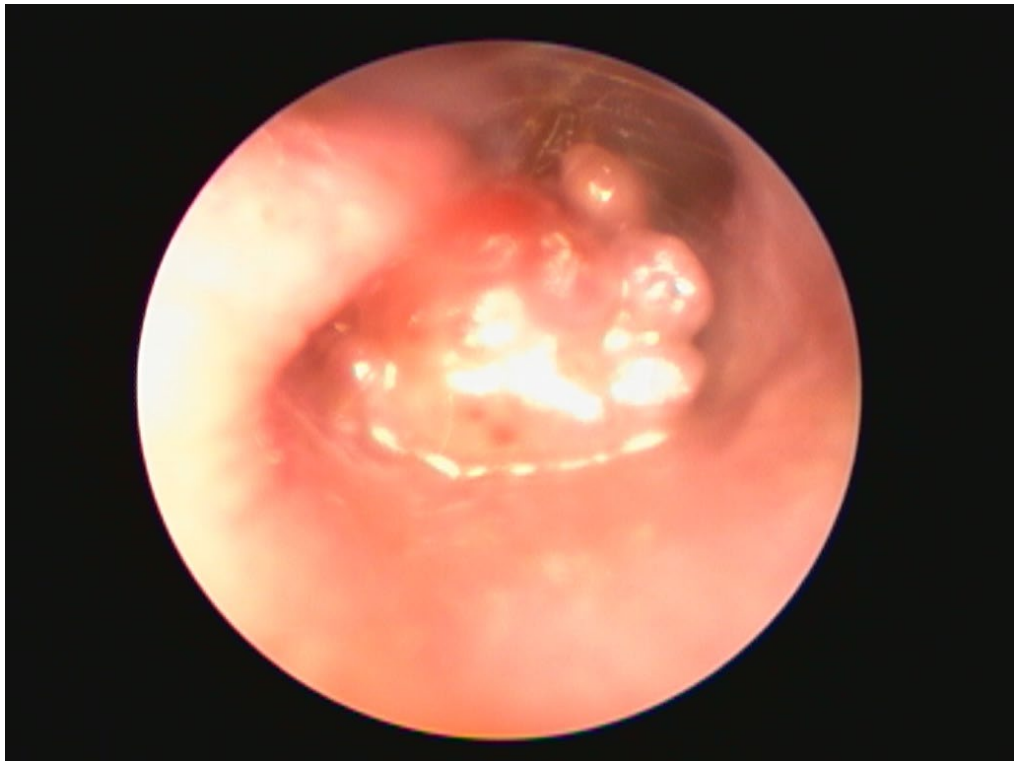
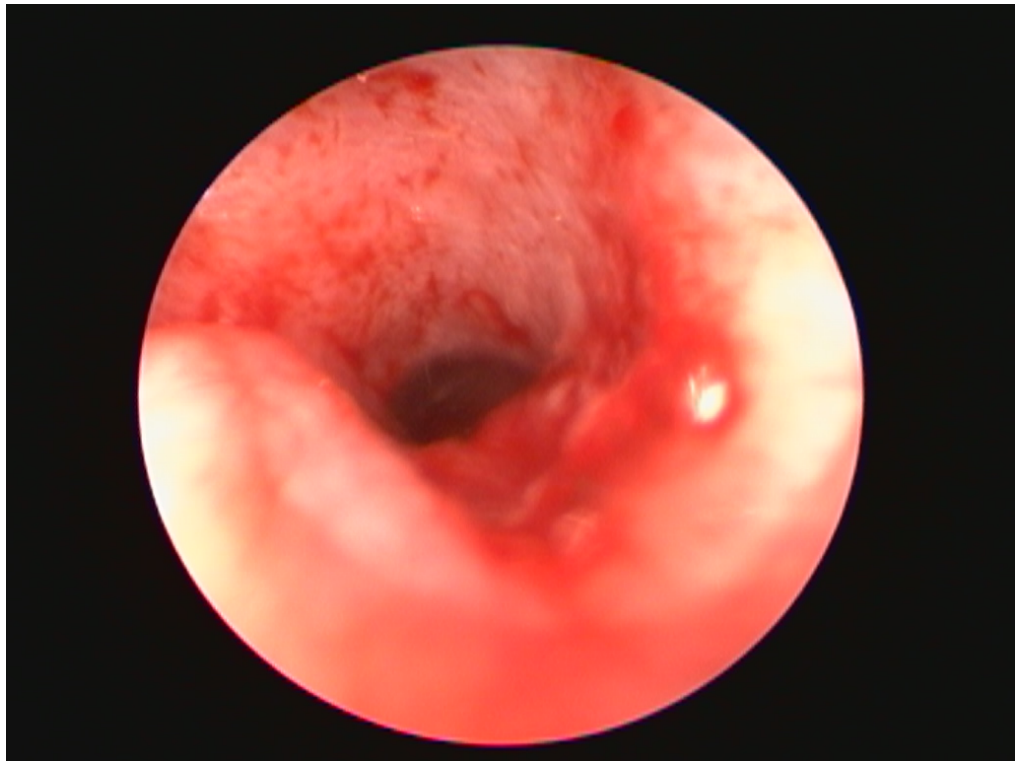
When to do Video-Otoscopy (VO), and/or Myringotomy?

- Suspect FB removal
- Suspect aural polyp/papilloma in a young animal, excisional biopsy and now CO2 laser to cauterize
- Chronic Otitis greater > 1-2 months should get imaging: mass, OM, fungal, Pseudomonas, or Biofilm (Staphylococcus, Yeast, or Pseudomonas)
- Sometimes can not get rid of infection until packed in debris (dark packed ceruminolith debris or purulent debris
- Feline middle ears have a double compartment, so need to remove as much as possible, especially in chronic rhinitis or pharyngitis cases to get ahead of debris/effusion

Before and After VO





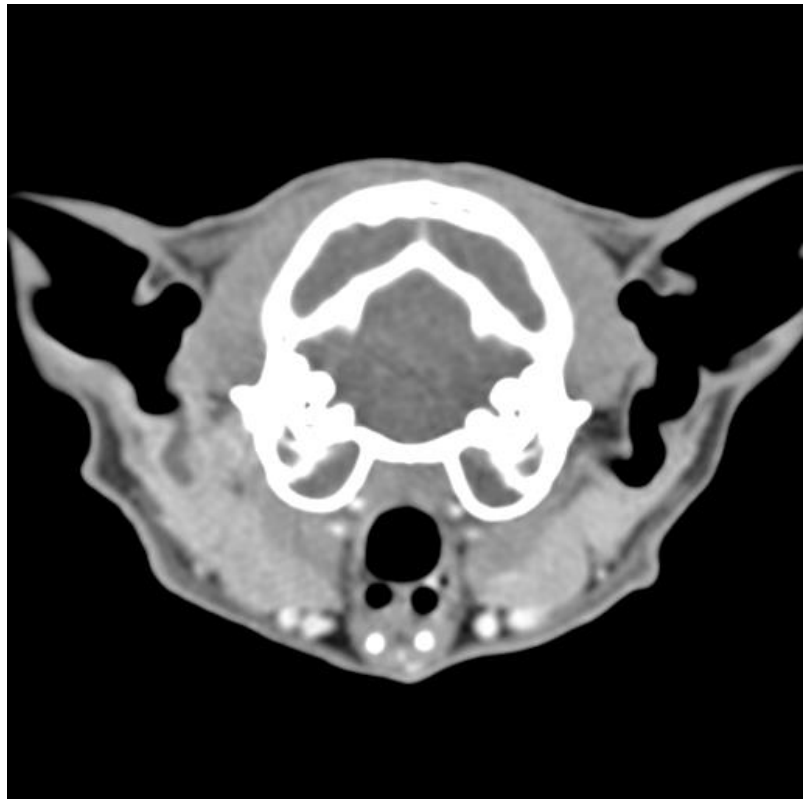
When to Imagine: Radiograph, CT, MRI

- Chronic Otitis >1 month
- Mass
- Horner's signs, Neurologic Signs, Vestibular Signs, or Facial nerve paralysis
- For any referral Otitis case it should be offered to the client: other than obvious fox tail in external canal or wax ball removal

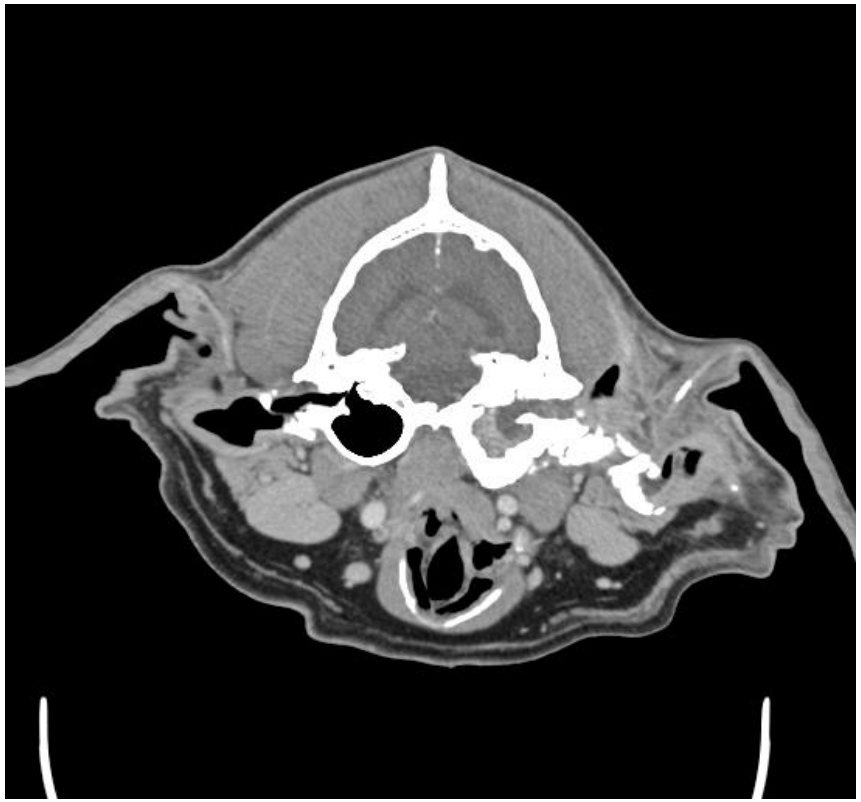
Radiographs

- 25% of OM missed on radiographs
- 75% of positive cultures missed on radiographs
- 25-33% End stage OM missed on radiographs

CT Imaging

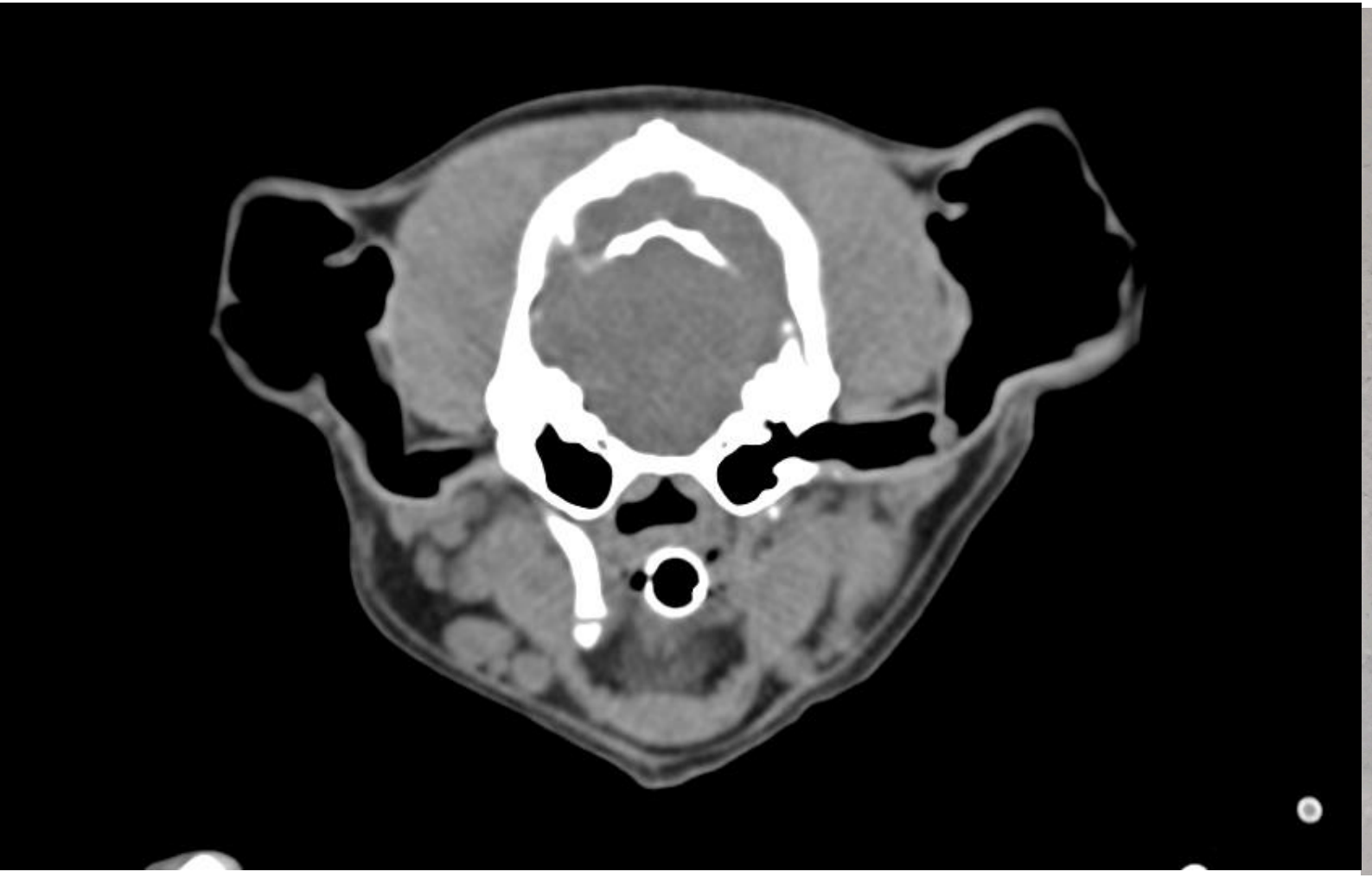


Feline



Canine

CT Imaging NOT SO Helpful



Otobius megnini

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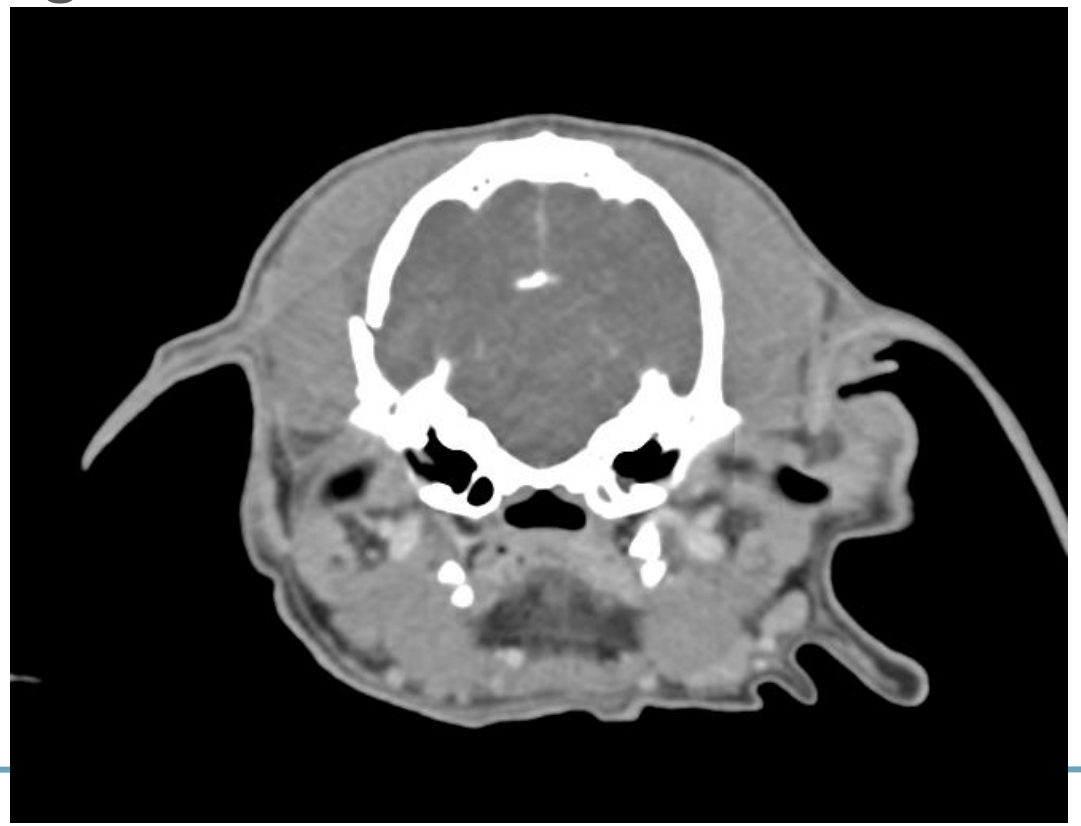
CT Imaging VERY HELPFUL in this case

- Holly 6 yo FS Cocker Mix
- Presented for acute seizures, nystagmus, and severe head tilt and left sided neurologic deficiencies



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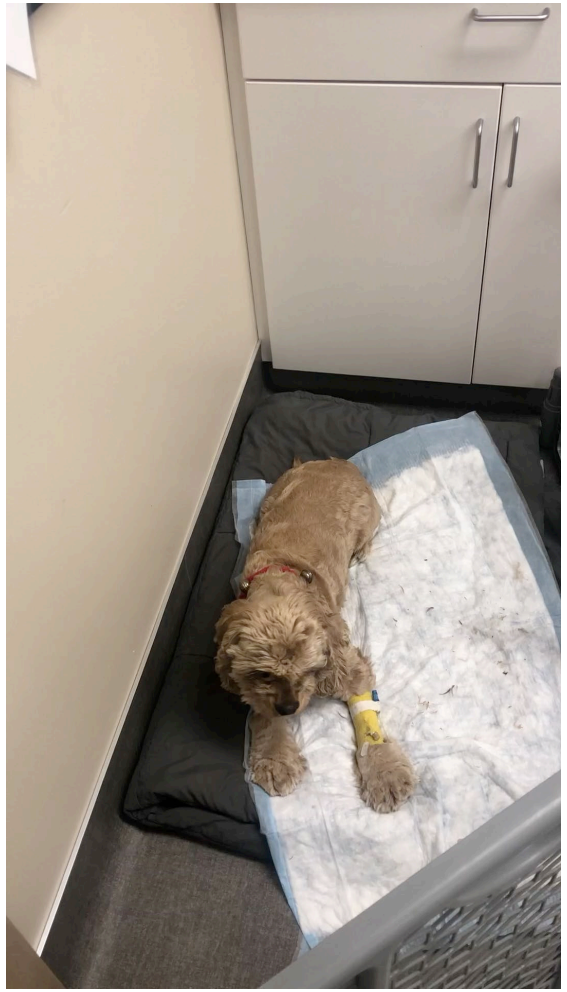
Before and After Left VO and Right Skull Fracture



Before

After

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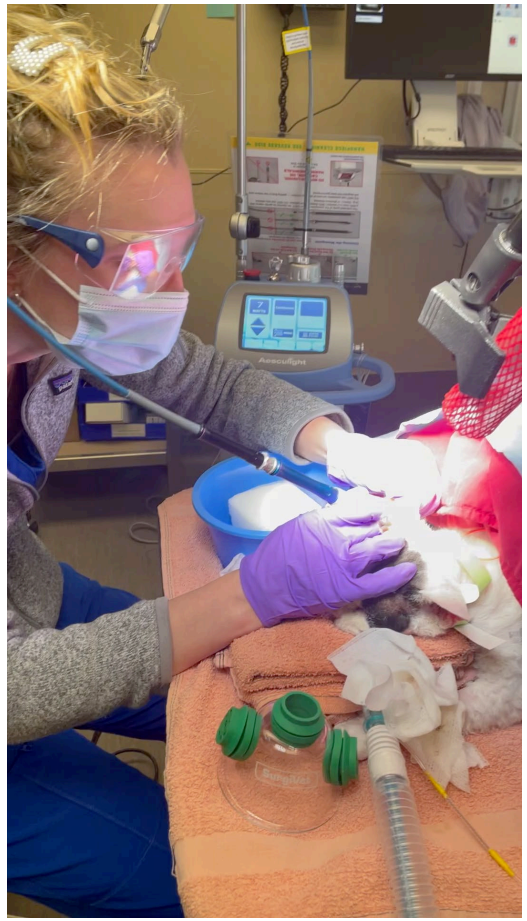
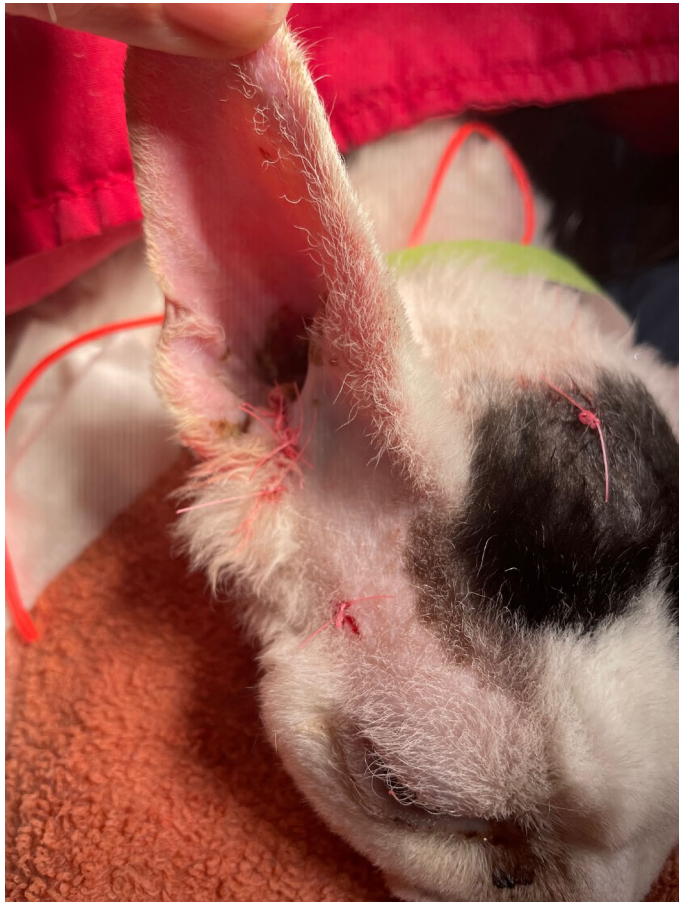
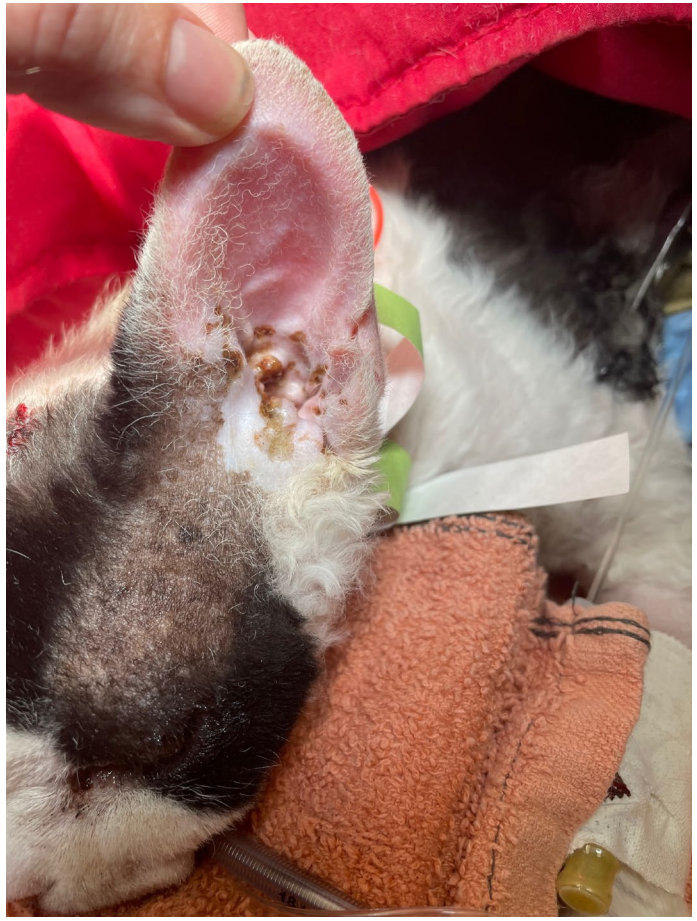
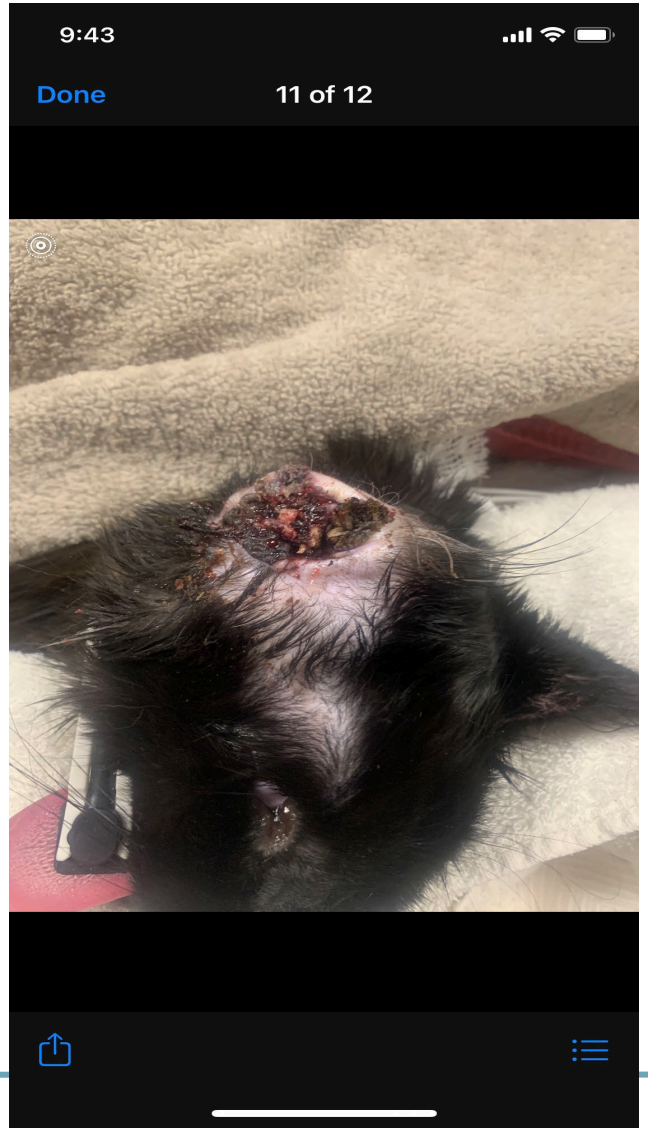
Using Aesculight Co2 Laser in Ears

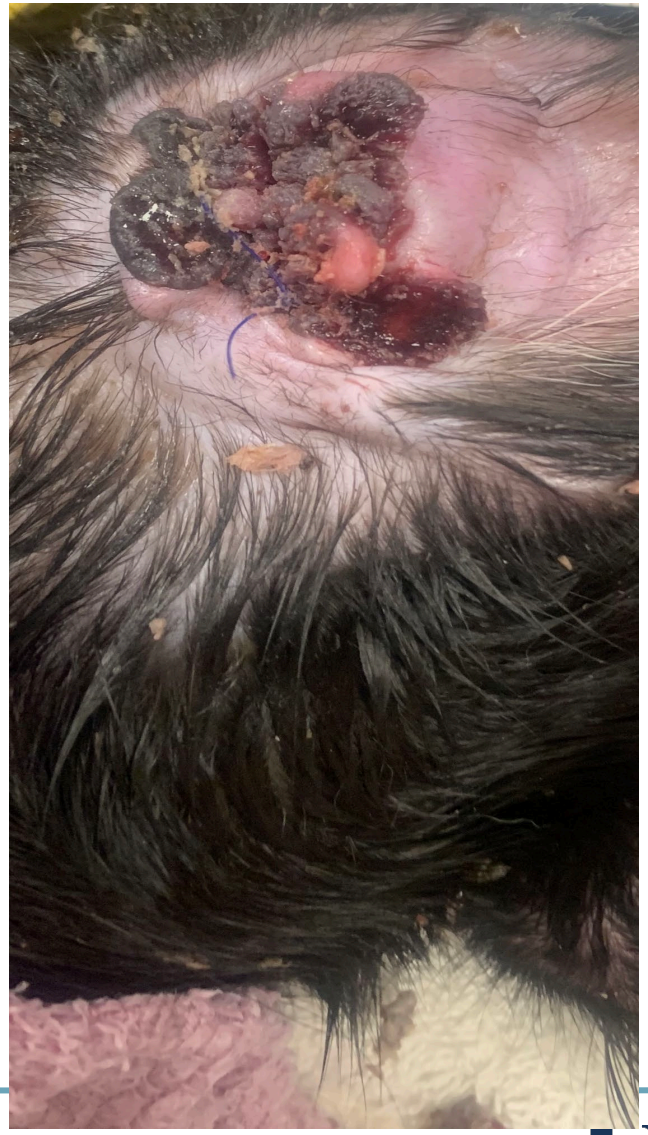






Using Aesculight Co2 Laser in Ears





Proliferative Necrotizing Otitis Externa (PNOE)

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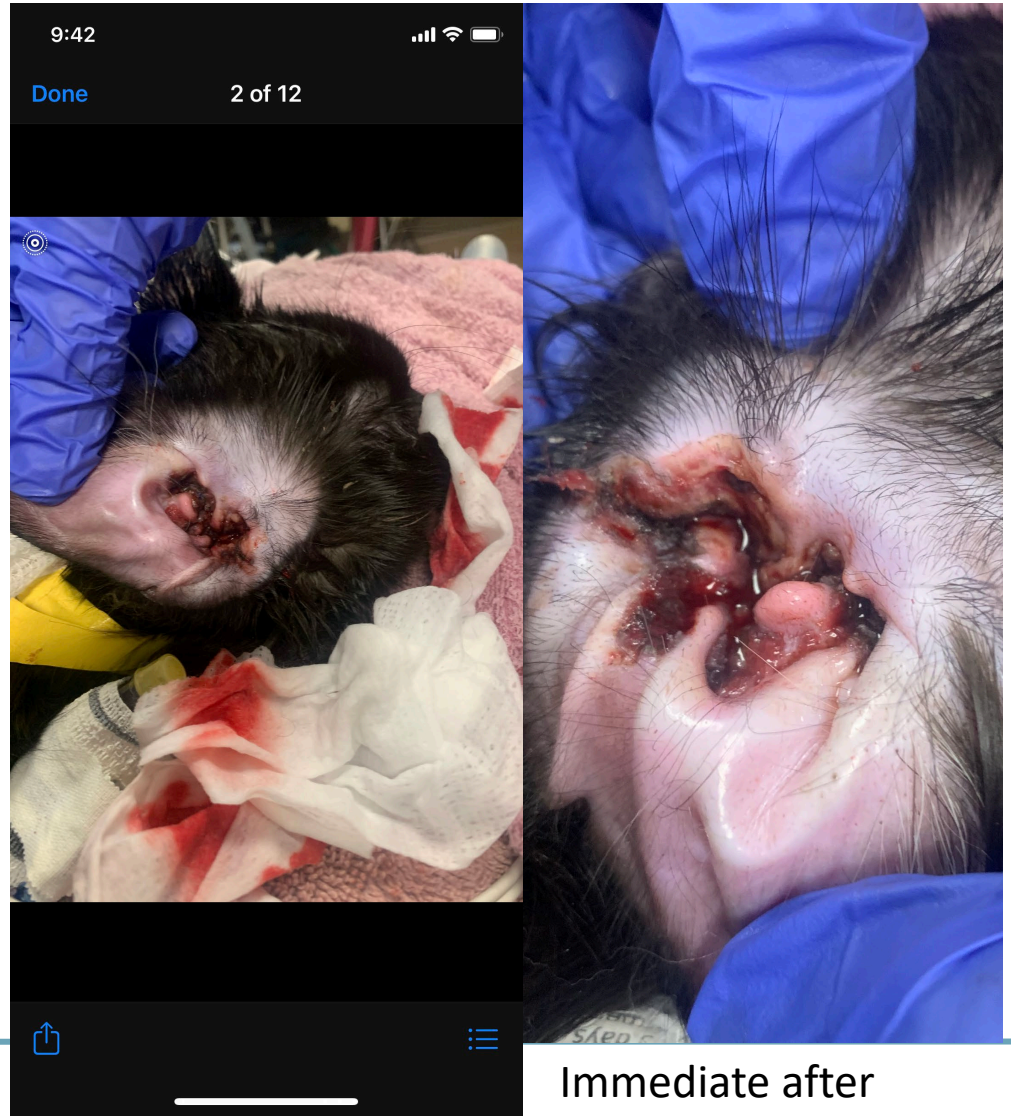
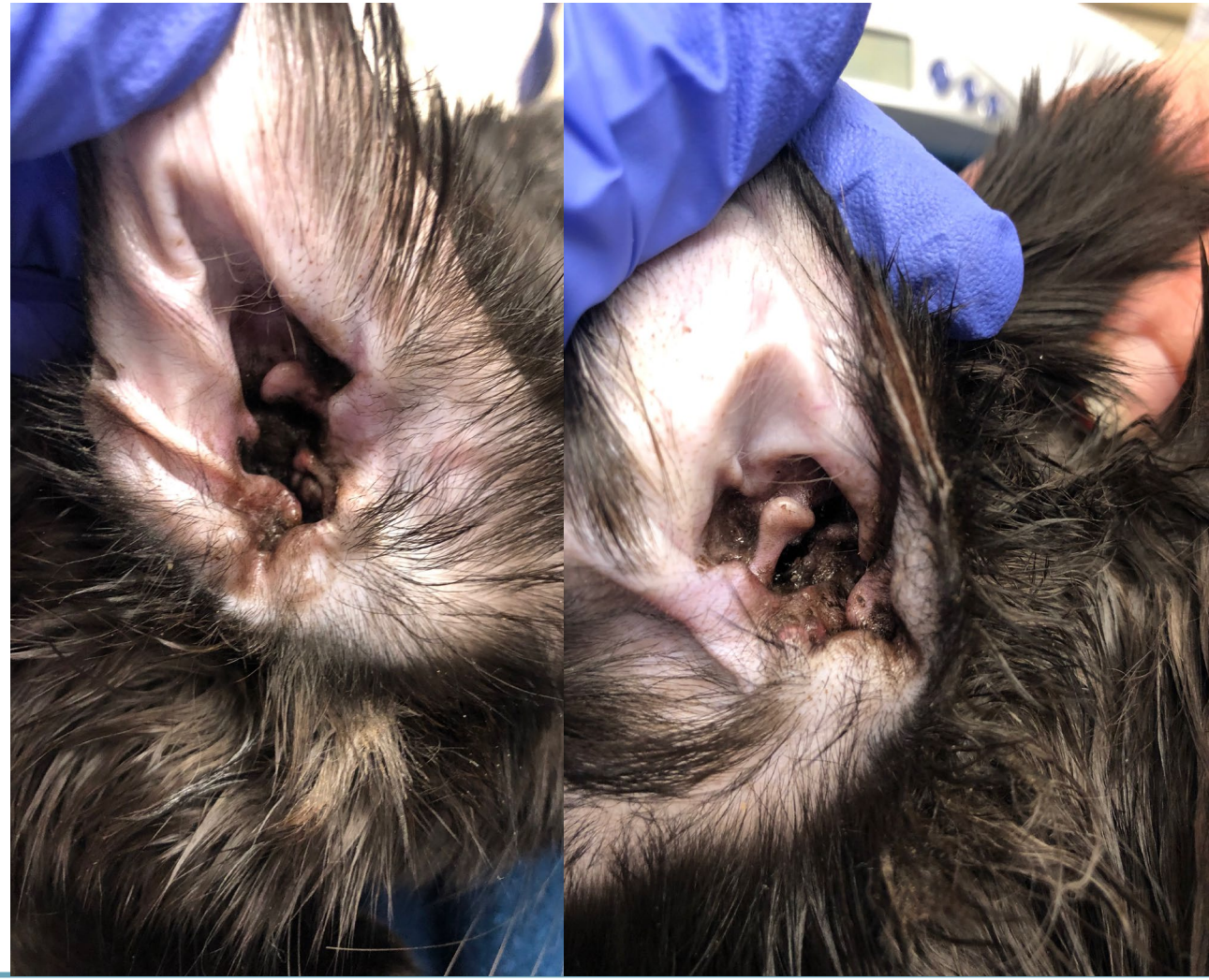
Using Aesculight Co2 Laser in Ears



Immediate after



60 Days Post

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Some Chronic Otitis Cases Need Long Term Therapy

- Ear cleaner followed by Synotic
- Douxo Micellar and Epi Otic Advanced with dexamethasone
  - 2-3x weekly, then sometimes 1x weekly to every other week
- Open TM Dechra TrizUltra+Keto and dexamethasone
- Severe cases miconazole and dexamethasone, pulse 2-3x weekly
- In EU will use this first before even use oral antibiotics to reduce resistance

Why is treatment not working?

- First ask the clients if they actually can do the topical or oral
- Normally client and patient compliance #1 problems
- If allergy and you not getting to the underlying problems just going to come back
- Is there a biofilm: seen in Pseudomonas #1, Yeast, and Staph. pseudintermedius,
  - Sometimes TrizEDTA, but normally a dilute < 2% acetylcysteine and saline mixture

Updates From NAVDF 2021 Canine

- Choleastoma (inclusion cyst) now called tympanokeratoma, if not attached to wall some can be managed topically by draining instead of TECA BO
- Piperacillin tazobactam-treated multi drug resistant microbes: Pseudomonas, Proteus, Staphylococcus, Enterococcus, E. coli, Beta Streptococcus, no s/e, but Malassezia in 38.5%
- The big talk is all about biofilm!
- Topical antibiotics may be bactericidal, but not enough to overcome to biofilm and if not achieved resistance continues
  - Topical antibiofilm Tris EDTA sodium or 3% tetrasodium EDTA (not used as much)
  - N'acetylcysteine-used injectable diluted, <0.5% appears to be safe in the middle ear

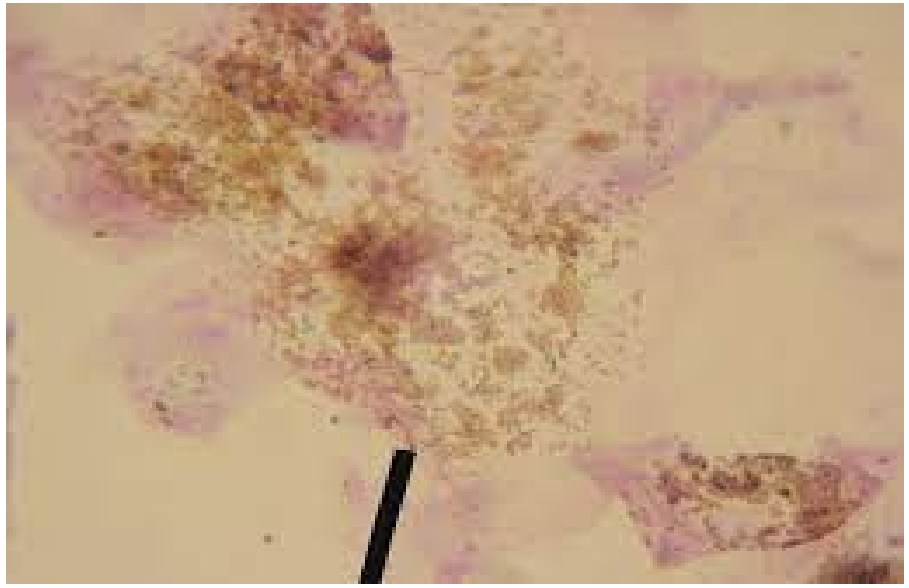
Updates From NAVDF 2021 Feline

- 20% of normal bulla have bacteria growing (pharynx bacteria microbes)
- OM: Horner's more likely, lysis of bones facial nerve c/s more likely
- OI: vestibular, nystagmus, hearing issues
- Neurologic signs resolve in 2-8 weeks, 10% ataxia head tilt remain
- Non polyp tx 11/16 tx OM medically
- Sterile inflammatory process, steroid helps
- Aural polyp traction and evulsion <5% reoccurrence at CSU with steroids, 8 weeks taper from 2 mg/kg to 0.5 mg/kg

POLLS FOR RACE CREDIT

What are the small structures on this slide?

- A. rods
- B. cocci
- C. yeast
- D. melanin granules



Veterinary Practice News

What type of topical medication has been reported to be the most common cause of deafness?

- A. enrofloxacin
- B. miconazole
- C. gentamycin
- D. Triz-EDTA

What is the minimum recommended treatment for OM topically and orally?

- A. 7 days
- B. 14 days
- C. 30 days
- D. 120 days

What liquid ingredient is NOT safe in the middle ear?

- A. Saline
- B. Triz-EDTA
- C. Propylene glycol
- D. Miconazole

True or False: Is it true any medication can cause deafness?

- A. True
- B. False

THANK YOU!

- Thank you to **all of you** willing to listen to me for an hour!
- Thank you **MedVet Salt Lake City** and **MedVet Northern Utah** for my job!
- Thank you to my technician and technician assistant/doctor coordinator, **Loree and Jacqueline**! Also thank you to **Heather!**
- Thank you to **Hill's Pet Nutrition** for sponsoring this VCE!

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