

THE GIFT THAT  
KEEPS ON GIVING:

FELINE HERPES AND  
OTHER FELINE  
OCULAR DISEASES

CHRISTINE BOLES, DVM  
OPHTHALMOLOGY SPECIALTY  
INTERNSHIP – VCA NWVS  
FEBRUARY 5, 2023

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ABOUT ME

- 2017-21 WSU College of Veterinary Medicine \*GO COUGS!®
- 2021-22 Small Animal Rotating Intern, VCA Northwest Veterinary Specialists
- 2022-current Ophthalmology Specialty Intern, VCA Northwest Veterinary Specialists
- July 2023-26 Ophthalmology Resident at The Ohio State University
- Seeing Double?

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OUTLINE

Feline Herpes Virus (FHV-1)

Anterior Uveitis

Hypertensive Retinopathy

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## CASE 1:



- 2 year old female spayed DSH
- Indoor only
- Hx: Family just moved into a new house. Presents for an evaluation of 1 week history of blepharospasm and mucoid discharge, OS
- PE: OD: normal. OS: Third eyelid elevation and conjunctival hyperemia. Mucopurulent discharge in the ventral fornix. Blepharospasm on examination. Fluorescein stain negative OU
- Morphologic diagnosis = conjunctivitis
- Differential diagnosis?

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## DIFFERENTIAL DIAGNOSES:

- Feline Herpes Virus- I
- Chlamydia
- Calicivirus
- Mycoplasma

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## FELINE HERPESVIRUS- I (FHV- I)

- Major cause of conjunctivitis in both kittens and adult cats
- Ubiquitous
- Clinical signs: URI signs, blepharospasm, ocular discharge, corneal ulcer
- alphaherpes cytopathic virus
  - Infect epithelial surfaces of conjunctiva and respiratory tract
  - Causes lysis of these tissues as the virus replicates and invades adjacent cells
  - Secondary bacterial infection is common!




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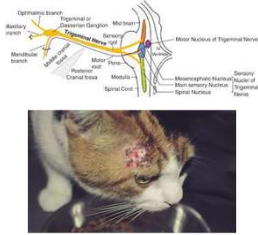
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## FHV-1

- Once infected, infected for life and will become latent carriers
- Virus lives in the trigeminal nerve (V)
  - Cutaneous herpesvirus infection
  - Ocular manifestation
- Recrudescence in times of stress
- Diagnostic testing typically not warranted



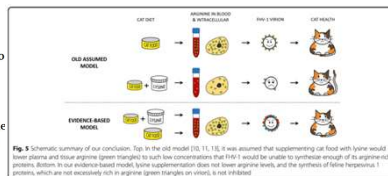
## HERPESVIRUS KERATITIS

- Corneal ulceration is the 2<sup>nd</sup> most common manifestation of FHV-1 infection
- Early ulcers can have a dendritic or branching appearance → larger geographic ulcers
- These ulcers are painful, may heal spontaneously, or may become indolent
  - Debride with a cotton-tip applicator. Reduce viral load?



## HERPETIC ULCERS





## POLYMYXIN B: TO USE OR NOT TO USE

J Feline Med Surg. 2011 Oct;13(10):744-51. doi: 10.1016/j.jfms.2011.06.007. Epub 2011 Sep 9.

### Anaphylactic events observed within 4 h of ocular application of an antibiotic-containing ophthalmic preparation: 61 cats (1993-2010).

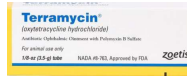
Hume-Smith JM<sup>1</sup>, Graft AD, Ratzke M, Walter-Green LA, Plackett RJ, Meyers DJ.

#### Author information

#### Abstract

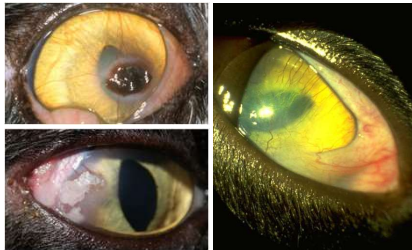
This study describes signalment, history, antibiotic administered, clinical signs observed, therapy, and outcome of anaphylactic events within 4 h following ophthalmic administration of an antibiotic to cats. Data came from survey responses (45 cats) or Federal Drug Administration reports (16 cats). Cat age (7 weeks-19 years), breed, and gender ranged widely. Most were healthy (87%) prior to anaphylaxis. Ophthalmic antibiotics commonly were administered for conjunctival (60%) or corneal (11%) disease, or ocular laceration (7%) and contained bacitracin, neomycin, and polymyxin B (64%), or oxytetracycline and polymyxin B (21%). Polymyxin B was present in all cases. Vaccines or other drugs were also administered to 51% of cats. In 56% cases, anaphylaxis occurred within 10 min of drug application. Most (82%) cats survived. Although a causal association was not proved, ophthalmic antibiotic administration preceded anaphylaxis in all cats. Like other drugs, ophthalmic antibiotics should be used only when indicated.

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## COMPLICATIONS

- Sequestrum
- Symblepharon
- Eosinophilic Keratitis



## CASE 2:

- 1 year old female spayed DSH
- Indoor/Outdoor
- Hx: Presents for an evaluation of a 2 week history of squinting, tearing, different sized pupils
- PE: OD: normal. OS: mild third eyelid elevation and conjunctival hyperemia, blepharospasm, epiphora, rubeosis iridis, mild aqueous flare, miotic pupil, IOP 7mmHg
- Morphologic diagnosis = anterior uveitis
- Differential diagnosis?



## DIFFERENTIAL DIAGNOSES:

- Infectious
- Inflammatory/Immune mediated
- Neoplastic
- Idiopathic

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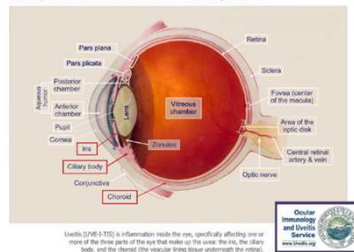
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## UVEITIS

- inflammation inside the eye, specifically affecting one or more of the uveal structures (iris, ciliary body, choroid)

### Anatomy of the Eye

With Special Reference to Ocular Inflammatory Disease




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## ANTERIOR UVEITIS

- Clinical Signs:
  - Non-specific signs of intraocular pain (blepharospasm, epiphora, TEL elevation, miosis)
  - Aqueous flare – Tyndall effect, keratic precipitates, fibrin, hyphema
  - Rubeosis iridis
  - Bilateral vs. unilaterally affected




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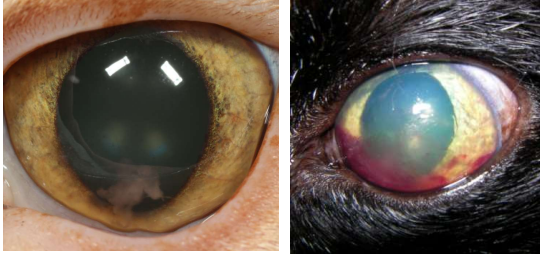
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## ANTERIOR UVEITIS




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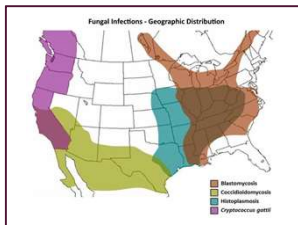
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## INFECTIOUS



- Viral
  - FIP, FIV/FeLV, FHV-1
- Bacterial
  - septicemia, Bartonella, Mycobacterium, tick-borne diseases
- Protozoal
  - Toxoplasma gondii
- Fungal
  - Aspergillus spp. Blastomycosis dermatitidis
  - Coccidioides immitis Cryptococcus spp. Histoplasma capsulatum Candida albicans
- Parasitic
  - Dirofilaria immitis

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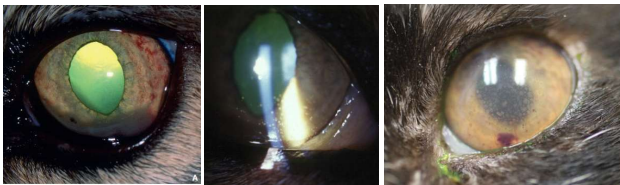
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## INFECTIOUS




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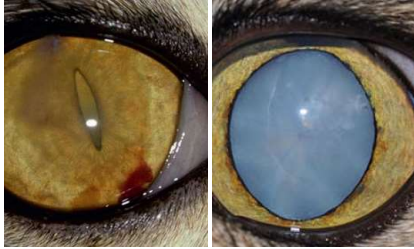
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### INFLAMMATORY/IMMUNE MEDIATED

- Trauma (blunt vs. intraocular – penetrating wound, intraocular surgery)
- Reflex uveitis – corneal disease
- Lens-induced (lens trauma, cataract)




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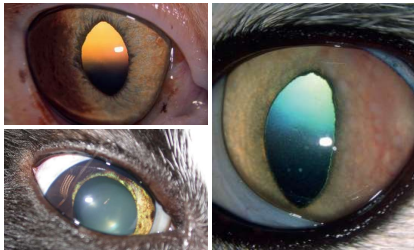
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### NEOPLASIA

- Lymphoma
- Feline Diffuse Iris Melanoma
- Feline ocular post traumatic sarcoma
- Other




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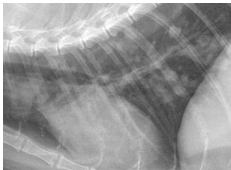
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### IDIOPATHIC

- Diagnosis of exclusion
- Diagnostic Systemic workup
  - CBC/Chem/UA
  - FIV/FelV testing
  - Thoracic radiographs
  - Abdominal ultrasound




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### CHRONIC ACTIVE UVEITIS (CAU)

- Older cats
- Typically unilateral presentation but can be bilateral
- Present for several years
- Herpes related?




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### SECONDARY CHANGES

- Glaucoma
- Cataract formation
- Lens luxations




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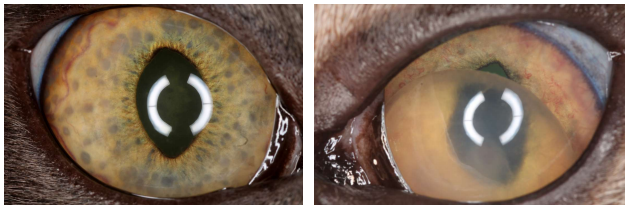
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### CHRONIC ACTIVE UVEITIS (CAU)




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## TREATMENT

- Treat the underlying disease
- Topical corticosteroids
  - Dosage frequency dependent on severity of disease
  - Taper off or to lowest possible effective dose
- +/- oral steroids
- Oral antibiotics?




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## CASE 3:

- 14 year old male neutered DSH
- Indoor
- Hx: Patient presented for acute blindness and dilated pupils
- PE: OU: mydriatic, absent menace, PLR (direct and consensual), retinal detachments; Blood Pressure 170mmHg
- Differential diagnosis?




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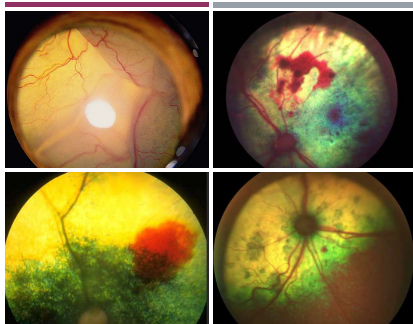
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## HYPERTENSIVE RETINOPATHY

- Pathophysiology
  - Systemic Hypertension
    - increased blood flow to the choroid → choroid can not autoregulate → fragile choroidal vessels → subretinal serous or hemorrhage → retinal detachment




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## HYPERTENSIVE RETINOPATHY



Figure 4 SBP 170 mmHg. Left eye. There is a large bullous retinal detachment, with several smaller foci of detachment lateral to this. Throughout the fundus are multifocal areas of pigmentary disturbance



Figure 5 SBP 195 mmHg. The right eye of this cat has vitreal haemorrhages present; the fundus was not visible



Figure 6 SBP 167 mmHg. Left eye. Note the large bullous retinal lesion associated with a blood vessel; smaller bullous lesions are also present. This eye had an intact transverse response and pupillary light reflex, and was completely visual

## TREATMENT

- Treat the hypertension and underlying cause (ie. Renal disease, hyperthyroidism, etc)
  - Amlodipine 0.125-0.25mg/kg PO QD
- Treat for uveitis if present
- Young et al (VO 2019) - the duration of retinal detachment and time to reattachment does not necessarily correlate with return of vision

### Veterinary Ophthalmology



ORIGINAL ARTICLE

#### Visual outcome in cats with hypertensive chorioretinopathy

Whitney M Young, Chaowen Zheng, Michael G Davidson, Hans D Westermeyer

## THANK YOU

- Special Thanks to my mentors:
  - Dr. Paul Scherlie,
  - Dr. Michelle Taylor,
  - Dr. Rosalie Atkins
  - Dr. Crystal Boles

