


Ophthalmology Cases and Lessons Learned

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Cornell University
Veterinary Specialists

Continuing
EDUCATION

Sponsored by:


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Introduction


- Opportunity to gain familiarity with a sampling of less common ophthalmology cases
- Though seen relatively infrequently, these cases can provide useful learning experiences that also apply to common cases
- Using photographs to practice evaluating ophthalmology cases gives you time to think about what you are seeing - free of time pressure or a moving patient
- Gives us a chance to discuss some helpful tips and pitfalls of practice

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Case 1: 1 YO FS Frenchie – Corneal Trauma


- Initial presentation 1 week after suspected cat scratch vs other trauma to OS
- Per records/owner/assistant, patient diagnosed with an ulcer, improved at recheck several days later, followed by sudden white/abnormal appearance the day of presentation to CUVS



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Case 1: 1 YO FS Frenchie – Corneal Trauma

- Visual with positive menace and dazzle OD; currently non-visual with neg menace and **pos** dazzle OS
- Pupillary Light Reflexes: pos direct and **pos** consensual OD; nv direct and nv consensual OS
- Adnexa/Orbit: Mild distichiasis OU; mod conjunctival hyperemia, mild epiphora, subtle blepharospasm OS
- Cornea: WNL OD, **axial 70-80% of cornea opaque, with multiple coalescing giant corneal bullae, some stromal loss but difficult to evaluate extent d/t bullae/raised lesions, early epithelialization of peripheral portions of bullous lesions OS**
- Remainder WNL OD, Not visible OS
- Fluorescein stain: POS OS
- IH-Cytology: Degenerate neutrophils, no bacteria seen; culture submitted



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Case 1: 1 YO FS Frenchie – Corneal Trauma

- Diagnosis:
- **Bullous keratopathy** ~1 week following possible cat claw injury/superficial ulceration



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Case 1: 1 YO FS Frenchie – Corneal Trauma

- What to do? Discussed:
- Enucleation
 - Pros: Fastest/most definitive route to comfort
 - Cons: Definitive loss of vision, cosmetic aspect
- Medical management
 - Pros: Patient remarkably comfortable/fair to try medical management, owners interested in medical boarding for aggressive treatment regimen, chance of more cosmetic corneal outcome, chance of regaining vision
 - Cons: Potential for failure/need to enucleate after spending time/\$\$ trying to save the eye
- Surgical stabilization/grafting
 - Pros: More likely to be successful than medical management in terms of stabilizing the eye
 - Cons: Large conjunctival graft likely blinding, poor cosmesis



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Case 1: 1 YO FS Frenchie – Corneal Trauma

- Medical management elected
 - patient at CUVS for 11 days at owner's request
- Sedated for placement of temporary tarsorrhaphy
- Managed with:
 - Topical:
 - Plasma (alt to serum)
 - Cefazolin 50 mg/mL ophthalmic preparation
 - Ofloxacin 0.3% ophth sol
 - Sodium Chloride (Muro) Ointment
 - Q2 for 12 hours, q4 for 48 hours, q6 for 4 weeks
 - Oral:
 - Clavamox – because of cat scratch, possibly perforating
 - Carprofen

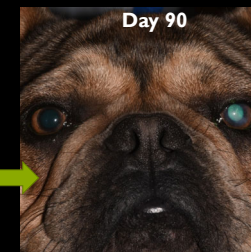


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Case 1: 1 YO FS Frenchie – Corneal Trauma

- Days 1-11: Gradual reduction in area of fluorescein uptake/gradual improvement in bullous appearance; discharged with punctate ulcer and persistent bullous keratopathy
- Recheck at CUVS at 3 mos (when patient returned to CT):



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Case 2: 14 YO FS Welsh Corgi

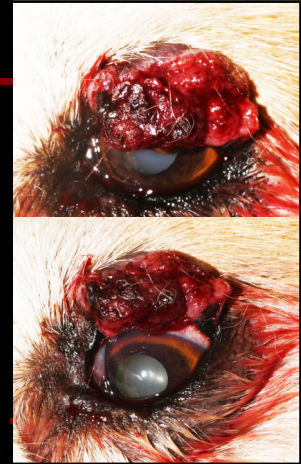
- Patient presented for evaluation of upper left eyelid mass
- Mass had been present and progressive for ~4 months
- Biopsy performed by primary care veterinarian → "squamous papilloma"
- PPH:
 - Mammary gland mass – previous aspirate non-diagnostic, biopsy not pursued
 - Possible solitary pulmonary nodule noted on chest rads 2016
 - Hx of tachypnea
 - Hx of anaplasma and lyme positive

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Case 2: 14 YO FS Welsh Corgi

- Ophthalmic examination unremarkable aside from:
- Adnexa/Orbit:
 - Large, ulcerated, suspect necrotic vascular pink upper eyelid mass affecting central ~75-80% of the eyelid
 - Moderate hemorrhagic discharge OS
 - Cornea:
 - Dorsal superficial neovascularization and haze OS



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Case 2: 14 YO FS Welsh Corgi

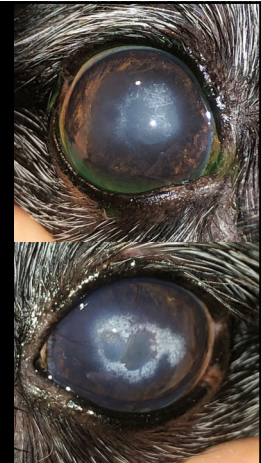
- What to do? We considered:
 - Modified enucleation/exenteration
 - Attempt to salvage globe via narrow margin excision and reconstruction of upper eyelid – not recommended
 - Biopsy Results:
 - Papillary Squamous Cell Carcinoma, clean margins
- Malignant neoplasm
 → Metastatic potential may be lower than other types of SCC (true for those in the oral cavity and in humans)



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Case 3: 15 YO MN Mix (small black fluffy dog)

- History at initial presentation:
 - 4 mos prior: O noticed white spots OU
 - 3 mos prior: seen by another DACVO for corneal ulceration associated with
 - Suspected qualitative tear film deficiency (started tacrolimus 0.02% BID OU)
 - Calcific corneal degeneration (started 1% EDTA BID OU)
 - Superficial corneal ulcer – OS (subsequently healed)
 - Owner noting significant evidence of vision impairment at home
 - Persistent chronic squinting OU



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Case 3: 15 YO MN Mix (small black fluffy dog)

- Schirmer tear test: 14 mm/min OD, 25 mm/min OS
- Intraocular pressure: 11 mmHg OD, 13 mmHg OS
- Fluorescein stain: NEG OD, NEG OS
- Adnexa/Orbit: Mod conjunctival hyperemia OU
- Cornea: Axial ~8 mm diameter mid-stromal lipid dystrophy OU with overlying subepithelial calcific corneal degeneration OS>OD, two axial facets within region of degeneration and mild neovascularization OS
- Anterior chamber: LV/WNL OU
- Iris: LV/WNL OU
- Lens: LV/NS OU
- Vitreous/Fundus: No detail visible OU



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Case 3: 15 YO MN Mix (small black fluffy dog)

- What to do?
 - Continue medical management
 - Tacrolimus
 - EDTA
 - Careful diamond burr keratotomy
 - Goals:
 - Reduce discomfort
 - Reduce risk of recurrent ulcerations
 - Improve vision
 - Risks:
 - Will increase discomfort temporarily
 - Risk of melting/progressive ulceration
 - Risk of delayed healing d/t age and Ca⁺⁺
 - Timing:
 - Proactive/now
 - Wait for another ulcer
 - Owner elected medical management and proactive debridement



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Case 3: 15 YO MN Mix (small black fluffy dog)

- DBK for Calcific corneal degeneration can be rewarding, but...
- Keep in mind:
 - This was a particularly successful case
 - Risk of corneal malacia, septic ulcerative keratitis, delayed healing
 - Risk of recurrent calcific degeneration
 - Some cases have greater degree of persistent Ca⁺⁺ deeper in stroma

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Case 4: 7 MO MI Cavapoo

History:

- Otherwise healthy, incidental finding of suspected retinal detachment on exam with primary care veterinarian




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Case 4: 7 MO MI Cavapoo

Pertinent ophthalmic exam findings:

- Vision: Visual with pos menace and pos dazzle OD; non-visual with absent menace and absent dazzle OS
- Pupillary Light Reflexes: pos direct and absent consensual OD; markedly reduced direct and pos consensual OS
- Iris: WNL OD, mild diffuse hyperpigmentation/loss of normal detail and pupillary ruff OS
- Lens: WNL OD, WNL OS
- Vitreous/Fundus:
 - OD: geographic retinal dysplasia (horseshoe lesion) and non-tapetal retinal folds
 - OS: complete retinal detachment, retina appears thickened, dysplastic



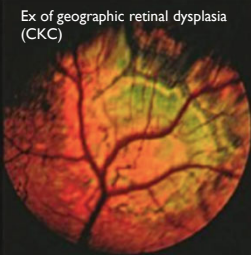
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Case 4: 7 MO MI Cavapoo


Assessment:

- OD: multifocal retinal folds and geographic retinal dysplasia
- OS: vitreoretinal dysplasia with detachment


Ex of geographic retinal dysplasia (CKC)



Ex of retinal folds

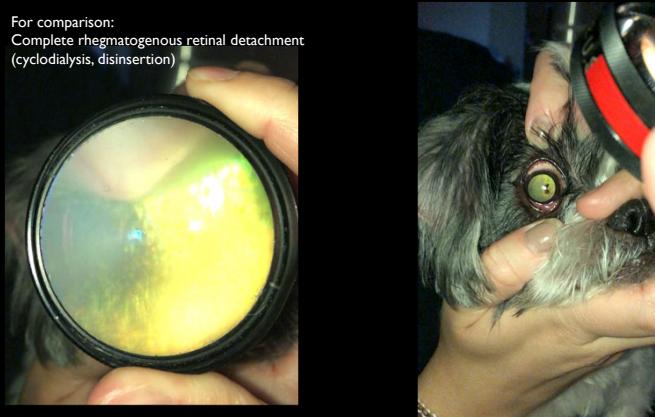


Detached dysplastic retina



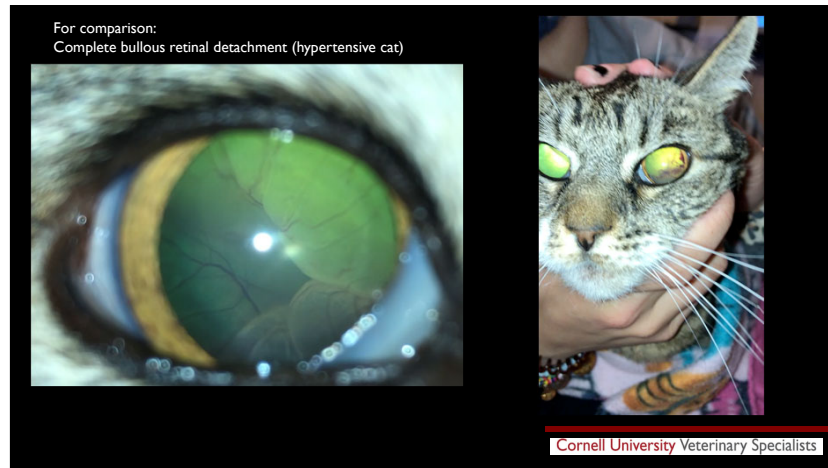
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For comparison:
Complete rhegmatogenous retinal detachment (cyclodialysis, disinsertion)



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Case 5: 14 YO MN DSH

Initial presentation:

- Redness and discharge OD
 - Recently treated with famciclovir, idoxuridine, tobra/dex, no improvement
- Hx of:
 - Treatment for FHV-1 (presumptive) conjunctivitis
 - Indolent ulceration OD year prior
 - Hx of seizures
 - Possible athymia
 - Bilateral sinusitis, responsive to doxycycline historically
- Currently receiving:
 - Phenobarbital
 - Lysine treats
 - Idoxuridine 0.1% Ophth. OU 5x daily
 - Genteal eye drops OD

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Case 5: 14 YO MN DSH

- Vision: currently menace and dazzle negative OD; menace positive, reduced dazzle OS
- Pupillary Light Reflexes: NV direct and NV consensual OD; reduced pos direct and pos consensual OS
- Intraocular pressure: 16 mmHg OD, 17 mmHg OS
- Fluorescein stain: POS OD, NEG OS
- Adnexa/Orbit: Mod conj hyperemia OD, WNL OS
- Cornea: Diffuse 3+ edema, moderate circumferential anterior stromal neovascularization with multiple ~2-5 mm ovoid regions of dense white corneal infiltrate near vessel tips circumferentially (**lipid vs mineral vs neoplasia vs inflammatory cell infiltrate**), large axial superficial ulcer OD, WNL OS
- Anterior chamber: no detail visible OD, WNL OS
- Iris: no detail visible (pupil size appears symmetrical to OS) OD, atrophy OS
- Lens: NV (tapetal reflection present) OD, NS OS
- Vitreous/Fundus: NV OD, peripapillary conus, area centralis hyperreflectivity, diffuse hyporeflexivity (no evidence active inflammation) OS
- **IH Corneal cytology:** Numerous eosinophils, numerous clusters cocci, neutrophils, epithelial cells
- Corneal culture: pending

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Case 5: 14 YO MN DSH


- Diagnoses:
 - Septic ulcerative keratitis (culture positive for Neisseria spp 2+)
 - Possible FHV-1 flare (current sneezing)
 - **Eosinophilic keratitis**
 - Atypical manifestation with intrastromal abscesses
- Treatment:
 - Septic ulcerative keratitis:
 - Iggt ciprofloxacin q6
 - Added terramycin after receiving culture results (IDEXX recommended tetracycline)
 - FHV-1 flare: Famciclovir 125 mg BID (~40 mg/kg – could have gone higher)
 - EK: 0.2% cyclosporine 1/4" BID
 - Supportive care: Artificial tear ointment, gabapentin

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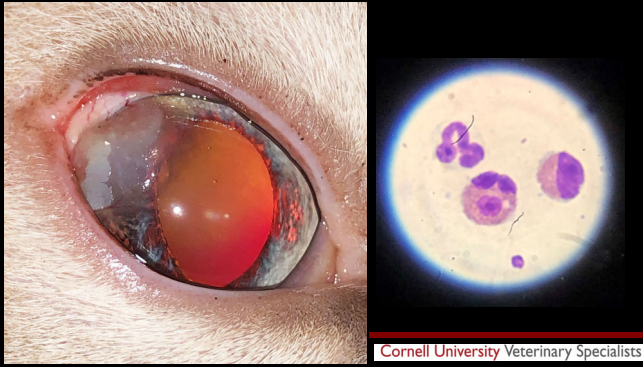
Progression:

- 2-day recheck: no progression of stromal loss
- 2-week recheck: ulcer now indolent/no bacteria, persistent Eos on cytology
 - Careful debridement; added Megestrol Acetate 0.5% (avoiding topical dexamethasone SP or prednisolone acetate)
- 4-week recheck: Ulcer improving, EK infiltrates resolving
- 8-week recheck: Ulcer healed, cornea clearing → continued topical cyclosporine, megestrol acetate BID, discontinue other medications



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For comparison: Typical Eosinophilic Keratitis

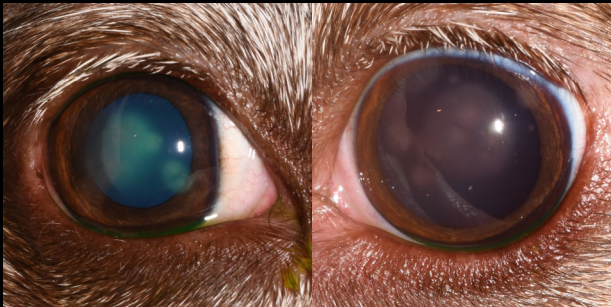


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Case 6: 3 YO FS Beagle Mix


- Primary care veterinarian recently noted corneal cloudiness OU
- No difficulty with vision, no squinting, redness, or discharge OU.



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Case 6: 3 YO FS Beagle Mix

- Vision: Visual with pos menace and pos dazzle OU
- Pupillary Light Reflexes: pos direct and pos consensual OU
- Schirmer tear test: 20 mm/min OD, 15 mm/min OS
- Fluorescein stain: NEG OU
- Adnexa/Orbit: WNL - no conjunctival hyperemia, discharge, or blepharospasm OU
- Cornea: Multifocal variably sized (est 2-6 mm diameter) round white anterior stromal nebulae, most dense centrally/hazy peripherally, present OU; sparse dorsal perilimbal ghost vessels OU
- Remainder WNL OU

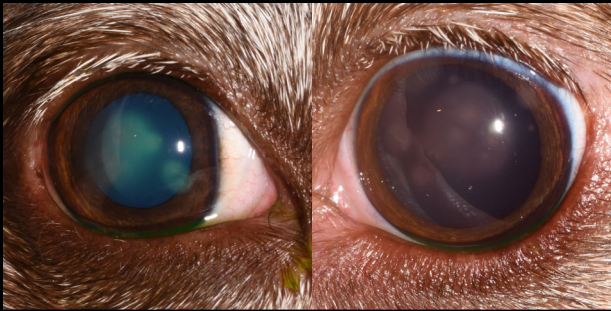


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Case 6: 3 YO FS Beagle Mix

- Key pieces of history:
 - Adopted from Puerto Rico
 - Non-painful

Florida
keratopathy
(Florida spots)



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Case 7: 6 YO MN Maine Coon

- History:
 - Progressive redness, discharge OS with proliferative lesion on palpebral surface of third eyelid.
 - Treated intermittently for conjunctivitis over preceding year (terramycin, oral lysine)
 - No history of sneezing or nasal discharge



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Case 7: 6 YO MN Maincoon

- Visual with positive menace and dazzle OU
- Pupillary Light Reflexes: Positive direct and consensual OU
- Fluorescein stain: NEG OD, NEG OS
- Adnexa/Orbit: Trace dry discharge at medial canthus OD, mild dry discharge at medial canthus, mild-mod diffuse conjunctival hyperemia, mild conjunctival redundancy, multilobular proliferative tissue expansion ~5x7 mm arising from central distal palpebral surface of nictitans OS
- Remainder unremarkable.



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Case 7: 6 YO MN Maincoon

- Primary considerations:
 - Inflammatory tissue secondary to chronic conjunctivitis/FHV-1 vs bacterial
 - Lymphoid follicle hyperplasia/association with allergic conjunctivitis
 - Neoplasia – MCT, SCC, hemangioma/hemangiosarcoma, amelanotic melanoma, etc.



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Case 7: 6 YO MN Maincoon

- Recommended:
 - Immediate biopsy vs
 - Treatment trial with anti-inflammatory medications and famciclovir to address allergic vs FHV-1 mediated chronic conjunctivitis
 - Avoided topical steroid d/t possible FHV-1
- No response to Famciclovir and diclofenac a 1 month
- Proceeded with biopsy:
 - Topical proparacaine, +/- topical phenylephrine, dilute betadine solution, snip!



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Case 7: 6 YO MN Maincoon

Ocular pathologist is key!

Diagnosis:

Feline epitheliotropic mastocytic conjunctivitis.

- Uncommon disease characterized by proliferative conjunctival lesions
- Often unilateral
- Usually associated with the third eyelid conjunctiva.
- Benign behavior
- Suspect immune-mediated vs allergy-related
- Uncommonly severe variant of Eosinophilic Conjunctivitis?

Beckwith-Cohen B, Dubielzig RR, Maggs DJ, Teixeira LBC. Feline Epitheliotropic Mastocytic Conjunctivitis in 15 Cats. *Vet Pathol.* 2017 Jan;54(1):141-146.



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Case 7: 6 YO MN Maincoon

Outcome:

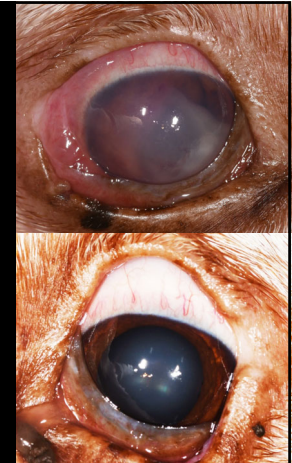
- Condition reportedly responsive to surgical excision, topical steroids, topical calcineurin inhibitors
- Owners elected treatment trial with 0.05% tacrolimus BID
- O reports initial significant improvement, o subsequently reduced treatment to SID then ran out
- Mild progression at recheck off medication at 1 year



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Case 8: 12 YO MN Vizsla

- Initial presentation to CUVS ER with a history of:
 - Acute onset of PU/PD ~3 weeks prior
 - Recently reduced appetite
 - New onset elevated kidney values
 - Elevated ALP, LDDST neg
 - Hypoproteinemia
 - Anemia
 - Acute onset cloudiness OD



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Case 8: 12 YO MN Vizsla

- Additional findings at CUVS included:
 - Hepatomegaly
 - Diffuse peritonitis
 - Severe focal intestinal thickening
 - Ocular abnormalities → requested in-house consultation



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Case 8: 12 YO MN Vizsla

Vision: Currently non-visual with absent menace and pos dazzle OD; visual with pos menace and pos dazzle OS

Pupillary Light Reflexes: NV direct and NV consensual OD; pos direct and pos consensual OS

Intraocular pressure: 44 mmHg OD, 8 mmHg OS

Adnexa/Orbit: Moderate conjunctival hyperemia, mild episcleral injection OD, WNL OS

Cornea: 2+ diffuse edema OD, WNL OS

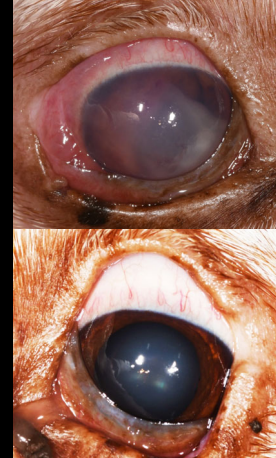
Anterior chamber: Large fibrin clot, shallow d/t multifocal iris thickening OD, WNL OS

Iris: Irregular, thickened iris leaflets, greatest area of swelling 9-12 o'clock, view limited by overlying fibrin clot OD, ciliary zone swelling from 3-6 o'clock OS

Lens: NV OD, NS OS

Vitreous/Fundus: NV OD, WNL OS

Next up: Anterior uveal mass versus iris bombe?



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Aside: Iris bombe vs iris mass effect



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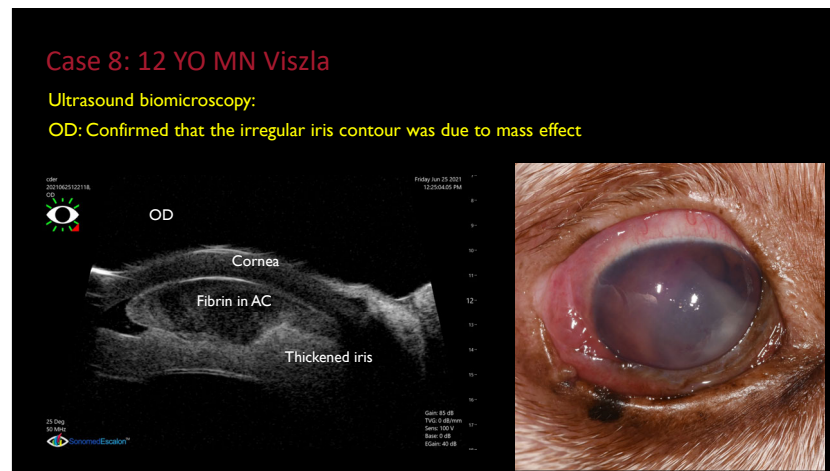
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Aside: Iris mass effect vs. iris bombe

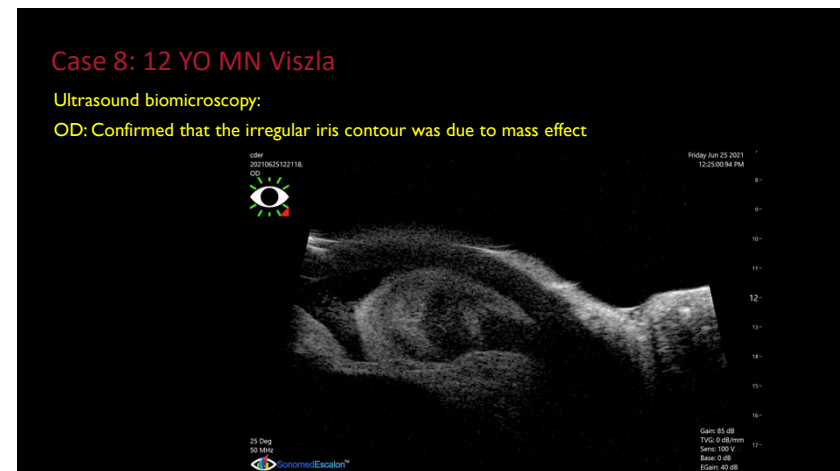


- Randy Korngold
- Marley Tomas

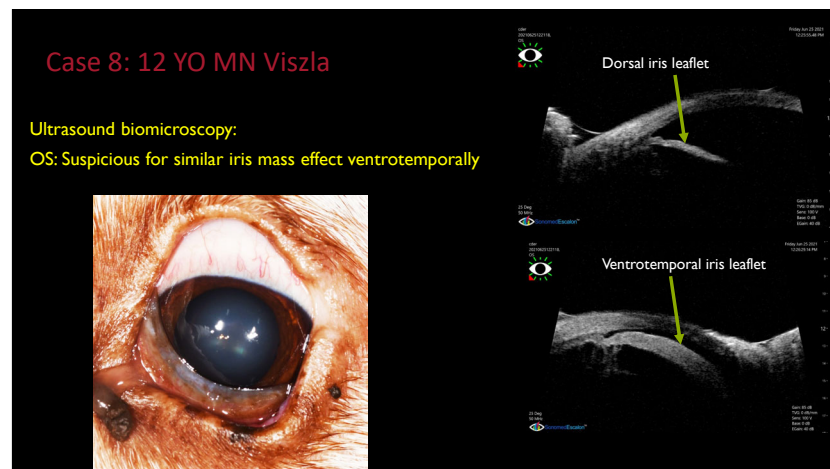
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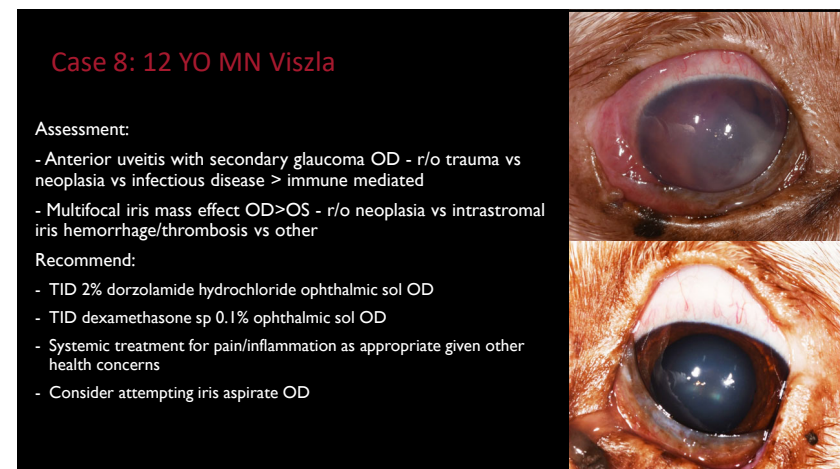
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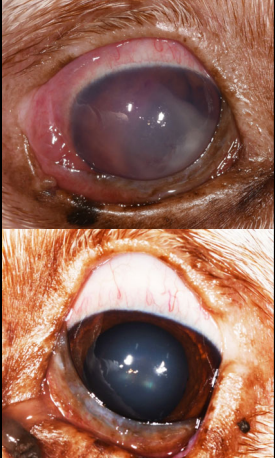
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Case 8: 12 YO MN Vizsla

- Cytology results:
 - Hepatomegaly → **Large cell lymphoma**
 - Diffuse peritonitis → **Large cell lymphoma**
 - Severe focal intestinal thickening → **Large cell lymphoma**
 - Aspirated iris nodule OD → **Large cell lymphoma**



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Case 8: 12 YO MN Vizsla


- Takeaways:
 - Uveitis secondary to systemic disease is not always symmetrical between eyes
 - Lack of palpable peripheral lymphadenopathy does not rule out lymphoma in patients presenting with uveitis, but always remember to check - enlarged lymph nodes are often missed in these cases – the eye is distracting.
 - If no other lesions identified or if additional sampling is desired to maximize chances of a cytologic diagnosis, iris aspiration is possible.
 - Aqueous humor aspirates tend to be less rewarding, though they are most useful for lymphoma (vs infectious disease)



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Case 9: 10 YO FS DSH

- History of refractory corneal ulceration OS with non-adherent epithelium for 1-2 weeks
- Area of ulceration developed brown appearance
- Persistent discomfort prompted presentation through CUVS ER
- No history of sneezing or suspected URI



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Case 9: 10 YO FS DSH

Adnexa/Orbit:

OD: Slight tendency toward lower entropion

OS: Moderate lower entropion with trichiasis, mild blepharospasm

Cornea:

OD: WNL

OS: Perilimbal ~5x6 mm mild-moderate density sequestrum at 2-3 o'clock with overlying superficial ulceration/non-adherent epithelium, moderate neovascularization

Are we missing anything?



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Case 9: 10 YO FS DSH

What to do?

- Anterior lamellar keratectomy with conjunctival graft
- Correct entropion
- Excise lipogranulomatous conjunctivitis lesions



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Case 9: 10 YO FS DSH

Primary take away:

Always remember to look for an underlying cause when patients develop refractory corneal ulcers

Did I need the graft?



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Questions?



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