Ocular Manifestations of Systemic Diseases in Small Animals

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The eye has limited ways to react to injury.

- Red
- Loses transparency
- Vascularizes
- Pigments or depigments
Septicemia (bacterial)

- anterior uveitis to endophthalmitis
- embolization of bacteria
- circulating Ag-Ab complexes
Blepharitis

Immune mediated
Infectious
Hormonal

KCS and Hypothyroidism
Canine distemper virus

- ocular signs:
  - ocular discharge, KCS
  - ± corneal ulcers
  - optic neuritis (blindness)
  - Chorioretinitis- “gold-medallion”
Distemper

- conjunctival epithelial scrapings
  - ± intracellular inclusion bodies
Infectious canine hepatitis

- canine adenovirus I (CAV-I), “blue eye”

- ocular signs: 7 days PI or post vaccination
  - uveitis and corneal edema
  - edema is due to an Arthus reaction to viral replication in the endothelium
  - ocular signs often unilateral and temporary (1-2 weeks)

- severe cases: Afghans!
  - bullous keratopathy
  - secondary glaucoma
Feline Ocular *Bartonellosis*

- *Bartonella hensela*: gram negative rods
  
  - Iritis
  - KPs
  - White vitreous exudate causing lack of tapetal reflex

5 year old Persian
Feline Ocular *Bartonellosis*

- Large white fibrinous exudate in anterior chamber

15 year old DSH
Cryptococcus neoformans

- **ocular signs**
  - cats more often affected than dogs
  - optic neuritis, dilated pupils, exudative granulomatous chorioretinitis

- **systemic signs**
  - CNS, skin and respiratory lesions
Cryptococcosis-diagnosis

- ocular extension from vascular*, respiratory, or CNS systems
- may identify organism in vitreal or CSF aspirates

*most common
**Histoplasma capsulatum**

- Uncommon; affects cats > dogs
- Usually ocular extension from a respiratory infection
- Granulomatous choroiditis with retinal detachment
Blastomyces dermatitidis

- affects dogs > cats
- respiratory, skin, bone, testicles, CNS lesions
- ~ 43% develop ocular signs
  - unilateral or bilateral
Blastomycosis

- ocular signs
  - corneal edema/vascularization
  - granulomatous chorioretinitis
  - retinal detachment
  - secondary glaucoma
  - optic neuritis
**Ehrlichia canis**

- acute, subclinical, and chronic phases
- replicates in mononuclears
- incites a vasculitis in target tissues
- tortuous vessels & grey perivascular foci
- chorioretinitis & retinal vasculitis, optic neuritis, retinal detachment/hemorrhages
- uveitis, hyphema
Rocky mountain spotted fever

- *Rickettsia rickettsii*
- multifocal vasculitis
- uveitis, conjunctivitis, retinal vasculitis/perivasculitis
Hyperlipidemia

- primary
  - hyperlipoproteinemia in Miniature Schnauzers
- secondary: diabetes, hypothyroidism, pancreatitis, Cushing’s, liver disease
- increased triglycerides
  - lipid-laden aqueous humor
  - lipemia retinalis
- increased cholesterol
  - lipid keratopathy
  - atherosclerosis
Hyphema and lipid in AC
Uveodermatological syndrome

- spontaneous autoimmune disease against melanin containing tissues
- Akitas, OESD, Golden Retrievers, Samoyeds, Irish Setters
- panuveitis, retinal detachments
- poliosis/vitiligo - nose, muzzle
Retinitis

Healed
GME and Reticulosis

- usually presents with CNS signs
- acute blindness with fixed dilated pupils
- optic neuritis (absent if retrobulbar) leading to optic nerve atrophy
- peripapillary retinitis with RD
- Etiology: inflammation/neoplasia
Lymphosarcoma

- Ocular metastasis is common
- Uveitis, hyphema, pseudohypopyon
- Tortuous retinal vessels, perivascular cuffing, retinal detachment or neoplastic infiltration

Orbital lymphoma
Diabetes mellitus

- Cataracts develop in dogs >> cats
- Sorbitol draws water into the lens causing lens fiber swelling & rupture
- Early cataractous changes appear as vacuoles in the equatorial lens cortex
- Cataracts rapidly progress to maturity
- 28% lower STT; 37% lower corneal sensation; 58% lower TFBUT
Toxoplasmosis

- Retinochoroiditis
- Cats with retinitis and iritis have systemic signs more often than cats with iritis alone.
Herpes

- Conjunctivitis, uveitis, keratitis
- Chronic cases should be tested for FIV
- Viroptic, acyclovir, idoxuridine
- Oral lysine
- Oral interferon
FIP

- Perivascular cuffing
FIV

- uveitis
FeLV

Uveitis and retinitis
Nutritional Retinopathy

- Taurine deficiency
- Vit E deficiency
Vascular Hypertension

Poor Prognosis for vision
Vascular Hypertension

Retina

Cornea
Hyperviscosity Syndromes

- Plasma cell tumors
Ophthalmomyiasis
Intraocular Tumors

- Melanomas
- Adenomas
Melanomas

The angle
Iris melanoma
Intraocular Cysts or Tumors??

[Image of eyes]
Dirofilaria
Brucella canis

- **ocular**
  - corneal edema, anterior uveitis, chorioretinitis, glaucoma

- **systemic**
  - reproductive problems, discospondylitis, lymphadenopathy
Coccidioides immitis

- cats rarely affected

- ocular signs-
  - granulomatous uveitis and retinitis, retinal detachments, keratitis
  - posterior segment lesions predominate

- vitreal sample-may see endospores
Bartonellosis Therapy

- Azithromycin 5mg/kg QOD PO for 10-21 days
- Rifampin 10mg/kg SID PO for 1 week
- Doxycycline 5 mg/kg BID PO for 6 weeks
  - Combinations of first two with doxycycline