Diagnosis & Management of Immune-Mediated Golden Retriever Pigmentary Uveitis

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Golden Retriever Pigmentary Uveitis (GRPU)
• First described in 1996
• ACVO “Ocular Disorders Presumed to be Inherited in Purebred Dogs”
• Significant health issue in the Golden Retriever

Golden Retriever Pigmentary Uveitis (GRPU)
• Inheritance pattern “Not Defined”
• Breeding advice “No”
• Difficult to eliminate from a breeding program because often develops after prime reproductive years
Golden Retriever Pigmentary Uveitis (GRPU)

- Not associated with any underlying metabolic or endemic/infectious disorders
- Breed-related and thus inherited
- Immune-Mediated disorder
- Progressive anterior uveitis

Golden Retriever Pigmentary Uveitis (GRPU)

- Typically affects both eyes
- No gender predilection
- Affects Golden Retrievers across the United States
- Mean age 8.6 years +/- 2.1 years

Golden Retriever Pigmentary Uveitis (GRPU) – Ophthalmic Hallmark

- Pigment dispersion (exfoliation) upon the anterior capsule of the lens in a radial orientation or in multifocal zones with or without visible uveal cysts
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Golden Retriever Pigmentary Uveitis (GRPU) – Uveal Cysts

- Presence of uveal cysts does not mean the patient has GRPU but almost all Golden Retrievers with Pigmentary Uveitis have iris / uveal cysts
  - Sapienza et al., 2000
    - 75 Goldens with Pigmentary Uveitis
    - 162 eyes
    - 19 (34.5%) eyes had visible uveal cysts; some blood filled
  - Townsend et al., 2013
    - General population of Golden Retrievers
    - 80 / 328 (24%) eyes had visible cysts
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  - Sapienza et al., 2000
- 75 Golden Retrievers with Pigmentary Uveitis
- 142 eyes
  - 19 / 142 (13%) cases had visible uveal cysts; some blood filled
  - Townsend et al., 2013

Golden Retriever Pigmentary Uveitis (GRPU) – Additional Clinical Findings

- Aqueous flare minimal in most cases
- Fibrinous debris within the anterior chamber 52 / 142 (37%)
  - 19 / 52 (37%) of eyes with anterior chamber fibrin eventually developed glaucoma
- Posterior synechiae 71 / 142 (50%) of affected eyes
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Secondary Obstructive Glaucoma
- 38 / 142 eyes (27%) glaucomatous at the time of initial examination
- 28 / 142 eyes (20%) subsequently developed glaucoma from 3 weeks to 3 years later

Cause of Secondary Glaucoma
- Multifactorial
- Angle closure by uveal cysts
- Pigment deposition within the iridocorneal drainage angle
- Inflammatory cellular material blocking the aqueous outflow pathway

53 / 142 eyes (37%) had some level of post-inflammatory cataract
- Uveal pigment adherent to the corneal endothelium
- Diffuse iris hyperpigmentation
Golden Retriever Pigmentary Uveitis (GRPU) – Treatment

- Does not spontaneously regress
- Does not resolve with treatment
- Treatment goals include reducing clinical uveitis and minimizing the occurrence of glaucoma

- Topical, oral and subconjunctival corticosteroids
- Nonsteroidal immunosuppressants
  - Azathioprine, Cyclosporine, Mycophenolate
- Antiglaucoma Medications
  - 2% Dorzolamide
  - 0.5% Timolol Maleate
- Intracameral Injection t-PA

TSDLCPC (Trans-scleral Diode Laser Cyclophotocoagulation)
- Successfully controlled glaucoma in 10/11 eyes (91%)
- Failed to preserve vision in 2/11 eyes (18%)
- Despite medical and surgical [TSDLCPC] therapy, 66 / 142 eyes (46%) became blind from glaucoma
- Enucleation
- ISP (Intrascleral Prosthesis)
Golden Retriever Pigmentary Uveitis (GRPU) – Histopathology

- 18 eyes
- Minimal inflammation
- No depigmentation of the uveal tract
- 15/18 eyes (83%) had iridociliary cysts

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Golden Retriever Pigmentary Uveitis (GRPU) – Uveal Cysts

- Fluid-filled (clear or blood) structures that arise from the posterior aspect of the iris or ciliary body
- By themselves, usually considered benign
- However, uveal cysts are associated with glaucoma in:
  - Golden Retriever
  - Great Dane
  - American Bulldog

Thus, unknown if:
- Uveal cysts cause GRPU
- GRPU cause uveal cysts
- Or, uveal cysts are merely an incidental finding
Golden Retriever Pigmentary Uveitis (GRPU) – Uveal Cysts

- Townsend et. al., uveal cysts alone
  - 57 / 164 dogs (35%)
  - mean age 6.6 +/- 2.0 years
- Townsend et. al., uveal cysts in Golden Retrievers with GRPU
  - 9 / 164 dogs (6%)
  - mean age 10.8 +/- 2.3 years

Golden Retriever Pigmentary Uveitis (GRPU) – Prognosis

- Prognosis is guarded
- Because of the late onset, the Golden Retriever Club of America (GRCA) recommends annual eye certification exams for all Golden Retrievers throughout their lifetime