

ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2010 – Eye Case 2

Tissue from a dog

- The globe has thin tunics (atrophy, with buphthalmos) and the optic disc is cupped (glaucoma). [1]
- The root of the iris is located adjacent to the peripheral edge of Descemet's membrane [2] with lack of development of the pectinate ligament indicating goniodysgenesis. [3]
- The peripheral edge of Descemet's membrane is split and extending on the connective tissue in the area of the filtration angle (descemetization). [4]
- A few large, discrete, heavily pigmented (melanin) cells (melanophages) are present in the connective tissue of the filtration meshwork and anterior chamber. [5]
- A delicate fibrovascular membrane is present along the anterior aspect of the iris. [6]
- Anterior lens capsule is thickened (aging change) and the lens is fragmented (artifact).
- Ganglion cells are decreased in number [7] and there are fewer nuclei in the inner nuclear layer [8] indicating degeneration of the inner sensory retina.
- The number of nuclei in the outer nuclear layer also appears to be decreased and a few nuclei are present in the layer of photoreceptor inner and outer segments. [9]
- Retinal changes are more severe in the inferior (non-tapetal) sensory retina and consistent with secondary changes of glaucoma. [10]
- The optic disc was cupped (cavernous degeneration) and extended to the level of the outer sclera. [11] The optic nerve had an increase in cellularity [12] with degenerative changes consisting of axons with distended myelin sheaths and swollen axons (spheroids) and Gitter cells.[13]
- Corneal changes included an abrupt transition from basal epithelial cells to flat squamous epithelial cells in the central corneal epithelium. [14]
- Multilocular cysts were present in the peripheral aspect of the sensory retina of the superior retina [15] (peripheral cystoid retinal degeneration, common aging change).

Morphologic diagnosis(es): Goniodysgenesis, inner retinal degeneration, and marked optic disc cavernous degeneration [16-17]

Pathogenesis: Goniodysgenesis → blockage of aqueous humor outflow → increased intraocular pressure → primary glaucoma [18-20]