

Case 1 – Tissue from a dog.

MICROSCOPIC DESCRIPTION: Globe (without lens). Diffusely, the iris **(1pt)** and anterior uvea **(1pt)** are markedly expanded by numerous large melanomacrophages **(2pt)** which range up to 40 um and contain numerous dark black granules **(1pt)** which obscure both cytoplasmic and nuclear detail. The iris is adherent to the peripheral cornea, overlying Descemet's membrane, which occludes the drainage angle, and in this area is covered by a fibrous membrane as well. A thin preiridal fibrovascular membrane causes an outward bowing of the tip of the iris (ectropion uvea). **(2pt)** Melanomacrophages extend into the occluded filtration angle **(2pt)**, as well as multifocally and transmurally into the sclera **(1pt)**, expand the choroid, and small numbers also infiltrate the ciliary body. **(1pt)** Melanomacrophages also are present within the peripheral cornea at the limbus **(1pt)**, accompanied by mild neovascularization and few lymphocytes. **(1pt)** The retina is artifactually detached. The inner cellular layers of the retina, to include the ganglion cell layer as well as the inner nuclear layer are paucicellular. **(2pt)**

MORPHOLOGIC DIAGNOSIS: Globe: Iridal, uveal, and scleral melanosis, with anterior synechiae formation, drainage angle occlusion, and diffuse moderate retinal atrophy. **(4pt)**

O/C - **(1pt)**

Case 2 – Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Globe: Arising within the ciliary body **(1pt)**, expanding and effacing both the anterior and posterior chambers **(1pt)**, ciliary body, iris, and filtration angle **(1pt)**, infiltrating the cornea**(1pt)**, and abutting the anterior surface of the lens, is an unencapsulated, infiltrative, moderately cellular multilobular neoplasm. **(1pt)** The neoplasm is composed of polygonal cells with indistinct cell borders and a moderate amount of finely granular to fibrillary eosinophilic cytoplasm **(1pt)**. Nuclei are irregularly round with finely clumped chromatin and 1-3 small basophilic nucleoli. **(1pt)** There is moderate anisocytosis and anisokaryosis and mitotic figures are rare. **(1pt)** There are numerous clear vacuoles scattered throughout the neoplasm, and the neoplasm, especially in more posterior aspects contains numerous melanocytes and melanomacrophages **(1pt)**, and it appears that neoplastic cells within these areas also contain melanin pigment. There are large areas of necrosis **(1pt)** scattered throughout the neoplasm, which often contain large amounts of hemorrhage and fibrin. At one edge of the neoplasm, there is a large mass of granulation tissue **(1pt)** adjacent to well-formed spicules of mineralized bone. The adjacent choroid is mildly edematous and there is neovascularization and hemorrhage within the overlying cornea. The lens is displaced posteriorly contains few Morgagnian globules **(1pt)** in the posterior half, some of which are mineralized, there is posterior migration of lens epithelium, and the posterior aspect is covered by a fibrous membrane which contains small amounts of hematoidin **(1pt)**. The vitreous contains abundant hemorrhage. The retina is detached, markedly thinned, and cellular nuclei in all layers are markedly diminished. **(1pt)** The atrophic retina is infiltrated by moderate numbers of lymphocytes, and basement membranes of retinal vessels are often mineralized. **(1pt)** The choroid is thinned and choroidal vessels are markedly dilated. There is marked congestion and hemorrhage of orbital vessels as well as vessels within the optic nerve, which posterior compress nerve fibers. There is mild cap cell hyperplasia surrounding the optic nerve. **(1pt)**

**MORPHOLOGIC DIAGNOSIS:** 1. Globe: Pigmented iridociliary carcinoma **(3pt)**, with drainage angle occlusion, marked anterior and posterior segment hemorrhage, and retinal atrophy.  
2. Globe, retina: Ferrugination (mineralization ok), diffuse, mild.

O/C: **(1pt)**

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Case 3 – Tissue from a guinea pig.

MICROSCOPIC DESCRIPTION: Globe: Ciliary body. The ciliary body **(2pt)** is expanded by a numerous well-defined areas of mineralized bone **(2pt)** which contain small amounts of marrow elements. **(1pt)**. The bone incorporates the iris root **(1pt)** and effaces the drainage angle. **(2pt)** There is an extensive fibrovascular membrane along the posterior edge of the iris. **(1pt)** At one edge at of the cornea, Descemet's membrane is detached **(2pt)** and there is granular proteinaceous edema fluid in the adjacent cornea, and the cornea shows diffuse, mild thickening due to stromal edema. The retina is artifactually detached, and the conjunctiva contains aggregates of small lymphocytes which do not form follicles. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Globe ciliary body: Osseous choristoma and filtration angle closure. **(4pt)**

Name the condition: Osseous choristoma of the ciliary body **(2pt)**

O/C: **(1pt)**

Case 4 – Tissue from a penguin. (You get off easy this week – bird eyes are hard enough to figure out what is going on here. Spend time on anatomy, note these changes, and drive on!)

MICROSCOPIC DESCRIPTION: Globe: One of the scleral ossicles **(2pt)** is expanded **(1pt)** with a expanded pneumatic cavity **(1pt)** with a scalloped endosteum. **(2pt)** Bony trabeculae are diminished in number **(2pt)** and largely replaced with a dense network of interlacing fibroblasts **(2pt)** and numerous osteoclasts **(2pt)** which at the endosteal surface are in Howship's lacunae **(1pt)** remaining trabeculae are covered with a thin layer of woven bone. **(2pt)**

MORPHOLOGIC DIAGNOSIS: Scleral ossicle: Osteopenia, diffuse severe, with fibroplasia and marked osteoclastic resorption. **(4pt)**

O/C: **(1pt.)**