

WSC 2018-2019 Conference 7.

Case 1. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Eye: Within the anterior, posterior chambers and vitreous, carpeting the iris, ciliary body and retinal surfaces and multifocally infiltrating the iris and ciliary body and encircling and entrapping the lens **(1pt)** there is an unencapsulated, infiltrative, moderately cellular, multilobular and poorly demarcated neoplasm. **(1pt)** The neoplasm is composed of poorly defined streams **(1pt)** of variably sized spindle **(1pt)** to polygonal cells within a variably dense blue mucinous to chondroid matrix **(1pt)**. Larger polygonal neoplastic cells (chondrocytes) are often contained with haphazardly arranged lacunae **(1pt)**. Neoplastic cells have indistinct cell borders with a small to moderate amount of foamy eosinophilic cytoplasm. **(1pt)** Nuclei are round with finely stippled chromatin and indistinct nucleoli. **(1pt)** Neoplastic chondrocytes within lacunae are often binucleate. Mitotic figures are rare. **(1pt)** There is a unilateral anterior synechia **(1pt)** of the expanded iris which includes the filtration angle **(1pt)**. There is multifocal iridal hemorrhage surrounding the neoplasm, and the anterior and to a lesser extent posterior surface of the iris leaflet is covered by a thin fibrovascular membrane. **(1pt)** There is circumferential cataractous change **(1pt)** characterized by balloon cell formation (morgagnian globules) within the lens, posterior migration of lens epithelium, and the lens capsule is intact. The retina is (artificially) detached from the underlying hypertrophic pigmented epithelium **(1pt)** and there is vacuolation of the ganglion cell layer, almost total loss of ganglion cells, prominence of Mueller cell processes **(1pt)** and a marked decrease in nuclei of the inner plexiform layer. **(1pt)** The optic nerve is not present in this section.

**MORPHOLOGIC DIAGNOSIS:** Eye, iris and ciliary body: Chondrosarcoma. **(3pt)**

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

Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Eye, retina: Effacing the central portion of the retina and extending into or arising from) the underlying optic nerve **(1pt)** is an unencapsulated poorly demarcated, infiltrative, moderately cellular, vaguely nodular neoplasm **(1pt)**. The neoplasm is composed of polygonal **(1pt)** to spindle cells on a vacuolated mucinous **(1pt)** matrix. Neoplastic cells often palisade **(1pt)** around vessels (pseudorosettes) **(1pt)** and areas of necrosis **(1pt)** and dropout. In these areas, palisading nuclei are separated from vessels in necrotic areas by a thick mantle of cytoplasmic projections. **(1pt)** Neoplastic cells have indistinct cell borders and a moderate amount of granular to vacuolated eosinophilic cytoplasm. Some neoplastic cells have abundant eosinophilic cytoplasm, lending them a gemistocytic appearance. **(1pt)** Nuclei are irregularly round with a moderate amount of finely clumped chromatin and 1-2 small eosinophilic nucleoli. **(1pt)** There is mild anisocytosis **(1pt)** and anisokaryosis. Mitotic figures average two per 10/400X fields (2.37 mm<sup>2</sup>). **(1pt)** There is vascular proliferation and tortuosity **(1pt)** in some areas of the neoplasm. The neoplasm invades the adjacent retina, resulting in disorganization of the normal retinal layers by proliferating glial cells **(1pt)**, overall thickening of the retina, and detachment **(1pt)** from the underlying hypertrophic pigmented epithelium. In areas of the retina not infiltrated by the neoplasm, there is loss of ganglion cells as well as nuclei within the inner nuclear layer, and there is vascular proliferation within the ganglion cell layer. **(1pt)**. There is small amount of fibrinous exudate within the vitreous.

MORPHOLOGIC DIAGNOSIS: Eye, retina: Astrocytoma, low-grade. **(3pt)**

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

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Case 3. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Eye, partial section: A partial section of the globe is submitted for examination which contains cornea, iris, ciliary body, aqueous drainage structures sclera, and peripheral retina. **(1pt)** The non-pigmented ciliary body epithelium **(1pt)** is covered by a 35um-thick **(1pt)** layer of a waxy, homogenous material **(1pt)** (amyloid) **(2pt)** which essentially doubles the thickness of the ciliary processes. Within numerous non-pigmented ciliary epithelial cells, there are linear eosinophilic crystalline cytoplasmic inclusions. **(1pt.)** The drainage angle is occluded **(2pt)** by an anterior synechia of the iris leaflet. The drainage angle presents a narrowed ciliary cleft and a collapsed trabecular meshwork. There is a light proteinaceous exudate present in the posterior chamber. **(1pt.)** There is a corpus nigrum on the free edge of the iris leaflet **(1pt)** (non-pathogenic). There is mild vascularization **(1pt)** of middle of the cornea stroma, and these vessels and those of the conjunctiva and sclera are surrounded by low numbers of lymphocytes and plasma cells. There are moderate numbers of lymphocytes and plasma cells subjacent to the conjunctival mucosa.

MORPHOLOGIC DIAGNOSIS: 1. Eye, surface of ciliary body: Amyloidosis, diffuse, with numerous intracytoplasmic eosinophilic crystalline inclusions within non-pigmented epithelium of the ciliary body. (3pt)

2. Eye, iris: Anterior synechiae with drainage angle occlusion. **(2pt)**

NAME THE ASSOCIATED CONDITION: Equine recurrent uveitis **(2pt)**

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

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Case 4. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Eye: Extending from the back of the eye, presumptively in the area of the optic nerve (not present in this slide) **(1pt.)** and infiltrating the adjacent orbital connective tissue **(1pt.)**, there is a well-demarcated, unencapsulated, infiltrative, multilobular, and moderately cellular neoplasm. **(1pt.)** The neoplasm is composed of poorly formed streams and bundles of spindled to polygonal **(1pt.)** cells on a fine fibrovascular stroma **(1pt.)**. Lobules are separated by moderate bands of fibrous connective tissue. Neoplastic cells have indistinct cell borders with a moderate amount of finely granular cytoplasm. **(1pt.)** Nuclei are ovoid with finely stippled chromatin and 1-2 basophilic nucleoli. **(1pt.)** Mitoses average 10 per 10/400X field (2.37mm<sup>2</sup>). **(1pt.)** Scattered throughout the neoplasm, there are islands of well-differentiated cartilage **(1pt.)** and bone **(1pt.)**, as well as areas of necrosis **(1pt.)**. There are areas of hemorrhage at the periphery of the neoplasm, and scattered aggregates of lymphocytes **(1pt.)** within. There is diffuse moderate loss of nuclei within the ganglion cell and inner nuclear layers, **(1pt.)** and focally extensive retinal detachment **(1pt.)** with hypertrophy of the underlying pigmented epithelium. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Eye: Orbital meningioma **(3pt)**

2. Eye, retina: Diffuse ganglion cell atrophy and retinal detachment ( 1pt)

O/C – **(1pt.)**