

WSC 2011-2012.

Conference 10, Case 1

Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Eye. Within the vitreous (**1 pt.**), elevating the detached retina and extending multifocally into the subjacent choroid, there is a densely cellular exudate composed of large numbers of viable and degenerate neutrophils (**1 pt.**) and macrophages (**1 pt.**), admixed with abundant eosinophilic cellular and karyorrhectic debris (necrosis) (**1 pt.**), fibrin, globular protein, and small amounts of hemorrhage and mineral. There are numerous algae (**1 pt.**) present within the exudate both extracellularly or within macrophages. Algae measure 10-20 um in diameter with a 2-3 um thick amphophilic cell wall and a basophilic nucleus (**2 pt.**). Endosporulating and dividing forms, as well as collapsed empty cysts are commonly seen. The detached (**1 pt.**) retina is markedly thickened by hemorrhage, fibrin, and edema (**1 pt.**), and multifocally, the walls of retinal vessels are expanded with small numbers of neutrophils, exuded protein, and cellular debris, and surrounded by low numbers of lymphocytes and histiocytes (vasculitis) (**1 pt.**). There is marked asymmetrical necrosis (**1 pt.**) and loss of varying layers of the retina; areas of the retina adjacent to the exudate have more significant necrosis of the external nuclear and plexiform layers and retinal necrosis of non-inflamed areas is more concentrated in the outer layers. There is moderate hyperplasia and hypertrophy of the retinal pigmented epithelium (**1 pt.**). The choroid, ciliary body, and uvea (**1 pt.**) is multifocally infiltrated by low to moderate numbers of neutrophils, macrophages, lymphocytes and plasma cells and expanded by congested vessels and dilated lymphatics. Small amounts of polymerized fibrin extend from the anterior surface of the detached retina to the posterior lens surface. The drainage angles are bilaterally open. There are numerous pigmentary cysts on the inside of the iris.

**MORPHOLOGIC DIAGNOSIS:** Eye: Panophthalmitis, pyogranulomatous, diffuse, moderate with retinal detachment and necrosis and numerous intra- and extracellular endosporulating algae (**3 pt.**)

**CAUSE:** *Prototheca zopfii* (**3 pt.**)

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

WSC 2011-2012  
Conference 10, Case 2

Tissue from a bird.

**MICROSCOPIC DESCRIPTION:** Retrobulbar space: Expanding the retrobulbar space and compressing the globe is a 1cm unencapsulated neoplasm composed of well-differentiated tissue arising from all three primordial germ cell lines **(1 pt.)**. Within the neoplasm, there are cysts ranging up to 6mm in diameter which are lined by pseudostratified ciliated epithelium **(1 pt.)** interspersed with goblet cells (respiratory epithelium, endoderm) **(1 pt.)**, and are bordered by smaller cysts containing increased numbers of goblet cells **(1 pt.)** (glands), well differentiated foci of cartilage, and lymphocytes. Cyst lumens contain moderate amounts of wispy basophilic matrix (mucin) and low numbers of vacuolated macrophages **(1 pt.)**. Smaller glands are lined by plump columnar epithelium with abundant finely granular eosinophilic cytoplasm (gastrointestinal epithelium). There are lobules and acini of epithelial cells with large round nuclei and numerous cytoplasmic eosinophilic granules **(1 pt.)** (pancreas) **(1 pt.)**. Scattered throughout the remainder of the neoplasm are extensive areas of nervous tissue **(1 pt.)** (ectoderm) containing neurons, astrocytes, and numerous cellular processes **(1 pt.)** as well as cells arranged in rosettes (ependymal differentiation). There are focally extensive areas of well-differentiated adipose tissue **(1 pt.)**, smooth, cardiac, and skeletal muscle **(1 pt.)**, marrow-producing **(1 pt.)**bone **(1 pt.)**, and cartilage **(1 pt.)** (mesoderm). Mitoses in all cell populations average less than 1 per 10 HPF. **(1 pt.)**

**MORPHOLOGIC DIAGNOSIS:** Retrobulbar teratoma **(4 pt.)**

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

WSC 2011-2012  
Conference 10, Case 3

Tissue from a cat.

(Note: This is not an especially good descriptive case for an eye, as most of the anatomical structures are effaced by the inflammation and cannot be described. But if you must, here goes...)

**MICROSCOPIC DESCRIPTION:** Eye: The ciliary body **(1 pt.)** and iris **(1 pt.)** is markedly expanded by a cellular infiltrate that extends into and through the sclera **(1 pt.)** and effaces orbital soft tissues **(2 pt.)**. The infiltrate also extends into the conjunctiva **(1 pt.)** and periorbital skin. The infiltrate is composed of innumerable macrophages **(2 pt.)** which are expanded by large numbers of intracytoplasmic yeasts. Yeasts are 2-4 um in diameter, round with a clear wall and a basophilic center **(2 pt.)**. Extracytoplasmic yeasts are rare. There are moderate numbers of lymphocytes **(1 pt.)** and plasma cells **(1 pt.)** admixed with the macrophages, as well as small amounts of granular cellular debris (necrosis) **(1 pt.)**. The vitreous contains polymerized fibrin **(1 pt.)** as well as low numbers of macrophages.

**MORPHOLOGIC DIAGNOSIS:** Eye: Panophthalmitis and orbital cellulitis, granulomatous, diffuse, severe, with numerous intrahistiocytic yeasts. **(3 pt.)**

**CAUSE:** *Histoplasma capsulatum* **(4 pt.)**

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

WSC 2011-2012

Conference 10, Slide 4.

Tissue from a dog.

MICRSCOPIC DESCRIPTION: Eye, globe: The uveal tract **(1pt.)**, including the iris and ciliary body **(1pt.)**, is effaced by an infiltrative, densely cellular, unencapsulated, well-demarcated neoplasm **(1pt.)**, which extends into the sclera **(1pt.)**. Neoplastic cells are arranged in sheets **(1pt.)** on a fine fibrovascular stroma **(1pt.)**. Neoplastic cells are round **(1pt.)** with indistinct cell borders and moderate amounts of a finely vacuolated eosinophilic cytoplasm **(1pt.)**. Nuclei are irregularly round to oval with finely clumped chromatin and 1-2 small basophilic nucleoli **(1pt.)**. Anisocytosis and anisokaryosis is marked **(1pt.)**. Multinucleated cells **(1pt.)**, with up to 6 nuclei, are common. Mitotic figures average 20 per 10 high power fields **(1pt.)**. Apoptotic cells are numerous, and there are large areas of necrosis **(1pt.)** and hemorrhage within the neoplasm. There is hemorrhage and marked edema of the infiltrated iris and ciliary body, and a fragment of the detached retina **(1pt.)** within the vitreous. There is loss of the inner nuclear, plexiform and ganglion cell layer, and small amounts of fibrin adhered to the anterior surface of the retina. There is abundant hemorrhage and proteinaceous fluid within the anterior chamber **(1pt.)**, and neovascularization and hemorrhage within the corneal stroma **(1pt.)**. Scleral lymphatics are markedly dilated (edema).

MORPHOLOGIC DIAGNOSIS: Eye, uvea: Histiocytic sarcoma **(3pt.)**

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