

WSC 2013-2014, Conference 19

Case 1. Tissue from a rat.

MICROSCOPIC DESCRIPTION: Two globes on this slide, one affected and one control.

Within the affected globe, the anterior chamber is expanded **(1pt)** by an accumulation of a bright pink protein **(1pt)**. The iris is covered 1-2 layers of spindle cells (iridal fibrovascular membrane) **(2pt)** and unilaterally, is multifocally attached to the anterior lens capsule (posterior synechia) **(1pt)**. The drainage angle is also occluded **(2pt)** by extension of this membrane, as well as low to moderate numbers of neutrophils, lymphocytes, and plasma cells, and small amounts of fibrin and edema **(1pt)**. There is liquefaction of peripheral lens proteins **(1pt)**, with mineralization **(1pt)** and fibrous metaplasia **(1pt)** in the posterior segment. There are multifocal aggregates of lymphocytes and fewer plasma cells within the uvea and choroid **(1pt)**. There is similar protein within the posterior chamber. There is marked diffuse atrophy of all layers of the retina. **(2pt)** There are small amounts of porphyrin pigments **(1pt)** within Harderian gland acinar lumina.

MORPHOLOGIC DIAGNOSIS:

Eye: Uveitis, lymphoplasmacytic, chronic, diffuse, severe, with cataract formation, occlusion of drainage angles, posterior synechia formation, and retinal atrophy. **(4pt)**

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

WSC 2013-2014, Conference 19

Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Eye, optic nerve **(1pt.)**: Effacing the optic nerve, extending into the globe and centrifugally outward along the choroid **(1pt.)** and into the postorbital soft tissue **(1pt.)**, is an unencapsulated, infiltrative, well-demarcated, moderately cellular neoplasm **(1pt.)**. The neoplasm is composed of tight bundles and rare poorly formed whorls of spindle cells **(1pt.)** on a moderate fibrovascular stroma **(1pt.)**. Neoplastic cells have indistinct cell borders with a moderate amount of pink granular cytoplasm **(1pt.)**. Nuclei are elliptical with finely stippled chromatin and 1-2 small pink nucleoli **(1pt.)**. Mitoses average 1/400x field **(1pt.)**. The stroma contains moderate amounts of melanin (likely pre-existent) **(1pt.)**. There is a focus of well-differentiated metaplastic bone **(1pt.)** within the tumor mass posterior to the globe, and abundant entrapped periorbital fat. The retina is detached **(1pt.)**, and there is marked hypertrophy of retinal pigmented epithelium **(1pt.)**. Multifocally, retinal pigmented epithelium cells contain one or more discrete vacuoles (degeneration) **(1pt.)** The underlying choroid is edematous. There is marked attenuation of the ganglion cell layer and inner nuclear layers **(1pt.)**, and the marked cystic degeneration of the peripheral retina. In areas of retinal detachment, there are moderate numbers of macrophages adherent to the photoreceptor layer. There is a small amount of protein within the anterior chamber, and the cornea is moderately expanded by edema **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Eye, optic nerve: Meningioma (optic nerve type), with acute retinal detachment. **(4pt)**

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

WSC 2013-2014, Conference 19

Case 3. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Eye, globe: Within the sclera and conjunctiva **(1pt)**, dissecting within the cornea **(1pt)**, expanding and lining the anterior surface of the iris**(1pt)**, conjunctiva, and infiltrating, expanding, and lining the dilated vessels of the uvea **(1pt)** and choroid, is an infiltrative, unencapsulated, moderately cellular well-demarcated neoplasm **(1pt)**. The neoplasm is composed of nests, islands, and cords **(1pt)** of epithelial **(1pt)** cells on a moderately dense fibrous stroma **(1pt)**. Neoplastic cells are polygonal with indistinct cell borders and a moderate amount of amphophilic granular cytoplasm **(1pt)**. Neoplastic cells have pleomorphic, irregularly round nuclei with finely stippled chromatin and 1-2 prominent eosinophilic nuclei **(1pt)**. Anisocytosis and anisokaryosis is marked **(1pt)**. Mitotic figures average 3/400X field **(1pt)**. Islands of neoplastic cells are often surrounded by loosely arranged collagen populated with plump fibroblasts (desmoplasia). There is a fissure within the cornea lined by neoplastic epithelial cells, and within the corneal stroma, there is infiltration of neutrophils admixed with small amounts of cellular debris and formation of small stromal blood vessels (neovascularization), and corneal epithelium is hypertrophic and cuboidal. **(1pt)** There are islands of neoplastic cells within the conjunctiva, and surrounding tissue contains moderate numbers of lymphocytes and plasma cells. The neoplastic population within the sclera expands the sclera, and there is marked desmoplasia and aggregates of melanocytes scattered among islands of neoplastic cells. The neoplasm extends along the anterior surface of the iris, and effaces drainage angles **(1pt)** on both sides. The iris is congested and edematous. The neoplasm is primarily within vessels within the uvea **(1pt)**, some of which are attempting to recanalize. The peripheral retina is markedly degenerate with cyst formation. There is attenuation of the ganglion cells and the inner nuclear layer (retinal atrophy) **(1pt)**, and the choroid is markedly congested. There is no lens in this section.

MORPHOLOGIC DIAGNOSIS:

Eye, globe: Carcinoma, poorly differentiated, metastatic, with drainage angle occlusion and moderate retinal atrophy and multifocal detachment. **(3pt)**

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

WSC 2013-2014, Conference 19

Case 4. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Bone: There is a single section of bone with an expanded periosteum, discontinuous cortex, and large area of marrow cavity. Scattered throughout the marrow cavity are numerous aggregates are large numbers of macrophages **(1pt.)** and viable and degenerate neutrophils **(1pt.)** admixed with large amounts of cellular debris **(1pt.)** which are centered on large irregular 300um **(1pt.)** aggregates of filamentous bacilli **(2pt.)**. The inflammatory cells are enmeshed in loosely arranged highly vascular connective tissue **(1pt.)**, which extends into and fills the adjacent marrow cavity **(2pt.)**, surrounding bony trabeculae and replacing marrow elements. The trabecular bone of the marrow space is quiescent, with smooth edges and lined by a single layer of osteoblasts **(1pt.)**. There is marked subperiosteal proliferation of woven bone **(2pt.)** oriented perpendicularly to the cortical lamellar bone and a focus of inflammation centered on bacterial colonies in the adjacent soft tissue **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Bone: Osteomyelitis and cellulitis, pyogranulomatous, multifocal, moderate, with myelofibrosis, and large colonies of filamentous bacteria **(3pt.)**.

CAUSE: *Actinomyces viscosus* (*Nocardia asteroides* fine, too!) **(3pt.)**

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