

Case 1. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Eye, globe: Expanding and lining the anterior and posterior surfaces of the iris and ciliary body, lining the periphery of Descemet's membrane, infiltrating the choroid, sclera and markedly expanding the choroid and lining the anterior surface of the atrophic, detached retina is an infiltrative, unencapsulated, moderately cellular well-demarcated neoplasm **(1pt)**. The neoplasm is composed of tubules and micro-papillary and papillary projections **(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 basophilic 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 mild to moderate **(1pt)**. Mitotic figures average 3/400X field **(1pt)**. Thrombi of neoplastic cells expand and partially occlude vessels within the sclera and choroid **(1pt)**. Within the corneal stroma at the periphery, there is infiltration of low numbers of neutrophils admixed with small amounts of cellular debris and formation of small stromal blood vessels (neovascularization), and corneal epithelium is mildly hypertrophic **(1pt)** there is moderate amounts of protein and basophilic fibrillar mucin within the anterior chamber which dissects under Descemet's membrane and extends into the corneal stroma at one edge of the cornea. The adjacent conjunctiva is infiltrated with moderate numbers of lymphocytes. 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 2015-2015, Conference 24

Case 2. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Lung: Diffusely, alveolar septa are expanded up to 3 times normal by moderate numbers of macrophages, fewer lymphocytes and plasma cells, and rare neutrophils, and small amounts of edema and fibrin. **(1pt.)** Septal capillaries, as well as larger pulmonary vessels contain decreased numbers of erythrocytes, suggesting anemia. **(1pt.)** Alveolar spaces **(1pt.)** contain mildly increased numbers of alveolar macrophages and fewer lymphocytes, admixed with variable amounts of polymerized fibrin **(1pt.)**, cellular debris, and edema. Pulmonary vessels contain and occasionally are partially occluded **(1pt.)** by large numbers of macrophages **(1pt.)** that are enlarged up to 40 um **(1pt.)** in diameter by intracytoplasmic, developing schizonts **(1pt.)** containing up to 50, basophilic, 1 to 3 um merozoites **(1pt.)**. Similarly affected macrophages also multifocally expand/occlude septal capillaries **(1pt.)**. Moderate numbers of erythrocytes contain round, 1 um diameter basophilic trophozoites **(1pt.)** (piroplasms). Multifocally, pulmonary vessels and capillaries are lined by prominent individualized endothelium (reactive). Multifocally, perivascular connective tissue is mildly expanded by low to moderate numbers of macrophages, lymphocytes **(1pt.)** and fewer plasma cells, fibrin and edema **(1pt.)**.

**MORPHOLOGIC DIAGNOSIS:** Lung: Pneumonia, interstitial, histiocytic, diffuse, moderate, with numerous vascular intrahistiocytic and intraerythrocytic protozoa **(3pt.)**

**CAUSE:** *Cytauxzoon felis* **(3pt.)**

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

Case 3. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Stomach, pylorus: The submucosa **(1pt.)** is expanded by a 7x3mm oval well-demarcated, unencapsulated, moderately cellular, infiltrative neoplasm **(1pt.)**. The neoplasm is composed of sheets of round cells **(1pt.)** on a fine pre-existent fibrovascular stroma **(1pt.)**. Neoplastic cells are round with distinct cell borders and a moderate amount of a finely granular eosinophilic cytoplasm **(1pt.)**. Nuclei are round with finely clumped chromatin and a single eosinophilic nucleolus **(1pt.)**, and nuclei are often eccentric in position **(1pt.)**. There is mild to moderate anisocytosis and anisokaryosis **(1pt.)**, and numerous neoplastic cells are multinucleated **(1pt.)**. Mitoses are rare **(1pt.)**. Often, neoplastic cells are separated and surrounded by a granular to homogenous eosinophilic material **(1pt.)** (amyloid) **(1pt.)**. Within the neoplasm, the media of small arterioles is markedly expanded by 3-5 layers of hypertrophic smooth muscle **(1pt.)** and the adventitia expanded by whorls of mature collagen. There are numerous hemosiderin-laden macrophages scattered throughout the neoplasm **(1pt.)**. The neoplasm is bounded at one edge by an aggregated of moderate numbers of lymphocytes, fewer histiocytes and plasma cells, and adjacent submucosal tissue contains similar cells admixed with low to moderate numbers of siderophages and edema. **(1pt.)** Submucosal lymphatic are mildly dilated. The overlying mucosa is infiltrated by low numbers of lymphocytes and plasma cells.

**MORPHOLOGIC DIAGNOSIS:** Stomach, pyloric submucosa: Extraskeletal plasmacytoma. **(4pt)**

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

WSC 2015-2015, Conference 24

Case 4. Tissue from a dog

**MICROSCOPIC DESCRIPTION:** Kidney: there are changes at all levels of the nephron. Diffusely, glomeruli are segmentally or globally affected by one or more of the following changes: increased size (**1 pt.**), dilation of Bowman's capsule, hypersegmentation (**2 pt.**), hypercellularity (**1 pt.**), thickening of the capillary loop basement membranes (**1 pt.**), glomerular adhesions to Bowman's capsule (synechia) (**2 pt.**), parietal cell hypertrophy and hyperplasia, and Bowman's space multifocally contains variable amounts of fibrin, crystalline mineral (**1 pt.**), and cellular debris. There is mild to moderate periglomerular fibrosis (**1 pt.**). Tubules are multifocally, mildly to moderately ectatic (**1 pt.**). Many of the tubules are filled with eosinophilic material (hyaline casts) or granular cellular remnants (granular casts) (**1 pt.**), or, within the medulla, brightly eosinophilic protein (**1 pt.**). Many tubules contain deeply basophilic crystalline mineral (**1 pt.**) within the lumen or within adjacent epithelial cells. Multifocally, there are interstitial aggregates of moderate numbers plasma cells and lymphocytes (**1 pt.**) and moderate interstitial fibrosis (**1 pt.**).

**MORPHOLOGIC DIAGNOSIS:** Kidney: Glomerulonephritis (**1 pt.**), membranoproliferative (**1 pt.**), segmental to global, diffuse, severe, with tubular casts (**1 pt.**), and lymphoplasmocytic interstitial nephritis (**1 pt.**).

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

O/C: (1 pt)