

WSC 2015-2016, Conference 4

Case 1. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Trachea: Circumferentially (1 pt.), the tracheal mucosa is expanded up to 10 times normal thickness **(1 pt.)** by a infiltrative, unencapsulated, moderately cellular, poorly demarcated neoplasm **(1 pt.)**. Neoplastic cells are arranged in tubules **(1 pt.)**, acini, and papillary projections **(1 pt.)** on a moderate fibrovascular stroma. Neoplastic cells are cuboidal to low columnar, **(1 pt.)** occasionally piling up two to three layers thick **(1 pt.)**, with indistinct cell borders and a small to moderate amount of a finely granular eosinophilic cytoplasm **(1 pt.)**. Neoplastic acini often contain abundant amphophilic secretory product **(1 pt.)**. Nuclei are ovoid with finely clumped chromatin and 1-2 basophilic nucleoli. **(1 pt.)** Mitotic figures are rare. **(1 pt.)** The fibrovascular stroma and neoplastic glands often contain small numbers of infiltrating neutrophils and macrophages. (1 pt.) The luminal surface of the neoplasm is multifocally necrotic **(1 pt.)** and there is multifocal hemorrhage in the stroma. (1 pt.) Multifocally, neoplastic cells infiltrate the cartilage of the tracheal rings. **(1 pt.)** In some areas of the tracheal rings, there is mineralization of the tracheal cartilage. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Trachea: Mucosal adenocarcinoma. **(2 pt.)**

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

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Case 2. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Cerebellum: Within the cerebellar folia **(1 pt)**, there are multifocal to coalescing areas of grey matter **(1 pt)** necrosis **(1 pt)**, which extends into the folial white matter. Necrotic areas are characterized by marked rarefaction of the grey matter composed of spongiosis **(1 pt)** (edema) with infiltration of low to moderate numbers of histiocytes and rare neutrophils, lymphocytes, and plasma cells admixed with cellular debris, as well as a moderate proliferation of microglia as well as astrocytes which rarely form small nodules. There is multifocal vacuolation of the Purkinje cell layer with segmental loss of Purkinje cells. **(1 pt)** There is a diffuse mild decrease of cells in the granular cell layer as well as karyorrhexis of scattered cells within the cerebellar granular cell layer. **(1 pt)** Vessels throughout the cerebellar folia, and to a lesser extent in the underlying white matter are lined by prominent reactive epithelium. The overlying meninges contain small to moderate numbers of macrophages and lymphocytes. Throughout cerebellar white matter and brainstem, vessels are lined by prominent endothelial cells and surrounded by up to 10 layers of lymphocytes admixed with fewer histiocytes. **(1 pt)** There is a diffuse mild gliosis of the cerebellar white matter **(1 pt)**, and randomly throughout the section, moderate numbers of myelin sheaths are dilated and contain mildly dilated axons or Gitter cells. **(1 pt)** Within the cerebellar white matter and brainstem, there are scattered foci of necrosis with aggregates of glial cells throughout the sections admixed with cellular debris (glial nodules) **(1 pt)**, and low numbers of widely scattered, often degenerating neutrophils.

**MORPHOLOGIC DIAGNOSIS:** Cerebellum, brainstem: Polioencephalitis, necrotizing, multifocal to coalescing, with mild multifocal lymphohistiocytic and neutrophilic meningitis, and numerous rare apicomplexan schizonts. **(3 pt)**

**CAUSE:** *Neospora caninum* **(2pt)**

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

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Case 3. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Colon: The colonic mucosa is mildly and diffusely thickened by an infiltrate of numerous lymphocytes **(1pt)** admixed with fewer neutrophils, macrophages, and plasma cells which surround, separate, and rarely replace colonic glands. Multifocally, there are extensive areas of mucosal ulceration and necrosis **(1pt)**, in which glands are effaced by large numbers of neutrophils **(1pt)** and fewer macrophages admixed with abundant cellular debris. This necrosis often extends through the muscularis mucosa and into the subjacent submucosa, **(1pt)** which is diffusely edematous and contains dilated lymphatics, vessels lined with prominent endothelium, and submucosal and perivascular aggregates of lymphocytes. **(1pt)** Filling and expanding glands **(1pt)** throughout the section, extending into the surrounding lamina propria and submucosa in areas of mucosal damage **(1pt)**, as well as filling submucosal lymphatics **(1pt)** are large numbers of 4-6 um **(1pt)** pyriform **(1pt)** protozoans **(1pt)** with flocculent basophilic cytoplasm and a single round basophilic nucleus **(1pt)**. Glands adjacent to areas of necrosis are lined by attenuated epithelium and contain degenerate epithelial cells and cellular debris (crypt abscesses) **(1pt)**. Crypts contain an increased number of mitotic figures (hyperplasia) **(1pt)**. Lymphatics are diffusely dilated between layers of the muscularis as well.

**MORPHOLOGIC DIAGNOSIS:** Colon: Colitis, necrotizing, multifocal to coalescing, severe with innumerable intra- and extracellular protozoal trophozoites. **(3 pt.)**

**CAUSE:** *Trichomonas foetus* **(2 pt.)**

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

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CASE 4. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Lung: Diffusely bronchioles **(1pt)**, and to a lesser extent bronchi contain a luminal exudate composed for largely viable neutrophils **(1pt)** admixed with fewer macrophages and abundant cellular debris. The lining of these small airways is largely necrotic **(1pt)** and lost, and segmentally, attenuated epithelium is adherent to the bronchiolar wall. In larger airways, epithelium is often hyperplastic **(1pt)**, and infiltrated by low numbers of neutrophils and lymphocytes. Over approximately 75% of the section, alveoli adjacent to these affected airways are filled and often expanded by variable combinations and concentrations of viable and degenerate neutrophils, foamy macrophages which often contain cellular debris, siderophages, hemorrhage, fibrin, edema, and small amounts of cellular debris. **(1pt)** Intervening alveolar septa are moderately expanded **(1pt)** by increased numbers of circulating neutrophils, rare histiocytes, edema, and multifocally, type II pneumocyte hyperplasia **(1pt)**. Throughout the section, bronchiolar epithelial cells and type II pneumocytes (which are often detached from the basement membranes) are degenerate or necrotic and their nuclei are expanded by a large, deeply basophilic, intranuclear viral inclusion **(1pt)**. There are low numbers of circulating megakaryocytes.

Pancreas: Throughout the section, there are multifocal to coalescing areas of acinar degeneration and necrosis. Within these areas, acinar epithelial cells are dissociated, often shrunken, with decreased numbers of zymogen granules **(1pt)** (degeneration) **(1pt)** as well as pyknotic and/or karyorrhectic nuclei (necrosis) **(1pt)**. These areas are infiltrated by low to moderate numbers of lymphocytes, neutrophils and macrophages. Nuclei of necrotic acinar cells often are expanded by a single deeply basophilic glassy viral inclusion. Interlobular septa are expanded by moderate amounts of edema and infiltrated by low to moderate numbers of macrophages and lymphocytes. **(1pt)** Lobules of peripancreatic fat are necrotic with loss of differential staining and often a thin sheen of mineral (saponification.) **(1pt)**

**MORPHOLOGIC DIAGNOSIS:** 1. Lung: Pneumonia, bronchointerstitial, multifocal to coalescing, moderate to severe, with numerous intraepithelial intranuclear viral inclusions. **(2pt)**  
2. Pancreas: Pancreatitis, necrotizing, multifocal to coalescing, moderate, with numerous intraepithelial intranuclear viral inclusions. **(2pt.)**  
3. Peripancreatic and Mesenteric fat: Necrosis, multifocal with saponification.

**CAUSE:** Canine adenovirus-2 **(2 pt.)**

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