

WSC 2012-2013, Conference 1

Case 1. Tissue from an alpaca.

**MICROSCOPIC DESCRIPTION:** Stomach **(1pt.)**. Multifocally and transmurally infiltrating the wall of the stomach is an infiltrative, moderately cellular, unencapsulated, poorly demarcated neoplasm **(1pt.)**. The neoplasm is composed of loosely arranged islands **(1pt.)** and trabeculae of epithelial cells on a moderately dense fibrous (schirrous) **(1pt.)** stroma. Neoplastic cells are polygonal **(1pt.)** with distinct cell borders and moderate amounts of a fibrillar brightly eosinophilic cytoplasm **(1pt.)**; intercellular bridges junctions are often visible **(1pt.)**. Nuclei are moderately pleomorphic and anisokaryotic **(1pt.)**, and have finely stippled chromatin with 1-3 pink to blue nucleoli **(1pt.)**. Mitotic figures average 3-5/400x field **(1pt.)**, and bizarre mitoses **(1pt.)** are common. Neoplastic cells are often hyaline and brightly eosinophilic (keratinization) **(1pt.)**. Neoplastic cells often exhibit single-cell necrosis, as well as extensive areas of coagulative necrosis **(1pt.)** throughout the neoplasm. These areas of necrosis are often separated by variable amounts of hemorrhage, edema, fibrin deposition, and granulation tissue **(1pt.)**. Lymphatics are markedly dilated, and the fibrous connective tissue of the submucosa and muscularis is markedly separated (edema); remaining smooth muscle fibers of the muscularis are often atrophic. The overlying mucosa exhibits marked loss of glandular epithelium, is multifocally ulcerated **(1pt.)**, and remaining glands are separated by moderate numbers of neutrophils, hemorrhage, cellular debris. Overlying the mucosa is a large coagulum of coagulative and lytic necrotic debris, fibrin, hemorrhage, and bacterial colonies **(1pt.)**.

**MORPHOLOGIC DIAGNOSIS:** Stomach: Squamous cell carcinoma **(3pt.)**

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

WSC 2012-2013, Conference 1

Case 2. Tissue from a horse.

**MICROSCOPIC DESCRIPTION:** Cerebrum: Primarily within the grey matter, but also within the white matter, there are numerous vasculocentric **(1pt)** areas of necrosis **(1pt)** infiltrated by numerous degenerate neutrophils **(1pt)**, admixed with abundant cellular debris, hemorrhage, and extravasated and polymerized fibrin **(1pt)**. Surrounding neuropil is expanded by edema, and contains numerous widely scattered viable and degenerate neutrophils, as well as necrotic neurons **(1pt)** and glial cells. Throughout the section, numerous vessels contain fibrin thrombi **(1pt)**, and vessel walls are lined by pyknotic endothelial cells, wall are expanded by viable and degenerate neutrophils, pyknotic smooth muscle, admixed with brightly eosinophilic protein and cellular debris **(1pt for description)** (fibrinoid vasculitis) **(1pt)**. Occasionally, fibrin thrombi contain colonies **(1pt)** of 1-2um rod-shaped bacilli **(1pt)**. Other vessels are surrounded by ring hemorrhage **(1pt)**, and in less affected areas, are surrounded by low to moderate numbers of lymphocytes, plasma cells, and rare neutrophils. Affected white matter exhibits similar changes; additionally, there is moderate spongiosis **(1pt)**, and oligodendrocytes are enlarged with abundant clear cytoplasm (consistent with white matter edema); rare Gitter cells are present. The overlying meninges **(1pt)** and Virchow-Robins spaces of larger vessels is expanded by a large numbers of viable and degenerate neutrophils, abundant cellular debris, hemorrhage, edema, and fibrin.

**MORPHOLOGIC DIAGNOSIS:** Cerebrum: Meningoencephalitis, fibrinosuppurative, multifocal, severe, with fibrinoid vasculitis, edema, and intravascular bacterial colonies. **(3 pt)**

**CAUSE:** *Histophilus somni* **(2 pt)**

**NAME TWO OTHER POTENTIALLY AFFECTED ORGANS:** Heart (look first in the papillary muscles!), lung, joints, uterus **(1pt)**

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

WSC 2012-2013, Conference 1

Case 3. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:**

Liver: Diffusely, within centrilobular **(1pt)** areas, and extending into the midzonal **(1pt)** area, hepatocytes are individualized, rounded up, brightly eosinophilic, and have pyknotic to karyorrhectic nuclei **(2pt for description)** (necrosis) **(2pt)**. There is hemorrhage **(1pt)** within areas of necrosis, and Kupffer cells are hypertrophic. At the edges of the necrotic area, hepatocytes are swollen, with brightly granular eosinophilic cytoplasm (degeneration) **(1pt)** and occasional cytosegresomes **(1pt)**, and occasionally, nuclei are expanded by a single 3-5µm **(1pt)** eosinophilic intranuclear viral inclusion **(1pt)** surrounded by a clear halo. There are numerous mitotic figures **(1pt)** within hepatocytes within periportal regions of the lobules. Within portal areas, there is multifocal hemorrhage **(1pt)**, capillary proliferation, endothelial necrosis **(1pt)**, and occasionally, endothelial cells **(1pt)** contain viral intranuclear inclusions.

**MORPHOLOGIC DIAGNOSIS:** Liver: Hepatitis, necrotizing, centrilobular to midzonal, with hepatocytic and endothelial intranuclear viral inclusions. **(3pt)**

**CAUSE:** Canine adenovirus type 1 **(2pt)**

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

WSC 2011-2012, Conference 20

Case 4. Tissue from an ox.

**MICROSCOPIC DESCRIPTION:** Small intestine. Diffusely, the intestinal mucosa is expanded **(1pt)** and thrown into thick rugal folds **(1pt)**. Villi are blunted and lost **(1pt)**, and crypts are tortuous, widely separated **(1pt)**, and often replaced **(1pt)** by innumerable macrophages **(1pt)**, admixed with low numbers of lymphocytes and rare plasma cells, admixed with small amounts of cellular debris. Macrophages are polygonal, uninucleated (and rarely multinucleated), and measure up to 30um by brightly eosinophilic granular cytoplasm **(2pt for description)**. Scattered throughout the mucosa, occasional crypts are dilated and filled with low to moderate numbers of degenerate enterocytes, macrophages, eosinophils, hemorrhage, and cellular debris, and lining enterocytes are often flattened **(2pt for description)** (crypt abscesses) **(1pt)**. Focally within the serosa, lymphatics **(1pt)** are surrounded by low to medium numbers of lymphocytes, histiocytes, and fewer plasma cells.

**MORPHOLOGIC DIAGNOSIS:** Small intestine: Enteritis, granulomatous, chronic, diffuse, moderate to severe, with villar blunting and loss, crypt loss, crypt abscesses, and mild lymphohistiocytic lymphangitis. **(4pt)**

**CAUSE:** *Mycobacterium avium* subsp *paratuberculosis* **(3pt)**

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