

WSC 2019-2020 Conference 5.

Case 1. Tissue from a sheep.

(There are two sections that were distributed – one with a large piece of mesentery, and one without. The one with the mesentery has the lymphangitis and the ciliates.)

Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Small intestine: Diffusely and markedly expanding the mucosa **(1pt)**, in particular the superficial and middle zones of the lamina propria **(1pt.)**, and replacing and widely separating crypts, are numerous epithelioid macrophages **(1pt)** arranged in dense sheets which are admixed with moderate numbers of neutrophils **(1pt.)** and lymphocytes, with fewer plasma cells. Macrophages have abundant, finely granular eosinophilic cytoplasm **(1pt)** and an eccentric round to oval nucleus. Villi are diffusely lost, with remaining villi severely blunted and fused **(1pt)**. There is marked crypt loss **(1pt)**, and multifocal necrosis of occasional remaining crypts with loss and attenuation of crypt enterocytes, and expansion of the crypt by numerous viable and degenerate neutrophils admixed with cellular debris (crypt abscesses) **(1pt)**. Mitotic figures are numerous in remaining crypts (crypt hyperplasia). **(1pt.)** The submucosa **(1pt)** is mildly expanded by similar epithelioid macrophages admixed with a proportionately increased population of lymphocytes, plasma cells, and occasional neutrophils and eosinophils, often clustering around lymphatics. Multifocally, within the submucosa and serosa, there is increased clear space and mildly ectatic lymphatics (edema) **(1pt)**. which extends into the adjacent mesentery. **(1pt)**. Mesenteric lymphatics occasionally contain ciliated protozoans **(1pt.)** with a prominent deeply basophilic nuclei, and occasionally pink to amphophilic proteinaceous material. Small vessels within the mesentery often contain increased amounts of basophilic ground substance in their adventitia. (In some, but not all slides, the wall of a large lymphatic is expanded effaced by an infiltrate of large number of epithelial macrophages, lymphocytes, and rare plasma cells admixed with a central focus of cellular debris. Similar inflammatory cells form a large perivascular aggregate at the edge of another vein.)

MORPHOLOGIC DIAGNOSIS: Small intestine: Enteritis, histiocytic **(1pt.)** (granulomatous OK), diffuse, severe with marked villar and crypt loss **(1pt.)**, villar blunting and fusion **(1pt.)**, crypt abscesses **(1pt.)** and hyperplasia, and edema (with multifocal lymphohistiocytic lymphangitis).

CAUSE: *Mycobacterium avium* var. paratuberculosis. **(2pt.)**

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

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Case 2. Tissue from a European hare.

MICROSCOPIC DESCRIPTION: Liver: Multifocally and randomly **(1pt)** scattered through the section are often coalescing **(1pt)** areas of lytic **(1pt)** necrosis **(1pt)**. Foci of necrosis are centered upon variably sized colonies (ranging up to 60um in diameter) **(1pt)** of 1-2 μ coccobacilli **(1pt)**, admixed with necrotic hepatocytes with granular cytoplasm and pyknotic or karyorrhectic nuclei, infiltrating viable and degenerate neutrophils and abundant brightly eosinophilic cellular debris, and often surrounded by one or more layers of epithelioid macrophages **(1pt)**. At their periphery swollen hepatocytes contain granular eosinophilic and vacuolated cytoplasm with accumulations of lipid **(1pt)**, glycogen, or both (degeneration) **(1pt)** or rarely exhibit pyknotic nuclei (necrotic) **(1pt)** admixed with moderate numbers of infiltrating heterophils **(1pt)**, fewer macrophages, rare multinucleated giant cell macrophages **(1pt)** and cellular debris. Hepatic cords at the periphery of large areas of necrosis are often variably compressed and Kupffer cells are activated. **(1pt)** Lymphatics surrounding sublobular veins are distended (edema). **(1pt)**. Aggregates of erythrocytic precursors are scattered among hepatic sinusoids. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing and granulomatous **(1pt)**, multifocal to coalescing, marked, with numerous large colonies of bacilli, **(1pt)**

CAUSE: *Yersinia enterocolitica* or *pseudotuberculosis* (you can't tell them apart histologically) **(3pt.)**

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

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Case 3. Tissue from a rabbit.

(Liver, spleen, and kidney are on the slide, but please restrict your description to the section(s) of liver.)

MICROSCOPIC DESCRIPTION: Liver: There is moderate autolysis on this slide. Normal hepatocellular plate architecture is diffusely lost **(1pt)**, with individualization **(1pt)** of hepatocytes. There is apoptosis (necrosis OK) **(2pt)** of approximately 80% of hepatocytes in all areas of the lobule **(1pt)**, with individualization, slight swelling, hypereosinophilia, a range of nuclear changes from peripheralization and crescenting **(1pt)** of nuclear chromatin, pyknosis, and rhexis. **(1pt)** Cytoplasm of apoptotic hepatocytes is granular and often contains numerous clear vacuoles autophagic vacuoles. **(1pt)** Hepatic sinusoids contain abundant eosinophilic cellular debris and rare fibrin thrombi. Larger bile ducts have mild to moderate hyperplasia of lining epithelium **(1pt)** and their lumina contain coccidial oocysts **(1pt)** which measure 20-40 um with a thick refractile hyaline shells **(1pt)**, basophilic granular cytoplasm, and occasionally a prominent eosinophilic nucleolus.

MORPHOLOGIC DIAGNOSIS: 1. Liver: Hepatitis, necrotizing **(2pt)** (it's really apoptosis), diffuse, severe.

2. Liver, bile ducts: Epithelial hyperplasia, diffuse, mild to moderate, with intraluminal apicomplexan oocysts. **(1pt)**

CAUSE: Rabbit calicivirus **(3pt)** and *Eimeria steidae* **(1pt)**

O/C: (1pt)

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Case 4. Tissue from a dog.

MICROSCOPIC DESCRIPTION:

Spinal cord: Within the dura, crossing the midline compressing and partially effacing the dorsal funiculi and dorsal gray matter, and compressing the remaining parenchyma, there is an unencapsulated, infiltrative, well-demarcated, nodular, multilobulated and moderately cellular neoplasm **(2pt.)**. The neoplasm is composed of polygonal cells which are arranged in islands, nests, and vague streams, **(1pt.)** on a fine fibrovascular stroma **(1pt.)**. Neoplastic cells are polygonal to spindled **(1pt.)** with a small amount of vacuolated basophilic cytoplasm and indistinct cell borders. **(1pt.)** Nuclei are irregularly round to oval with finely clumped chromatin and a single basophilic nucleolus. **(1pt.)** Mitoses average 1 per 2.37mm² field. **(1pt.)** Neoplastic cells often form well-differentiated tubules **(2pt.)** lined by columnar epithelium **(1pt.)**, and occasionally form papillary projections within them (glomerulus-like structures) **(2pt.)**. Bands of mature connective tissue subdivide the neoplasm into lobules. There is multifocal moderate hemorrhage within the tumor at the leading edge, as well as randomly scattered aggregates of crystalline mineral. **(1pt.)** There is marked diffuse spongiosis **(1pt.)** of the adjacent compressed white matter, with diffuse dilation of myelin sheaths **(1pt.)** in all funiculi, and myelin sheaths occasionally contain dilated eosinophilic axons (spheroids) **(1pt.)**, myelin debris, and occasional Gitter cells. There is mild edema within the adjacent compressed gray matter.

MORPHOLOGIC DIAGNOSIS: Spinal cord: Ectopic nephroblastoma **(3pt.)**

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