

WSC 2019-2020 Conference 9

Case 1. Tissue from a peahen

MICROSCOPIC DESCRIPTION: Liver: Diffuse expanding hepatic sinusoids **(1pt)**, perivascular adventitia, and occasionally infiltrating the walls of arterioles **(1pt)** is an unencapsulated, densely cellular, poorly demarcated **(1pt)** round **(1pt)** cell neoplasm. Outside of sinusoids, neoplastic lymphocytes **(1pt)** are arranged in sheets on preexistent stroma. Neoplastic lymphocytes are large **(1pt)** (often larger than the long axis of an erythrocyte) have a distinct cell border with a small amount of finely granular, eosinophilic cytoplasm **(1pt)** and a high N:C ratio. **(1pt)** Nuclei are centrally placed and round, with finely clumped chromatin and 1-2 small eosinophilic nuclei. **(1pt)** Anisocytosis and anisokaryosis are mild, and mitotic figures average 3-5/2.37mm field. **(1pt)** There is extensive apoptosis of neoplastic cells. **(1pt)** There is multifocal atrophy **(1pt)** of hepatocytes throughout the section, and there is necrosis **(1pt)** of hepatocytes individually and in small groups. Kupffer cells are mildly hypertrophied (and mitotic figures are occasionally seen within Kupffer cells).

MORPHOLOGIC DIAGNOSIS: Liver: Lymphoma, large cell. **(3pt)**

NAME THE CONDITION: Marek's Disease **(3pt)**

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

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Case 2. Tissue from a chicken.

MICROSCOPIC DESCRIPTION: Cross section through tibia and fibula **(1pt.)**: The marrow of both cross sections of bone is diffuse and severely atrophic **(1pt.)**, lacking hemocytoblasts and erythrocytic and granulocytic precursors **(1pt.)**. Scattered throughout the atrophied marrow, there are low to moderate numbers of karyorrhectic **(2pt.)** hemocytoblasts. Rare remaining precursors occasionally contain a large eosinophilic intranuclear viral inclusion **(2pt.)** that is occasionally surrounded by a clear halo, similar inclusions are rarely present within osteoclast **(1pt.)** nuclei. Erythrocyte numbers within vessels are markedly decreased. **(2pt.)** There is extensive edema throughout the marrow. There are scattered rare hemorrhage and there is multifocal mild hemorrhage and polymerized fibrin within the extravascular spaces. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Tibia, bone marrow: Necrosis **(1pt.)** and atrophy, **(1pt.)** diffuse, severe with numerous hematocytic and osteoclastic intranuclear viral inclusions.

CAUSE: Avian circovirus **(3pt.)**

NAME THE DISEASE: Infectious chicken anemia. **(2pt.)**

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

Case 3. Tissue from a chicken

MICROSCOPIC DESCRIPTION: Cecum: The wall of the cecum is telescoped into itself, forming an intussusception with an inner segment with mucosa facing the slide label –intussusceptum), and an outer receiving segment with the mucosa facing away from the slide label – intussusciens). **(2pt)** The cecal mucosa is diffusely necrotic **(1pt)** at the superficial levels and transmurally thickened in deeper regions by abundant hemorrhage **(1pt)**, fibrin, edema and cellular debris which separates and surrounds crypts, and infiltrated by large numbers of macrophages **(1pt)**, fewer heterophils, lymphocytes and plasma cells, fewer heterophils, and rare multinucleated foreign body giant cells, **(1pt)**. Crypts epithelium is often karyorrhectic or pyknotic (necrosis) **(1pt)** and there are increased numbers of mitotic figures (hyperplasia) **(1pt)**. The necrosis and inflammation multifocally extends into the submucosa **(1pt)**, and to a lesser extent transmurally **(1pt)** to the serosa. Within the muscularis and serosa, inflammatory infiltrates track vessels, lymphatics, and occasionally nerve plexi. Admixed within the necrosis and inflammatory infiltrate are moderate to large numbers of 10 – 20 um diameter, round, lightly eosinophilic to amphophilic protozoal trophozoites **(1pt)** with a centrally located 3-5 um diameter basophilic nucleus **(1pt)**. Within areas of hemorrhage, they often contain numerous ingested erythrocytes. Overlying the necrotic debris, and admixed with large amounts of necrotic debris and hemorrhage are numerous colonies of mixed bacilli. **(1 pt)** Within the cecal lumen and contained within the luminal debris, there are several cross-and tangential sections of adult ascarids **(1pt)** ranging up to 500 um in diameter with a thin smooth cuticle, lateral alae **(1pt)**, polymyarian/coelomyarian musculature, a pseudocoelom, lateral cords, an intestinal tract lined by a few columnar uninucleate cells with a brush border, an ovary, and a uterus containing developing ova. Larvated eggs are present within the uterus as well as a few are present within cecal lumen. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Cecum: Intussuception. **(1pt)**
2. Cecum: Typhlitis, necrohemorrhagic **(1pt)** and granulomatous **(1pt)**, transmural, multifocal to coalescing, marked with numerous amebic trophozoites.
3. Cecum, lumen: Adult ascarids, multiple. **(1pt)**

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

Case 4. Tissue from a pigeon.

MORPHOLOGIC DESCRIPTION: Liver: Multifocally and randomly **(1pt.)**, there is lytic necrosis **(2pt.)** of small groups **(1pt.)** of hepatocytes, which is characterized by hepatocellular disassociation, shrinkage, cytoplasmic eosinophilia and granularity, and nuclear pyknosis and karyorrhexis. **(1pt.)** Areas of necrosis are infiltrated by low to moderate numbers of macrophages **(1pt.)**, with fewer heterophils **(1pt.)** and lymphocytes; macrophages occasionally contain intracytoplasmic eosinophilic or yellow-green cellular debris. **(1pt.)** Two different intranuclear inclusions may be seen within hepatocytes in areas of necrosis. Within areas of necrosis, nuclei of degenerating hepatocytes occasionally contain two distinct types of intranuclear viral inclusions - one measuring 2-4µm, eosinophilic round and surrounded by a clear halo, and a second type measuring 4-6µm, basophilic, rhomboid, elongating the nucleus and without a halo **(1pt.)** (herpesviral) **(1pt.)**, or a dark basophilic rhomboid inclusions which elongates the nucleus **(1pt.)** (circoviral). Portal areas are infiltrated by low to moderate numbers of heterophils, macrophages **(1pt.)**, lymphocytes, and plasma cells. There is diffuse mild to moderate hepatocellular glycogenosis of hepatocytes. **(1pt.)** There is a multiple area of coagulative necrosis measuring up to 0.5mm in diameter with marked hepatocellular loss, hypereosinophilia of remnant stroma, and abundant polymerized fibrin which extends into surrounding sinusoids extending outward from the adjacent bile duct.

MORPHOLOGIC DIAGNOSIS: 1. Liver: Hepatitis, necrotizing **(1pt.)**, random multifocal, random, subacute, with small basophilic and large basophilic intranuclear viral inclusions. **(1pt.)**

2. Liver, periportal areas: Necrosis, coagulative, multifocal, severe (bile peritonitis).

Cause: Pigeon herpesvirus **(2pt.)** and pigeon circovirus **(2pt.)**

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