WSC 2013-2014, Conference 6

Case 1. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Kidney: Multifocally, the walls of arcuate, lobular and interlobular arteries **(1pt.)** are markedly thickened **(1pt.)** and transmurally infiltrated by large numbers of lymphoblasts **(1pt.)** lymphocytes **(1pt.)** and macrophages **(1pt.)**, with fewer neutrophils and rare plasma cells, admixed with variable amounts of a brightly eosinophilic protein, **(1pt.)** hemorrhage, edema, and cellular debris (fibrinoid necrosis or necrotizing arteritis) **(1pt.)**. There is multifocal loss of endothelium, and rare fibrinocellular thrombi occlude several vessels. The cellular infiltrate largely effaces the mural architecture, and smooth muscle cells of the arterial wall are often hyaline, fragmented, and occasionally necrotic **(1pt.)**. The cellular infiltrate extends into the surrounding tunica adventitia **(1pt.)** and adjacent renal interstitium **(1pt.)**, where inflammatory cells are admixed with numerous activated fibroblasts **(1pt.)**, proliferating new vessels, and collagen. Moderate numbers of macrophages, lymphocytes, and plasma cells extend into and expand the adjacent renal interstitium, effacing renal tubules. Adjacent tubules are occasionally dilated, lined by variable degenerate, necrotic, and/or attenuated epithelium, and their lumina contain variable combinations of protein, degenerate neutrophils, sloughed necrotic epithelium, and cellular debris **(1pt.)**. Occasional glomeruli are hypercellular with low numbers of neutrophils and activated macrophages within the mesangium, and in these glomeruli, parietal epithelium is hypertrophic.

MORPHOLOGIC DIAGNOSIS: Kidney, arteries: Arteritis, necrotizing and lymphohistiocytic, multifocal, severe, with interstitial lymphoplasmacytic inflammation, and tubular degeneration and necrosis. **(3pt.)**

CAUSE: Ovine herpesvirus-2 **(2pt.)**

NAME THE DISEASE: Malignant catarrhal fever **(1pt.)**

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

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Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Cerebrum at level of hippocampus **(1pt.)**: Multifocally, meningeal vessels **(1pt.)**, and to a lesser extent, vessels in the both the gray and white matter **(1pt.)**, are dilated, congested and contain variable numbers of neoplastic lymphocytes **(2pt.)** in circulation. Lymphocytes range from 7-20um in diameter, with abundant granular eosinophilic cytoplasm **(1pt.)**. Nuclei are irregularly round, with finely stippled chromatin and 1-2 large eosinophilic nucleoli **(1pt.)**. There is marked anisocytosis and anisokaryosis **(1pt.)**, and mitotic figures are rare **(1pt.)**. There are numerous apoptotic lymphocytes in circulation **(1pt.)**. Occasionally, neoplastic lymphocytes infiltrate the vessel wall where they are admixed with mild edema and cell debris. Multifocally, meningeal vessel walls are occasionally expanded by a brightly eosinophilic protein **(1pt.)** which obscures mural architecture and in which are embedded neoplastic cells and cellular debris (fibrinoid necrosis) **(1pt.)**. The adventitia of these vessels is expanded by large numbers of histiocytes, fewer lymphocytes and neutrophils, and activated fibroblasts **(1pt.)**. Other meningeal vessels are often surrounded with low to moderate numbers of lymphocytes and histiocytes, and the meninges are moderately edematous. In one area of the subcortical grey matter, cerebral vessels are occluded by fibrin thrombi **(1pt.)**, and surrounded by variable amounts of hemorrhage **(1pt.)**. Occasionally, thrombosed vessels are recanalized. Within this area rare neurons are angular, eosinophilic and shrunken (necrotic) and rare neutrophils infiltrate the neuropil, and there is multifocal mild gliosis. (Due to slide variation, some slides show actual coagulation necrosis of neuropil).

MORPHOLOGIC DIAGNOSIS: 1. Cerebrum at level of hippocampus, vessels: Intravascular lymphoma. **(3pt)**

2. Cerebrum at level of hippocampus, vessels: Vascular necrosis and thrombosis, multifocal, with cerebral infarction. **(1pt.)**

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

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Case 3. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Gingiva: Within the gingival submucosa is an unencapsulated, moderately cellular, infiltrative, poorly demarcated neoplasm **(1pt)**. The neoplasm is composed of anastamosing cords and trabeculae **(1pt)** of cuboidal to columnar **(1pt)** odontogenic **(2pt)** epithelium on a dense fibrous stroma **(1pt)**. Neoplastic cells have indistinct cell borders and a small to moderate amount of homogeneous pink cytoplasm **(1pt)**. In less well-differentiated epithelial rests, intercellular bridges are often prominent **(1pt)**. Nuclei are irregularly round to oval and centrally placed within the cells with finely stippled chromatin, and 1-2 small blue nucleoli. **(1pt)** Mitotic figures average 1-2 per 400x field. **(1pt)** The stroma is dense and poorly cellular with moderate numbers of spindle cells, and scattered throughout the stroma are aggregates of a light blue mineralized matrix **(1pt)**. Multifocally throughout the neoplasm, trabeculae occasionally encircle stroma**(1pt)**, resulting in spindle cell proliferation, condensation and assumption of a more stellate **(1pt)** appearance, recapitulating dental pulp**(1pt)**. The overlying mucosal epithelium is multifocally ulcerated, lined by viable and degenerate neutrophils which infiltrate underlying submucosa, and the superficial submucosa has numerous proliferating blood vessel with reactive endothelium. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Gingiva: Feline ameloblastic fibroma (feline inductive odontogenic tumor, feline inductive fibroameloblastoma OK) **(4pt)**

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

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Case 4. Tissue from a rhesus macaque.

ULTRASTRUCTURAL DESCRIPTION: Liver **(2pt)**: The first photomicrograph contains cross sections of 7-8 hepatocytes **(1pt)** characterized by centrally placed nuclei, moderate numbers of mitochondria **(1pt)**, abundant glycogen **(1pt)**, moderate amounts of both rough and smooth endoplasmic reticulum and a well-defined cell membrane. The hepatocytes surround a bile canaliculus **(2pt)** with stubby microvilli **(1pt)** and electron-dense tight junctions **(1pt)**, and on the opposite side, border a basement membrane **(1pt)** and capillary **(1pt)**, with discontinuous endothelium. Hepatocytes are surrounded, separated and compressed by loosely and haphazardly arranged fibrils **(1pt)** which lack periodicity **(1pt)** and are approximately a third to a half the size of collagen fibrils **(1pt)** (present in a second micrograph.) – approx 20nm in diameter.

MORPHOLOGIC DIAGNOSIS: Liver, space of Disse: Amyloidosis, moderate. **(5pt)**.

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