

WSC 2011-2012, Conference 12

Case 1. Tissue from a mouse.

MORPHOLOGIC DESCRIPTION: Liver: Multifocally and randomly **(1pt)** throughout the section, there are foci of hepatocellular necrosis **(1pt)** and loss. Centrally, these areas are composed of eosinophilic and karyorrhectic debris **(1pt)** admixed with small amounts of fibrin and hemorrhage. At the periphery of these areas of necrosis, hepatocytes are shrunken and dark (due to loss of glycogen) or swollen and light pink, and nuclei exhibit irregular clumping of chromatin (degeneration) **(2pt)**. At the periphery, there are few necrotic hepatocytes which are bright pink, rounded up, disassociated, and shrunken **(1pt)**. There are low numbers multinucleated **(1pt)** viral hepatocyte syncytia **(1pt)** within or adjacent to these foci; most are necrotic **(1pt)** as well. The foci are infiltrated by low to moderate numbers of neutrophils **(2pt)**, which are also often necrotic, and fewer macrophages. Within portal areas, there are increased profiles of small caliber bile ductules lined by cuboidal epithelium with vesicular nuclei (ductular reaction) **(1pt)** as well as small aggregates of cells with large vesicular nuclei and small amounts of eosinophilic cytoplasm (oval cell hyperplasia) **(1pt)**. Diffusely, hepatocytes contain abundant glycogen **(1pt)**.

MICROSCOPIC DIAGNOSIS: Liver: Hepatitis, necrotizing, multifocal, moderate with multinucleate hepatocellular viral syncytia and ductular reaction. **(3pt)**

CAUSE: Mouse polytropic coronavirus **(3pt)**

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

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Case 2. Tissue from a rat.

MORPHOLOGIC DESCRIPTION: Kidney. Diffusely, the renal pelvis is expanded **(1pt)** by large numbers of viable and degenerate neutrophils**(1pt)**, admixed with sloughed epithelial cells, moderate amounts of polymerized fibrin, mucin, granular and aggregated mineral, bacteria, and cellular debris **(1pt)**. The pelvic urothelium is multifocally hyperplastic **(1pt)**, eroded, or undergoes squamous metaplasia **(1pt)**, and is multifocally transmigrated by individual and small aggregates of neutrophils (microabscesses) **(1pt)**. The subepithelial connective tissue**(1pt)** is markedly expanded by moderate numbers of lymphocytes **(1pt)**, plasma cells **(1pt)**, neutrophils, and macrophages**(1pt)** (which occasionally contain brown granular pigment), as well as numerous small vessels lined by reactive endothelium. Multifocally extending from the inflamed medulla to the renal capsule, there are rays of abundant fibrous connective **(1pt)**tissue containing a similar inflammatory which expands the interstitium and surrounds, separates and replaces glomeruli, tubules, and collecting ducts. Within these areas and in the inflamed renal medulla, there is tubular loss **(1pt)**; remaining tubules are ectatic, lined by attenuated epithelium, and contain eosinophilic proteinaceous material (proteinosis) or cellular debris. **(1pt)** Many remaining tubules have small lumina and lined by epithelium with large vesicular nuclei (tubular regeneration) **(1pt)**. Multifocally, in non-fibrotic areas of the renal cortex, the interstitium is expanded by low numbers of lymphocytes and plasma cells, and tubules are occasionally ectatic, containing protein, cellular debris, and/or small numbers of neutrophils. **(1pt)** The capsular surface is irregular, fibrotic, and multifocally indented **(1pt)** over rays of fibrosis which extend from the medulla.

MICROSCOPIC DIAGNOSIS: Kidney: Pyelonephritis, chronic-active, diffuse, moderate, with tubular degeneration, necrosis, and regeneration. **(3pt)**

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

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Case 3. Tissue from a mouse.

MORPHOLOGIC DESCRIPTION: Cerebrum, diencephalon **(1pt)**: Multifocally within the cerebral cortex **(1pt)**, thalamus **(1pt)** and the hippocampus, individual and groups of neurons are angular, shrunken, and hypereosinophilic **(2pt)** (degenerating) **(1pt)**, and/or rounded up, hyperchromatic, with a pyknotic or karyorrhectic nucleus **(2pt)** (necrosis) **(1pt)**. Multifocally (and most visibly in the hypothalamus) neurons contain one or more irregularly round pink intracytoplasmic **(1pt)** viral inclusions (Negri bodies) **(2pt)**. Rarely, degenerate neurons are surrounded by lymphocytes and glial cells **(1pt)**. Multifocally, vessels are surrounded by low to moderate numbers of lymphocytes **(1pt)** and rare histiocytes and often contain several marginated neutrophils. Similar inflammatory cells are present in small numbers within the meninges **(1pt)**.

MICROSCOPIC DIAGNOSIS: Cerebrum, diencephalon: Neuronal degeneration and necrosis, multifocal, with gliosis, lymphocytic cuffing, and intracytoplasmic viral inclusions. **(3pt)**

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

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Case 4. Tissue from a rhesus macaque.

MORPHOLOGIC DESCRIPTION: Kidney: Markedly expanding the ureter **(1pt)**, renal pelvis, and extending into and effacing the renal parenchyma **(1pt)** is an infiltrative, multilobular, well-demarcated, partially encapsulated, moderately cellular, and mildly pleomorphic neoplasm **(1pt)**. Neoplastic cells are primarily arranged in tubules and acini **(1pt)**, while in other areas, line a moderate to dense fibrovascular stroma, occasionally forming papillary **(1pt)** and micropapillary projections. Neoplastic cells are cuboidal to columnar with moderately distinct cell borders and a moderate amount of a finely granular cytoplasm **(1pt)**. Nuclei are generally basilar with finely stippled chromatin and 1-3 basophilic nucleoli **(1pt)**. Mitoses are rare **(1pt)**. Neoplastic tubules are often filled with a brightly eosinophilic proteinaceous material **(1pt)**, and rarely, mineral. Within the kidney, the neoplasm is divided into lobules by broad bands of fibrous connective tissue containing moderate numbers of lymphocytes, plasma cells, neutrophils and lesser histiocytes **(1pt)**. Within the adjacent renal parenchyma, the interstitium is moderately expanded by abundant mature collagen and fibroblasts **(1pt)**, and a diffuse infiltrate of moderate numbers of lymphocytes, plasma cells, histiocytes, and eosinophils and occasional aggregates of lymphocytes and plasma cells **(1pt)**. There is moderate tubular loss; remaining tubules are often ectatic, may contain protein casts and rare sloughed epithelial cells **(1pt)**, often have prominent basement membranes, and are lined by epithelium that ranges from flat and attenuated to tall columnar with prominent vesicular nuclei (regenerative) **(1pt)**. Occasionally, glomeruli are ectatic with accumulated protein within Bowman's capsule, and mildly hyperplastic parietal epithelium. The suburothelial connective tissue of the renal pelvis is expanded by moderate numbers of eosinophils, lymphocytes, histiocytes, and fewer neutrophils and plasma cells **(1pt)**. The wall of a large-caliber artery is moderately and focally expanded by aggregates of multinucleated giant cells and lesser numbers of eosinophils and neutrophils which are enmeshed in collagen and disarrayed smooth muscle which project into the lumen **(1pt)**.

MICROSCOPIC DIAGNOSIS: 1. Kidney and ureter: Papillary adenocarcinoma. **(2pt)**

2. Kidney: Nephritis, tubulointerstitial, chronic, with tubular ectasia, loss, and regeneration. **(1pt)**

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