

WSC 2019-2020 Conference 16

Case 1. Tissue from pig.

MICROSCOPIC DESCRIPTION: Lung: This section of lung is diffusely consolidated, markedly obscuring normal alveolar architecture. **(1pt.)** Diffusely, alveolar septa are variably expanded **(1pt.)** up to 5X normal by variable combinations and concentrations of viable and necrotic macrophages **(1pt.)**, lymphocytes, neutrophils, plasma cells, and necrotic debris **(1pt.)** (including globular aggregates of nuclear material, are congested, and are often lined by hyperplastic type II pneumocytes **(1pt.)**). Multifocally, alveolar lumina are either atelectatic **(1pt.)** or are filled and occasionally expanded by variable combinations and concentrations of foamy macrophages, lymphocytes, viable and degenerate neutrophils **(1pt.)**, as well as hemorrhage, fibrin and edema **(1pt.)**. A similar exudate is refluxed into surrounding airways **(1pt.)**; there is multifocal necrosis of bronchiolar epithelium **(1pt.)** with loss and attenuation of remaining epithelial cells and mild multifocal smooth muscle hyperplasia. Throughout the section, small vessels are often surrounded by cuffs **(1pt.)**, of 4-5 layers of lymphocytes and plasma cells and rarely, the wall of small caliber arterioles are smudgy, and focally thickened by small amounts of intramural protein and necrotic debris (vasculitis) **(1pt.)**. Interlobular septa and the overlying pleura are mildly edematous **(1pt.)**, and infiltrated by low numbers of lymphocytes, plasma cells, and macrophages.

MORPHOLOGIC DIAGNOSIS: 1. Lung: Pneumonia, interstitial **(1pt.)**, lymphohistiocytic **(1pt.)** , diffuse, severe, with type II pneumocyte hyperplasia and intra-alveolar macrophage necrosis and marked peribronchiolar and perivascular lymphoid hyperplasia.

2. Lung: Bronchopneumonia, necrotizing and suppurative, diffuse, mild **(1pt.)**

CAUSE: Porcine arterivirus **(2 pt.)**, likely secondary bacterial infection

NAME THE DISEASE: Porcine Respiratory and Reproductive Syndrome (PRRS) **(1pt.)**

O/C: (1pt.)

Case 2. Tissue from a piglet.

MICROSCOPIC DESCRIPTION: Multiple sections of jejunum: There is diffuse severe shortening of villi (blunting) **(2pt.)**. Diffusely, mucosal epithelium at the villar tips is vacuolated **(1pt.)** and swollen (degeneration) **(1pt.)**, with occasionally pyknotic and or karyorrhectic nuclei (necrosis). **(1pt.)** Multifocally and often, shortened villi have fallen together and are joined by a single layer of epithelium (fusion). **(1pt.)**. The lamina propria often contains low numbers of neutrophils **(1pt.)**, and a normal number of lymphocytes, histiocytes and rare plasma cells. There is moderate crypt hyperplasia **(2pt.)** with increased numbers of mitotic figures **(1pt.)**. The lumen contains moderate amounts of hemorrhage, sloughed epithelial cells and cellular debris **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Intestine: Villar blunting, diffuse, severe, with villar enterocyte vacuolar degeneration, villar fusion, and mild crypt hyperplasia. **(3pt.)**

CAUSE: Porcine coronavirus (Porcine Epidemic Diarrhea Virus) (Porcine rotavirus, porcine coronavirus (TGEV) – also ok) **(3pt.)**

O/C: (1pt.)

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Case 3. Tissue from a piglet.

MICROSCOPIC DESCRIPTION: Spinal cord: Within the gray matter (**1pt.**) of the ventral horns (**1pt.**), neurons (**1pt.**) exhibit moderate to marked swelling (**1pt.**) with abundant lacy amphophilic vacuolated cytoplasm and loss of Nissl substance (chromatolysis) (**1pt.**) or angular, shrunken, and hypereosinophilic and surrounded by a few glial cells (necrosis). (**1 pt.**) There are numerous neuronophagic nodules (**1pt.**) (containing a disintegrating anucleate neuron with granular eosinophilic cytoplasm surrounded by numerous astroglia, infiltrating macrophages, fewer neutrophils and eosinophils (**1pt.**)) or glial nodules (**1pt.**) (containing a similar cell population and with no remaining neuron). Gliosis (**1pt.**) is marked within these areas, and vessels are surrounded (**1pt.**) by moderate numbers of lymphocytes (**1pt.**) and lesser numbers of histiocytes and rare plasma cells, which extend slightly into the surrounding neuropil.

MORPHOLOGIC DIAGNOSIS: Spinal cord, grey matter, ventral horns: Poliomyelitis, lymphocytic (**1pt.**), diffuse, moderate with marked neuronal necrosis, neuronophagia (**1pt.**), glial nodule formation (**1pt.**), and meningitis (**1pt.**)

CAUSE: Porcine sapelovirus (**3 pt.**) (Hemagglutinating encephalomyelitis virus, porcine arterivirus OK)

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

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Case 4. Tissue from a pig.

MICROSCOPIC DESCRIPTION: Skeletal muscle: Two (or three) sections of skeletal muscle, one of which demonstrates significant pallor upon visual inspection. The section of affected skeletal muscle is oriented in cross-section. Both longitudinal and cross-sections of skeletal muscle are present. Diffusely within this section, myofibers are degenerate **(1pt.)** and/or necrotic **(1pt.)** and exhibit one or more of the following changes: variation in fiber size **(1pt.)**, hyalinization and hypereosinophilia **(1pt.)**, loss of cross-striations **(1pt.)**, cytoplasmic vacuoles and areas of brightly granular eosinophilic cytoplasm (myofibrillolysis) **(2pt.)**, contraction bands in rare myofibers oriented in tangential or longitudinal array, and fragmentation **(1pt.)**. Satellite cell nuclei are often hypertrophic **(1pt.)**. Occasionally, the cytoplasm of fragmented, necrotic myofibers are infiltrated by macrophages **(1pt.)** and many myofibers contain less than 50% of remaining degenerating cytoplasm admixed with internalized macrophages, and some myotubes are simply filled with macrophages and clear space. **(1pt.)** Diffusely, the endomysium and perimysium is expanded by edema and infiltrated by moderate numbers of macrophages **(1pt.)** with fewer lymphocytes **(1pt.)** and rare plasma cells. Endomysial fibroblasts are multifocal hypertrophic. Multifocally, large venules contain low to moderate numbers of lymphocytes and fewer histiocytes within their walls admixed with cellular debris (vasculitis). **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Skeletal muscle: Myositis **(1pt.)**, necrotizing and granulomatous, diffuse, severe, with multifocal vasculitis. **(1pt.)**

CAUSE: Porcine circovirus-2, (capture myopathy, malignant hyperthermia, ionophore toxicosis OK) **(2pt.)**

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