

WSC 2011-2012. Conference 7

Slide 1. Tissue from an ox.

(NOTE: Some slides contain 1 section, some slides contain two. I have graded both independently. You will need to decide what is on the slide you have.)

MICROSCOPIC DESCRIPTION: Section 1. Lung: Approximately 60% of the section **(1 pt.)** is replaced by large areas of coagulative necrosis **(2 pt.)**, within which pre-existing pulmonary structures lack differential staining; these areas are outlined by a thin rim of dense eosinophilic and basophilic coagulative debris. **(1 pt.)** Within the remainder of the lung, alveoli are expanded and filled by variable combinations and concentrations of polymerized fibrin **(2 pt.)**, viable and degenerate neutrophils (which often have streaming and smudgy nuclei (oat cells) **(1 pt.)**), macrophages, edema, and cellular debris. **(1 pt.)** Many alveolar septa are expanded up to three times normal by similar inflammatory components and congestion. **(1 pt.)** Remaining airways are effaced by lytic **(1 pt.)** necrosis which extends through the epithelium and airway wall in to the peribronchiolar connective tissue; the lumen is filled with abundant cellular debris, degenerate neutrophils, macrophages, and fibrin. **(1 pt.)** Interlobular septal and pleural connective tissues are markedly expanded up to ten times normal **(1 pt.)** by abundant polymerized fibrin, distended lymphatics **(1 pt.)** (which often contain fibrin thrombi), edema, and moderate to large numbers of infiltrating neutrophils and macrophages. The pleura exhibits mild to moderate neovascularization and is covered by a thick, variably dense mat of polymerized fibrin **(1 pt.)**.

Section 2. Lung: Multifocally, bronchioles are markedly ectatic and replaced **(1 pt.)** by a central area of eosinophilic cellular debris, surrounded by a layer or basophilic karyorrhectic debris, degenerate neutrophils, and epithelioid macrophages which extends into and largely effaces the bronchiolar smooth muscle **(1 pt.)** (bronchiectasis) **(1 pt.)**. Smooth muscle of the bronchiolar wall is multifocally hypereosinophilic (degenerate), or necrotic **(1 pt.)**. Remaining airways are filled with abundant cellular debris, degenerate neutrophils, macrophages, and fibrin, **(1 pt.)** and lining epithelium is multifocally necrotic **(1 pt.)**, attenuated, or in areas, piles up several layers thick (hyperplasia.) Alveoli are expanded and filled by variable combinations and concentrations of polymerized fibrin **(2 pt.)**, viable and degenerate neutrophils, macrophages, edema, and cellular debris **(1 pt.)**. Many alveolar septa are expanded **(1 pt.)** up to three times normal by similar inflammatory components and congestion **(1 pt.)**. Interlobular septa and pleura connective tissues are markedly expanded up to five times normal **(1 pt.)** by abundant polymerized fibrin, distended lymphatics **(1 pt.)** (which often contain fibrin thrombi and variable numbers of neutrophils), edema **(1 pt.)**, and moderate to large numbers of infiltrating neutrophils and macrophages. The pleura exhibits mild to moderate neovascularization and congestion.

MORPHOLOGIC DIAGNOSIS: Lung: Pleuropneumonia, fibrinosuppurative and necrotizing, diffuse, severe, with bronchiectasis and oat cells. **(3 pt.)**

NAME TWO POSSIBLE CAUSES: *Mannheimia hemolytica*, *Mycoplasma mycoides susp. mycoides*, *Mycoplasma bovis*, **(2 pt.)**

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

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Slide 2. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, **(2 pt.)** alveolar septa are markedly expanded **(1 pt.)** by macrophages, lymphocytes, neutrophils, fibrin, and edema **(1pt.)**, and are often lined by hyperplastic type II pneumocytes **(2 pt.)**. Alveolar lumens are filled by abundant bright pink proteinaceous fluid **(2pt.)**, and moderate numbers of foamy alveolar macrophages, viable neutrophils and small amounts of fibrin. **(1 pt.)** Multifocally, surrounding up to 70% of bronchioles and peribronchiolar blood vessels **(1 pt.)** are large aggregates of predominantly lymphocytes and macrophages **(2 pt.)** with fewer plasma cells. **(1 pt.)** Multifocally, the interlobular septa and pleura are expanded up to two times normal **(1 pt.)** by moderate amounts of fibrin, ectatic lymphatics (edema), low numbers of lymphocytes, macrophages, rare eosinophils, occasional mineral and a focally extensive area of mild hemorrhage.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, interstitial, lymphocytic and histiocytic, diffuse, moderate with marked alveolar high-protein transudate and type II pneumocyte hyperplasia. **(3 pt.)**

CAUSE: Caprine lentivirus (CAEV virus) **(2 pt.)**

O/C: (1 pt.)

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Slide 3. Tissue from a pig.

MICROSCOPIC DESCRIPTION: Kidney: Multifocally, up to 20% tubules are ectatic **(1 pt.)** with attenuated flattened epithelium, and often contain proteinaceous or granular casts **(1 pt.)** with variable concentrations of viable and degenerate neutrophils **(1 pt.)** admixed with sloughed epithelial cells within the lumen. Tubular epithelium is swollen with abundant microvacuolated eosinophilic cytoplasm (degeneration) **(1 pt.)**, is brightly eosinophilic with karyorrhectic or pyknotic nuclei (necrotic) **(1 pt.)**, or rarely, basophilic with large vesicular nuclei **(1 pt.)** and increased numbers of mitotic figures (regenerative.) **(1 pt.)**. Rarely tubular epithelium contains large smudgy basophilic intracytoplasmic viral inclusions **(2 pt.)**. Multifocally, the interstitium is expanded by moderate to large numbers of lymphocytes, macrophages, lesser plasma cells, and rare eosinophils. **(1 pt.)** The interstitium is congested and there are multifocal small areas of hemorrhage underneath the capsule. Bowman's capsules are rarely surrounded by fibrous connective tissue, lined by hypertrophic epithelial cells, and Bowman's spaces contain granular cellular debris. Rarely, glomerular capillaries and vasa recta are dilated and contain colonies of 1-2um coccobacilli **(2 pt.)**. Lobar and sublobular arteries have prominent muscular walls which are infiltrated with low numbers of eosinophils, histiocytes, and lymphocytes. **(1 pt.)** Medullary fibrous connective is separated by large amounts of clear space and lymphatics are dilated (edema). **(1 pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Kidney, tubules: Degeneration, necrosis, and regeneration, multifocal, moderate, with lymphocytic and histiocytic interstitial nephritis, granular and cellular casts, and intraepithelial intracytoplasmic cytoplasmic viral inclusions **(2 pt.)**

2. Kidney, glomeruli: Intravascular bacterial emboli. **(1 pt.)**

CAUSE: Porcine circovirus -2 **(2 pt.)**

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

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Slide 4. Tissue from an ox.

MICROSCOPIC DESCRIPTION: Jejunum: There is diffuse shortening of villi **(1 pt.)** with diffuse autolysis resulting in the loss of epithelium. Multifocally, and often over Peyer's patches **(1 pt.)** there is necrosis of epithelium lining the base of the villi. Crypts are dilated **(1 pt.)** and filled with mucin**(1 pt.)**, necrotic epithelial cells **(1 pt.)**, viable and degenerate neutrophils **(1 pt.)** and cell debris. Crypts herniate **(1 pt.)** into the moderately depleted Peyer's patches **(1 pt.)**. Multifocally, neutrophils breach the basement membrane of the crypts and extend into the subjacent lamina propria **(1 pt.)**. Within Peyer's patches, there are numerous karyorrhectic lymphocytes admixed with cellular debris **(1 pt.)**. The lamina propria is multifocally congested and there is multifocal hemorrhage. Submucosal lymphatics are multifocally dilated and often contain low to moderate numbers of viable and degenerate neutrophils, fibrin, and cellular debris. **(1 pt.)** Endothelial cells **(1 pt.)**, prominently in the muscular layers **(2 pt.)** contain a single oblong eosinophilic intranuclear viral inclusion which enlarges the nucleus and peripheralizes chromatin.

MORPHOLOGIC DIAGNOSIS: Small intestine: enteritis, necrotizing, diffuse, moderate to severe with villar blunting, crypt herniation, lymphoid depletion, and epithelial intranuclear viral inclusions. **(3 pt.)**

CAUSE: Bovine adenovirus **(2 pt.)**

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