WSC 2013-2014, Conference 24

Case 1. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Lung: The pleura **(1pt)** is diffusely and severely expanded by an overlying mat of polymerized fibrin **(1pt)**, edema, multifocal hemorrhage, numerous small colonies of 1-2um cocci **(2pt)**, and a thick band of large numbers of viable and largely degenerate neutrophils **(1pt)** admixed with fewer macrophages and abundant cellular debris. The pleura itself is expanded by abundant granulation tissue **(2pt)**, with numerous congested small vessels, large numbers of infiltrating neutrophils with fewer epithelioid **(1pt)**, lymphocytes and rare plasma cells and multinucleated macrophages, moderate amounts of cellular debris, diffuse moderate edema **(1pt)**, multifocal hemorrhage and proliferating fibroblasts **(1pt)** scattered among moderate amounts of collagen. Alveolar capillaries are diffusely congested and hypercellular, with numerous circulating neutrophils, and are often expanded by interstitial edema **(1pt)**. Multifocally, alveoli contain varying combinations and concentrations of protein-rich bright pink edema fluid, wispy polymerized fibrin, increased numbers of alveolar macrophages, rare neutrophils and small amounts of cellular debris. **(1pt)** Interlobular septa **(1pt)** and perivascular connective tissue throughout the section are markedly expanded by polymerized fibrin and edema, and are infiltrated by low to moderate numbers of neutrophils, histiocytes and lymphocytes, and contain small amounts of necrotic cells and cellular debris. Throughout both the pleura and interlobular septa, lymphatics are widely expanded **(1pt)** by edema, and there are rare scattered fibrinocellular thrombi within pleural and interlobular vessels.

MORPHOLOGIC DIAGNOSIS:

Lung: Pleuritis, fibrinosuppurative, chronic, diffuse, severe, with moderate multifocal pulmonary edema and fibrinous interstitial pneumonia. **(3pt)**

CAUSE: *Streptococcus equi var. zooepidemicus* **(3pt)**

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

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Case 2. Tissue from an ox.

MICROSCOPIC DESCRIPTION: Mammary gland **(1pt)** : Approximately 20% of the mammary gland is replaced by discrete, non-confluent abscesses **(2pt)** which are centered on numerous colonies of 1-2um basophilic cocci **(1pt)** which are surrounding by a dense band of brightly eosinophilic proteinaceous material **(1pt)** (Splendore Hoeppli) **(1pt)**. Surrounding these colonies are large numbers of viable and degenerate neutrophils **(1pt)** with moderate numbers of epithelioid macrophages **(1pt)**, rare multinucleated macrophages **(1pt)**, admixed with lesser numbers of lymphocytes **(1pt)** and plasma cells **(1pt)**, multifocal hemorrhage and surrounded by a capsule **(1pt)** composed of numerous concentric rings of collagen populated by plump fibroblasts`, congested capillaries, and moderate numbers of lymphocytes and plasma cells. There are lobules in various stages of abscessation, some with no Splendore-Heoppli material. Adjacent lobules are infiltrated by moderate numbers of lymphocytes and plasma cells. **(1pt)** Ducts are mildly ectatic and contain low number of macrophages and sloughed epithelial cells admixed with small amounts of cellular debris **(1pt)**.

MORPHOLOGIC DIAGNOSIS: Mammary gland: Mastitis, suppurative, multifocal, severe, with numerous cocci and Splendore-Hoeppli material **(3pt)**

CAUSE: *Staphylococcus aureus.* **(2pt)**

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

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Case 3. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Spleen: Over 50% of the splenic architecture, primarily corresponding to areas of white pulp **(1pt)** is effaced \by multiple coalescing foci of lytic necrosis **(2pt)**, up to 2 mm in diameter, that are composed of abundant eosinophilic cellular and karyorrhectic debris and variable amounts of eosinophilic finely beaded fibrillar material (fibrin) **(1pt)** admixed with moderate numbers of infiltrating macrophages **(1pt)**, fewer degenerate neutrophils **(1pt)**, lymphocytes, and hemorrhage. The remaining white pulp is moderately hypocellular. The red pulp is diffusely congested, and contains increased numbers of macrophages **(1pt)**, often in nodular aggregates which often display erythrophagocytosis, and a diffuse infiltrate of moderate numbers of neutrophils. Mesothelial cells lining the splenic capsule are plump and bulge from the surface (hypertrophy) **(1pt)**.

Lymph node: Expanding and replacing the cortex **(1pt)**, and extending into subcapsular sinuses, but largely sparing the medulla are multiple coalescing foci, up to 1 mm in diameter, that are composed of eosinophilic cellular and karyorrhectic debris (necrosis) **(1pt)** admixed with fibrin and hemorrhage rimmed by moderate numbers of macrophages. The little remaining cortex contains numerous necrotic lymphocytes and tangible body macrophages. **(1pt)** The necrosis extends into the adjacent perinodal adipose tissue. **(1pt)** Medullary and subcapsular sinuses are expanded by numerous foamy macrophages **(1pt)**, many with intracytoplasmic erythrocytes (erythrophagocytosis), and increased clear space (edema). Vessels are diffusely congested.

MORPHOLOGIC DIAGNOSIS: 1. Spleen: Splenitis, necrotizing, multifocal to coalescing, severe. **(1pt)**

2. Lymph node: Lymphadenitis, necrotizing, multifocal to coalescing, severe. **(2pt)**

CAUSE: *Francisella tularensis* **(3pt)**

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

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Case 4. Tissue from a horse

MICROSCOPIC DESCRIPTION:

Artery, mesenteric: Diffusely expanding and replacing the endothelium and internal elastic lamina **(1pt)** is a variably thick band of brightly eosinophilic granular to beaded polymerized fibrin **(1pt)** (thrombus) **(1pt)** admixed with high numbers of extravasated erythrocytes (hemorrhage) **(1pt)** plasma cells **(1pt)**, moderate numbers of eosinophils **(1pt)**, fewer neutrophils, lymphocytes, macrophages, hemorrhage, and abundant cellular and karyorrhectic debris (fibrinoid necrosis) **(2pt)**. This process multifocally expands the tunica media **(1pt)**, which is moderately thickened up to 4 times normal , and to a lesser extent, the adventitia **(1pt)**. The tunica media is also thickened by hyperplastic smooth muscle cells in haphazard array, as well as mature collagen **(1pt)**, throughout which are scattered plump fibroblasts. The inflammatory infiltrate extends in to th adjacent tunica adventitia in some areas, along with scattered hemorrhage. Within the thrombus are multiple cross and tangential sections of larval nematodes **(1pt)** up to 220 um in diameter with a smooth 6 um thick cuticle, platymyarian-meromyarian musculature, prominent lateral cords, pseudocoelom, and a large, central intestine lined by few multinucleated cells with a prominent brush border. **(2pt)**

MORPHOLOGIC DIAGNOSIS: Mesenteric artery: Arteritis, proliferative and necrotizing, transmural and circumferential, diffuse, severe, with numerous larval strongyles **(3pt.)**.

CAUSE: *Strongylus vulgaris* **(2pt)**

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