WSC 2016-2017, Conference 3

Case 1. Tissue from a chinchilla

MICROSCOPIC DESCRIPTION: Liver: Scattered randomly **(1pt.)** throughout the section are multifocal to coalescing **(1pt.)** areas of lytic necrosis **(2pt.)** in which hepatocyte architecture is lost, and the area is infiltrated by numerous degenerate neutrophils **(1pt.)** admixed with cellular debris and brightly eosinophilic fibrin **(1pt.)** Hepatocytes adjacent to these foci are mildly swollen and contain one to multiple discrete lipid vacuoles **(1pt.)** within their cytoplasm and nuclei are shrunken, with clumped chromatin adjacent to the nuclear membrane (degeneration) **(1pt.)**. Rarely, 1x3um bacilli can be visualized both intra- and extracellularly **(2pt.)**. There are few lymphocytes and plasma cells within portal areas, and scattered islands of extramedullary hematopoiesis **(1pt.)** within the parenchyma. Throughout the section, Kupffer cells are mildly hypertrophic and sinusoids contain increased numbers of circulating neutrophils and histiocytes. **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing, random, multifocal, moderate, with intra- and extracellular bacilli. **(4pt.)**

CAUSE: *Listeria monocytogenes* **(3pt.)**

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

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Case 2. Tissue from a calf

MICROSCOPIC DESCRIPTION:

Lung: Alveoli are diffusely expanded **(1 pt.)** by congestion, fibrin, and edema, as well as increased numbers of circulating neutrophils and fewer macrophages and patchy to diffuse type II pneumocyte hyperplasia **(1 pt.)**. Septa are occasionally discontinuous in alveoli which contain hemorrhage and fibrin (septal necrosis) **(1 pt.)**. Alveolar septa diffusely contain moderate numbers of foamy macrophages and fewer neutrophils, **(1 pt.)** admixed with polymerized fibrin, edema fluid, hemorrhage, and cellular debris. Multifocally, viral syncytia are present within alveolar lumina and alveolar septa. low numbers of Type II pneumocytes **(1 pt.)** as well as fewer alveolar macrophages **(1 pt.)** contain numerous hyperchromatic nuclei (up to thirty) which are interpreted as viral syncytia. **(1 pt.)** The cytoplasm of viral syncytial cells occasionally contains one or more irregularly shaped homogenous eosinophilic viral syncytia ranging up to 2x6um in size. **(1pt.)** Airways of all sizes are filled with large numbers of neutrophils admixed with fewer macrophages and abundant cellular debris. **(1 pt.)** Lining epithelium is seqmentally necrotic, and areas are either lined by attenuated epithelium, which occasional attempt at regeneration characterized by hypertrophy or piling up. **(1 pt.)** Viral syncytia are also present rarely within airway epithelium as well and often contain viral intracytoplasmic inclusions. **(1 pt.)** Interlobular septa is diffusely moderately edematous and lymphatics are dilated. **(1 pt.)** Similar changes are present within the pleura.

MORPHOLOGIC DIAGNOSIS: 1. Lung: Pneumonia, interstitial, **(1 pt.)**, necrotizing and **(1 pt.)** and fibrinous, with type II pneumocyte hyperplasia and numerous viral syncytia and intracytoplasmic viral inclusions **(1 pt.)**.

2. Lung: Bronchopneumonia **(1 pt.)**, necrotizing and suppurative **(1 pt.)**, diffuse, moderate, with viral syncytia and intracytoplasmic viral inclusions**.**

or

Lung: Pneumonia, bronchointerstitial**((1 pt.)**, necrotizing **(1 pt.)** and fibrinosuppurative **(1 pt.)**, diffuse, severe, with viral syncytia **(1 pt.)** and intracytoplasmic viral inclusions. **(1 pt.)**

CAUSE: Bovine paramyxovirus (Bovine respiratory syncytial virus) with or without a secondary bacterial agen **(2 pt.)**

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

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Case 3. Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Kidney: Multifocally within both the cortex and medulla, and most prominently within at the corticomedullary junction **(1pt)**, the walls of small to medium sized arteries **(1pt)** are expanded by a circumferential accumulation of deeply eosinophilic hyaline protein **(1pt)** throughout which is scattered small amounts of cellular debris **(1pt)**, rare neutrophils and eosinophils and low numbers of extruded erythrocytes (fibrinoid change) **(1pt)** The media of affected vessels is often disorganized by variable amounts of smooth muscle hyperplasia and collagen deposition with distorts the normal architecture of the arterial wall **(1pt)**. Overlying endothelial cells are variable necrotic, lost, or enlarged (reactive, hypertrophy) **(1pt)**. The adventitia of affected vessels is often expanded **(1pt)** by variable combinations and concentrations of epithelioid macrophages **(1pt)**, lymphocytes **(1pt)**, and fewer neutrophils and plasma cells, enmeshed in mature collagen **(1pt)** which contains fibroblast nuclei. The adventitial changes are the most commonly found vascular change within the section, and within the cortex, extend into and expand the cortical interstitium Entrapped tubules are often dilated, lined by attenuated epithelium, and contain low to moderate numbers of degenerate neutrophils and sloughed degenerate epithelium admixed with cellular debris within their lumina. **(1pt)** Rare multinucleated cells are present within tubular lumina. Scattered throughout the cortex, few tubules are dilated and contain protein casts. **(1pt)** There are occasional multinucleated cells within tubules **(1 pt.)**. Glomeruli display a mild hypercellularity and mild hypertrophy of the parietal epithelium.

MORPHOLOGIC DIAGNOSIS: Kidney, arteries: Arteritis, proliferative **(1pt)** and necrotizing **(1pt)**, multifocal severe, with fibrinoid change **(1pt)**.

NAME THE CONDITION: Polyarteritis nodosa **(2pt)**

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

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CASE 4. Tissue from a marmoset:

MICROSCOPIC DESCRIPTION: Colon **(1 pt.)**. There is diffuse and circumferential (**1pt.)** lytic necrosis (**1pt.)** of the superficial half (**1pt.)** of the colonic mucosa which is replaced by a well-demarcated fibrinonecrotic membrane **(1 pt.)** composed of abundant basophilic and eosinophilic cellular debris, numerous bacilli **(1 pt.)**, fibrin and hemorrhage, and low numbers of identifiable degenerate neutrophils. There is regional ulceration and necrosis which extends into the colonic glands **(1 pt.)**, which are diffusely ectatic and contain abundant cellular debris, degenerate neutrophils and sloughed necrotic epithelium, admixed with fibrin and hemorrhage. (crypt abscesses) **(1 pt.)**. Lining epithelium is variably swollen and vacuolated (degenerate), pyknotic or karyorrhectic (necrotic) or rarely attenuated with regenerative attempts. The lamina propria **(1 pt.)** is markedly edematous, widely separating glands, and contains dilated lymphatics, as well as infiltrates of low numbers of neutrophils among pre-existent lymphocytes and plasma cell populations. The submucosa is also markedly thickened by edema **(1 pt.)** and lymphatics are also markedly dilated in this area, as well as the underlying muscularis and serosa. The serosa is also markedly edematous. (**1pt.)**

MORPHOLOGIC DIAGNOSIS: Colon: Colitis, necrotizing **(1 pt.)**, diffuse, severe, with pseudomembrane formation **(1 pt.)** and severe edema. **(1 pt.)**

CAUSE: *Clostridium difficile* **(3 pt.) (***C. perfringens OK)*

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