

WSC 2011-2012, Conference 14

Case 1. Tissue from a deer.

MORPHOLOGIC DESCRIPTION: Heart: Multifocally, the coronary arterial mural architecture is lost, and the wall is markedly expanded **(1pt)** by various combinations and concentrations of viable and degenerate neutrophils **(1pt)**, macrophages, lymphocytes, plasma cells, admixed with abundant cellular debris **(1pt)**, hemorrhage and polymerized fibrin **(1pt)** (fibrinoid necrosis) **(2pt.)**, which often extends into the surrounding fibroadipose tissue **(1pt)**. The smooth muscle of the arterial wall is multifocally hyperplastic and disarrayed **(1pt)**, and is often replaced by plump fibroblasts **(1pt)** and mature collagen. The lumen of affected arteries contains and is occasionally occluded by lamellated adherent fibrin thrombi **(1pt)** with contains moderate numbers of degenerate neutrophils and cellular debris **(1pt)**. Remaining endothelial cells are markedly reactive **(1pt)** , assuming an almost columnar appearance. The cellular infiltrate occasionally extends through the adventitia into the surrounding myocardium **(1pt)**, especially within perivascular spaces, ad rarely, adjacent myocytes are hypereosinophilic with pyknotic nuclei (degeneration and necrosis). The epicardium contains low numbers of macrophages, neutrophils, admixed with hemorrhage, and there is mild serous atrophy of fat.

MICROSCOPIC DIAGNOSIS: Heart: Arteritis, necrotizing and proliferative, multifocal, severe, with thrombosis and mild multifocal myocarditis. **(3pt.)**

NAME THE DISEASE: Malignant catarrhal fever **(2pt.)**

CAUSE: Ovine herpesvirus 2 **(1pt.)**

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

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Case 2. Tissue from an elk.

MORPHOLOGIC DESCRIPTION: Cerebrum, diencephalon with lateral ventricle. Within the brainstem, there are multiple areas of necrosis **(1pt)** ranging up to 4mm composed of numerous widely spaced round to elliptical 4-20um **(1pt)** yeasts **(1pt)** with a 2um clear cell wall **(1pt)** surrounded by 10-20um clear capsule **(1pt)**, which rarely exhibit narrow-based budding. The encapsulated yeasts are surrounded by moderate numbers of macrophages **(1pt)** with range up to 30 um in diameter and often have abundant clear cytoplasmic vacuoles **(1pt)** which displace the hyperchromatic nucleus (Gitter cells) **(1pt)**, and are admixed with low numbers of astrocytes and microglia. Inflammatory foci are often subdivided by remaining vessels, wispy tendrils of collagen and protoplasmic astrocyte processes **(1pt)**. Immediately adjacent to these foci, neuropil is spongiotic, there are low numbers of dilated axons (spheroids) **(1pt)**, and increased numbers of glial cells (gliosis) **(1pt)**. Virchow-Robins spaces are mildly to moderately dilated (edema) **(1pt)**, and endothelial cells are reactive. The overlying meninges are also expanded by yeasts, foamy macrophages, lesser numbers of lymphocytes, rare plasma cells, and marked edema. **(1 pt)**

MICROSCOPIC DIAGNOSIS: Cerebrum, diencephalon: Meningoencephalitis, necrotizing and histiocytic, multifocal, severe with numerous encapsulated yeasts **(3pt)**

Cause: *Cryptococcus neoformans v. gatti* **(3pt)**

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

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Case 3. Tissue from a bird.

MORPHOLOGIC DESCRIPTION: Kidney: Multifocally, glomerular **(1pt)** and occasional interstitial **(1pt)** capillaries are expanded by large colonies of basophilic short bacilli **(2pt)**, which occasionally efface glomeruli. Within affected glomeruli, mesangial cells **(1pt)** often contain bacilli within their cytoplasm **(1pt)**. Glomerular changes include necrosis **(2pt)** affecting the mesangium as well as capillary loops, infiltration of low numbers of heterophils, aggregates of polymerized fibrin **(1pt)** within capillaries and in Bowman's space, and moderate hypertrophy of parietal epithelium **(1pt)**. Multifocally, tubules are lined by epithelium which is variably hypereosinophilic or pale, swollen, vacuolated, and bulging into the lumen (degeneration) **(1pt)**, or fragmented with pyknotic to karyorrhectic nuclei (necrosis) **(2pt)**, and tubular lumina contain fragmented necrotic epithelial cells and rare heterophils. Large vessels contain numerous histiocytes **(1pt)** which are often marginated, as well as moderate numbers of heterophils.

MICROSCOPIC DIAGNOSIS: Kidney: Glomerulitis and nephritis, necrotizing and histiocytic, multifocal moderate, with tubular necrosis and numerous intravascular bacterial colonies. **(3pt)**

CAUSE: *Eryipelothrix rhusiopathae* (OK, I'll take *Yersinia* sp., but it is not as vasculocentric). **(2pt)**

O/C: (1pt)

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Case 4. Tissue from a lemur.

MORPHOLOGIC DESCRIPTION: Lung. Effacing 60% of the section are numerous abutting fibrous cysts **(2pt)** composed of a 1-2mm thick walls of granulation tissue **(1pt)** which matures centripetally into fibrous connective tissue (1 pt.). The wall is multifocally lined by epithelioid macrophages **(1pt)** and contains aggregates of histiocytes, lymphocytes, eosinophils and fewer plasma cells which are also distributed diffusely in smaller numbers. **(1pt)** Within each cyst is are cross- and tangential sections viable and degenerating cysticerci **(1pt.)** which are composed of a central scolex with a thick serrated cuticle **(1pt)**, spongy body cavity **(1pt)**, numerous subcuticular somatic cell nuclei, numerous calcareous corpuscles **(1pt)**, rostellum with numerous birefringent hooklets (“armed rostellum”) **(1pt)**, invaginated within a 10um bladder wall. In some of the cysts, the cysticerci are admixed by aggregates of macrophages, neutrophils, and fewer eosinophils admixed with cellular debris **(1pt)**. The adjacent lung contains small aggregates of eosinophils and foamy macrophages randomly scattered within alveoli **(1pt)** and slightly increased amounts of bronchiolar-associated lymphoid tissue. **(1pt)**.

MICROSCOPIC DIAGNOSIS: Lung: Multiple cysticerci with fibrosis and mild eosinophilic and histiocytic pneumonia. **(3pt)**

CAUSE: Taenia crassiceps (or Taenia solium or saginata ok)**(2pt)**

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

NOTE: There is some significant slide variation – a second section is out there, which has cestodes within the airways and a much more profound pneumonia.