

WSC 2013-2014, Conference 17

Case 1. Tissue from a ram.

**MICROSCOPIC DESCRIPTION:** Heart: Within the myocardium, there are multifocal to coalescing areas of coagulative necrosis **(1pt.)** of myocytes, which is surrounded and infiltrated by a thick band **(1pt.)** of degenerate neutrophils **(1pt.)** admixed with cellular debris **(1pt.)**. At the periphery of the lesion, the infiltrate separates and surrounds both necrotic myocytes which are shrunken, occasionally fragmented with brightly eosinophilic cytoplasm and loss of cross striations **(2pt.)**, and at the most peripheral areas, degenerate **(1pt.)** (swollen and pale). Myofibers are further separated by hemorrhage, fibrin, and edema **(1pt.)**. One area of necrosis contains a large coronary arteriole **(1pt.)** whose intima and media is markedly expanded **(1pt.)** and the lumen is narrowed by abundant fibrin containing numerous degenerate neutrophils often in a linear appearance (lines of Zahn) **(1pt.)**, which extend into the arterial wall (arteritis) **(2pt.)**. Both within the thrombus and the arterial wall, are numerous colonies of 2-4um rod-shaped bacilli **(1pt.)**. Scattered throughout the myocardium, rare myocytes are expanded by numerous intracytoplasmic 2-4um banana-shaped zoites.

**MORPHOLOGIC DIAGNOSIS:** Myocardium: Myocarditis, necrotizing, multifocal to coalescing, moderate with colonies of bacilli. **(3pt.)**

**CAUSE:** *Clostridium perfringens*, other *Clostridium species*, *Histophilus somni* **(2pt.)**  
*Sarcocystis sp*

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

(Note: Due to the whole silly sectioning thing, not all sections have the arteritis which is the coolest part of the slide.)

WSC 2013-2014, Conference 17

Case 2. Tissue from a rhesus monkey.

**MICROSCOPIC DESCRIPTION:** Heart: Diffusely and transmurally, cardiac myocytes are separated, surrounded, and occasionally replaced by high numbers of lymphocytes **(1pt.)**, plasma cells **(1pt.)**, and macrophages **(1pt.)** and fewer neutrophils **(1pt.)**. In infiltrated areas of myocardium, cardiac myocytes are shrunken, angulated with pyknosis or karyolysis, loss of cross striations and a hypereosinophilic often fragmented sarcoplasm **(2pt.)** (necrosis) **(1pt.)**. There is mild multifocal edema. Multifocally, individual myofibers contain variably sized, intracytoplasmic **(1pt.)** oval to elongate pseudocysts (up to 60 x 125um) **(1pt.)**, with numerous 2-4 um round to oval protozoal amastigotes **(2pt.)** with a distinct basophilic nucleus and a rod-shaped kinetoplast **(1pt.)** oriented parallel to the nucleus. The endocardium and epicardium have similar, but less severe, changes.

**MORPHOLOGIC DIAGNOSIS:** Heart: Myocarditis, necrotizing and subacute, diffuse, marked, with numerous intramyocytic protozoal amastigotes. **(4pt.)**

**CAUSE:** *Trypanosoma cruzi* **(3pt.)**

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

WSC 2013-2014, Conference 17

Case 3. Tissue from an ox.

**MICROSCOPIC DESCRIPTION:** Kidney: Diffusely, the renal pelvis and inner medulla has lost differential staining and nuclei are pyknotic to karyorrhectic (coagulative necrosis) **(1pt.)**. Scattered throughout this area, there are extensive areas of lytic necrosis **(1pt.)** which are infiltrated by large numbers of degenerate neutrophils **(1pt.)** admixed with cellular debris, which efface pre-existent architecture. Areas of lytic necrosis also contain large colonies **(1pt.)** of 1-2um rod-shaped bacilli **(1pt.)**. Within the more superficial areas of the medulla, there is moderate loss **(1pt.)** of tubules, and the interstitium is expanded by large amounts of collagen **(1pt.)** which contains low to moderate numbers of lymphocytes, plasma cells, and neutrophils. **(1pt.)** Remaining tubules are moderately to markedly ectatic **(1pt.)**, and lined by swollen epithelium with granular cytoplasm (degenerate) **(1pt.)** as well as brightly eosinophilic and shrunken epithelium with karyorrhectic nuclei (necrosis) **(1pt.)**. Lumina are filled with brightly eosinophilic protein admixed with necrotic epithelial cells, neutrophils, and cellular debris, admixed with amorphous globules of basophilic DNA matrix. **(1pt.)** Similar changes are present within the cortex, with increased numbers of a similar population of inflammatory cells and more remaining tubules. Glomeruli are mildly hypercellular. Multifocally, rare proximal convoluted tubules contain anisotropic sheaf-like crystals which occasionally result in necrosis of tubular epithelium. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** 1. Kidney: Pyelonephritis, suppurative, chronic, diffuse, moderate to severe, with large colonies of bacilli. **(3pt.)**

2. Kidney, proximal convoluted tubules: Oxalate crystals, multiple. **(1pt.)**

**CAUSE:** *Corynebacterium renale* **(2pt.)**

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

WSC 2013-2014, Conference 17

Case 4. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, alveolar septa are diffusely lined by plump cuboidal pneumocytes **(1pt.)** (type II pneumocyte hyperplasia) **(1pt.)** and expanded to up to 50 um **(1pt.)** by variable combinations and concentrations of lymphocytes **(1pt.)**, macrophages **(1pt.)**, plasma cells **(1pt.)**, edema, small numbers of plump fibroblasts and moderate amounts of mature collagen **(1pt.)**, and they. Bronchial, bronchiolar and alveolar lumina **(1pt.)** are filled with variable combinations and concentrations of eosinophilic proteinaceous fluid **(1pt.)**, mucin, degenerate neutrophils and alveolar macrophages admixed with cellular debris. There is marked hyperplasia of smooth muscle surrounding terminal bronchioles**(1pt.)**. Multifocally, throughout the section, within alveolar septa, and in peribronchiolar areas, there are aggregates of low to moderate numbers of lymphocytes and plasma cells **(1pt.)** admixed with lesser numbers of macrophages and neutrophils. Multifocally, the interlobular septa and pleura are expanded up to two times normal by edema **(1pt.)**, especially in periarteriolar areas, low numbers of lymphocytes, macrophages, and neutrophils with small amounts of fibrin. Scattered throughout the sections are low numbers of metastrongyle larvae **(1pt.)** measuring 10-15um in diameter, occasionally surrounded by a rim of epithelioid macrophages **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: 1. Lung: Pneumonia, interstitial, lymphohistiocytic, chronic, diffuse, severe, with marked type II pneumocytes hyperplasia. **(3pt.)**

2. Lung, alveoli: Trichostrongyle larvae, multiple, with granulomaouts inflammation.

CAUSE: Caprine lentivirus (Caprine arthritis and encephalitis virus) **(2pt.)**

*Muellerius capillaris* or *Protostrongylus rufescens* or *stilesi* **(1pt.)**

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

