

WSC 2020-2021

Conference 19, Case 1.

Tissue from a red kangaroo.

MICROSCOPIC DESCRIPTION: Heart, myocardium: Scattered randomly through the myocardium , and most prominently within papillary muscles **(1pt.)**, bundles of cardiomyocytes exhibit one or more of the following signs: shrinkage, fragmentation, hypereosinophilia , loss of cross striations **(1pt.)**, vacuolation, formation of contraction bands, and pyknotic to karyorrhectic nuclei **(1pt.)** (coagulative necrosis). **(1pt.)** Between the chronic cardiomyocytes, there is hemorrhage **(1pt.)**, edema, fibrin deposition, infiltration of low to moderate numbers of histiocytes and fewer neutrophils, and proliferation of cardiac interstitial cells. Multifocally, hemorrhage extends into the collagen anchoring chorda tendinae as well as the epi- and endocardium and epicardial fat. **(1pt.)**

Liver: Subcapsular hepatocytes, comprising about 10% of the section, exhibit confluent and massive necrosis. **(1pt.)** Hepatocytes are individualized, rounded up, with abundant granular brightly eosinophilic cytoplasm and pyknotic or missing nuclei (necrosis). **(1pt.)** In this area, hepatocytes are separated by abundant hemorrhage and polymerized fibrin, and there are low numbers of infiltrating neutrophils as well as hypertrophic Kupffer cell nuclei. In adjacent unaffected areas, centrilobular and midzonal hepatocytes are swollen with loss of apparent lobular architecture and their cytoplasm contains numerous multiple clear discrete vacuoles (lipid). **(1pt.)** Periportal hepatocytes contain few vacuoles, but are individualized. There is marked congestion of sublobular vessels , which often contain nonocclusive fibrin thrombi.

Kidney: Mild to moderate autolysis is present in this slide. Approximately 25% of the tubules are devoid of epithelium and or lined by markedly attenuated epithelium with prominent nuclei (tubular necrosis). **(1pt.)** These tubules contain abundant eosinophilic cellular debris, and occasionally small amounts of hemorrhage or free myoglobin. **(1pt.)** (Many tubules contain epithelial cells which are pyknotic or detached, and may represent necrosis, but the level of autolysis in the sample makes determination of the degree of necrosis in these tubules difficult.) There is diffuse severe interstitial congestion and multifocal interstitial hemorrhage.

MORPHOLOGIC DIAGNOSIS: 1. Heart, myocardium: Coagulative necrosis **(2pt.)**, multifocal to coalescing, with hemorrhage.

2. Liver, hepatocytes: Coagulative necrosis **(1pt.)**, subcapsular, massive **(1pt.)**, focally extensive, with diffuse hepatocellular lipidosis **(1pt.)**.

3. Kidney: Acute tubular necrosis **(1pt.)**, multifocal to coalescing, with cellular and erythrocytic casts. **(1pt.)**

CAUSE: Bee envenomation **(1pt.)**

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

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Conference 18 Case 2.

Tissue from a hedgehog.

MICROSCOPIC DESCRIPTION: Spleen: Expanding the red pulp **(1pt.)**, and largely effacing the lymphoid tissue, there is a poorly demarcated, infiltrative, unencapsulated, densely nodular neoplasm **(1pt.)**. The neoplasm is composed of sheets **(1pt.)** of neoplastic eosinophils **(1pt.)** on a pre-existent stroma **(1pt.)**. Neoplastic eosinophils have distinct cell borders with large numbers of brightly eosinophilic cytoplasmic granules. **(1pt.)** Nuclei are peripheral, and range from round to bilobed. **(1pt.)** Mitotic figures average 20 per 2.37 mm² area. **(1pt.)** There are large numbers of apoptotic cells as well as extensive areas of lytic necrosis of neoplastic eosinophils **(1pt.)**, in which effete neoplastic eosinophils are admixed with loose granules and cellular debris. Neoplastic eosinophils multifocally infiltrate splenic trabeculae and walls of splenic arterioles. **(1pt.)** Scattered throughout the neoplasm are individual and large aggregates of epithelioid macrophages **(1pt.)** and fewer foreign body-type macrophages **(1pt.)** ranging up to 40 microns in diameter which contain large numbers of basophilic rods **(1pt.)** within their cytoplasm. Also scattered throughout the neoplasm are islands of erythrocytic precursors, fewer leukocytic precursors, and scattered megakaryocytes (extramedullary hematopoiesis). **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Spleen: Eosinophilic leukemia (chloroleukemia). **(2pt.)**

2. Spleen: Splenitis, granulomatous **(1pt.)**, multifocal, to coalescing, with numerous intrahistiocytic bacilli. **(1pt.)**

CAUSE: *Mycobacterium* sp. (non-tuberculous) **(1pt.)**

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

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Conference 19, Case 3.

Tissue from a mink.

MICROSCOPIC DESCRIPTION. Haired skin: Multifocally, numerous hair shafts **(1pt.)** within the section are infiltrated by numerous 2-3um **(1pt.)** round, basophilic arthrospores **(1pt.)** and hyphae **(1pt.)** within the outer keratin layer and often within the hair bulb (endothrix) **(1pt.)**, as well as external to the hair shaft (ectothrix) **(1pt.)**. Many of the follicles are surrounded, infiltrated (all layers) **(1pt.)**, and often effaced **(1pt.)** by large numbers of neutrophils **(1pt.)** and fewer macrophages which are admixed with abundant cellular debris. **(1pt.)** Free fragmented hair shafts, keratin debris, and ectospores are admixed with suppurative inflammation that extends into the surrounding adnexa and dermis **(1pt.)** (furunculosis). **(1pt.)** There are alternating layers of keratin and necrotic neutrophils (pustules) **(1pt.)** at follicular ostia **(1pt.)**, mild diffuse orthokeratotic hyperkeratosis **(1pt.)**, and low numbers of neutrophils, macrophages, and lymphocytes in perivascular area of the superficial dermis. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Haired skin: Dermatitis, folliculitis **(1pt.)**, and furunculosis **(1pt.)**, suppurative **(1pt.)**, multifocal, severe, with numerous endothrix and ectothrix arthrospores **(1pt.)** and hyphae **(1pt.)**

(O/C)- (1pt.)

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Conference 19, Case 4.

Tissue from a fox.

MICROSCOPIC DESCRIPTION Lung: Three sections of lung are presented for examination. In all sections, 50% or more of the section is effaced by large areas of inflammation and/or edema affecting both alveoli and airways. Alveoli are filled and alveolar architecture is multifocally effaced by varying combinations and concentrations of viable and necrotic neutrophils **(1pt)**, foamy and debris-laden macrophages **(1pt)**, fewer lymphocytes and plasma cells, edema **(1pt)**, multifocal hemorrhage and fibrin and abundant cellular debris. Rare multinucleated macrophages are also present throughout the section. Within alveoli, there are scattered cross sections of curved metastrongyle larvae **(1pt)** measuring 15 microns in diameter with a cuticle and numerous somatic nuclei. Additionally, embryonated aphasmid eggs **(1pt)** measuring up to 50 microns by 30 microns with a thin 4um hyaline shell and bipolar plugs **(1pt)** are scattered individually throughout the sections. Multifocally, alveolar septa are congested and expanded by increased clear space (edema) which fills adjacent alveoli, eosinophilic fibrillar to beaded material (fibrin), and moderate numbers of previously described inflammatory cells. Diffusely, bronchioles are filled with a similar cellular exudate **(1pt)**, cellular debris, and mucin and bronchiolar epithelium is markedly hyperplastic **(1pt)**, polygonal, and piled up to 5 layers deep, as well as extending into and lining adjacent exudate-filled alveoli. There is mild multifocal bronchiolar smooth muscle hyperplasia. The inflammatory exudate refluxes into bronchi **(1pt)** whose epithelium is also mildly hyperplastic, and small numbers of neutrophils infiltrate the epithelium. In one section, a bronchiole contains several cross-sections of adult male and female **(1pt)** metastrongyle **(1pt)** nematodes. These adult nematodes are 150-275 um in diameter **(1pt)** in diameter and have a 5-10 um thick outer cuticle with small ridges **(1pt)**, a pseudocoelom lined by coelomyarian-polymyarian musculature **(1pt)** and lateral cords, a large intestine lined by few uninucleate cells, an ovary, and a paired uterus contain numerous morulated and larvated eggs. In one section, within the bronchiolar mucosa, there are cross sections of an 85um diameter aphasmid adult with a thin cuticle, pseudocoelom, coelomyarian polymyarian musculature, an esophagus surrounded by a stichosome, and cross sections of testis **(1pt)**. There is marked perivascular edema and mild hemorrhage with increased clear space and dilated lymphatics.

MORPHOLOGIC DIAGNOSIS: Lung: Bronchopneumonia **(1pt)**, suppurative **(1pt)** and histiocytic, chronic, multifocal to coalescing, severe, with intrabronchiolar metastrongyle adults, intramucosal aphasmid adults **(1pt)** and intra-alveolar metastrongyle larvae and aphasmid eggs. **(1pt)**

CAUSE: *Crenosoma vulpis* **(1pt)** *Eucoleus (Capillaria) aerophila* **(1pt)**