

WSC 2018-2019 Conference 15.

Case 1. Tissue from a rhesus macaque.

**MICROSCOPIC DESCRIPTION:** Heart: The epicardial fat **(1pt.)**, and to a lesser extent the epicardium and myocardium **(1pt.)** of the base of the right atrium and dorsal right ventricle is infiltrated by moderate numbers of macrophages **(1pt.)** and fewer neutrophils **(1pt.)**, lymphocytes and plasma cells. **(1pt.)** Throughout the inflamed areas both extracellularly **(1pt.)** as well as within the cytoplasm of macrophages **(1pt.)** are numerous 2x4um elliptical diplomonads (protozoa OK) **(2pt.)** which are often surrounded by a clear (artifactual) halo. Scattered throughout the pericardial fat, there are multifocal areas in which adipocytes are shrunken (atrophy), hyalinized (necrosis) or replaced by inflammatory cells.) **(1pt.)** The epicardium is multifocally covered by a 10-15um layer of polymerized fibrin **(1pt.)** which contains small numbers of macrophages, neutrophils, and proliferating capillary buds, and is itself expanded by inflammatory cells as previously described, edema, fibroblasts, and capillary buds. **(1pt.)** There is multifocal mesothelial hyperplasia. In areas of myocardial inflammation, rare cardiomyocytes are slightly shrunken and eosinophilic (degeneration). **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Heart: Epicarditis and steatitis, **(1pt.)** histiocytic and neutrophilic, **(1pt.)**, multifocal to coalescing, marked with mild myocarditis and endocarditis **(1pt.)** and numerous intrahistiocytic and extracellular protozoa. **(1pt.)**

**CAUSE:** *Spironucleus* sp. **(2pt.)**

**NAME A PREDISPOSING CONDITION:** Immunosuppression (this infection has been only identified in lentivirus-infected or irradiated macaques. **(1pt.)**

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

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Case 2. Tissue from a rat.

(This is definitely NOT a descriptive slide, or as they say in the movies “Nothing so see here, move along...”)

**MICROSCOPIC DESCRIPTION:** Globe. There is a segmental 1.4mm area within the central retina in which there is almost total loss of the outer nuclear layer and photoreceptor layer. The inner nuclear layer is directly apposed to the retinal pigmented epithelium. That is it and any more is overinterpretation.

**MORPHOLOGIC DIAGNOSIS:** Retina: Degeneration of the outer nuclear and photoreceptor layer, focal, severe.

Case 3. Tissue from a rat.

**MICROSCOPIC DESCRIPTION:** Kidney: Tubules within the distal cortex **(1pt)** and both stripes of the medulla **(1pt)** (but excluding tubules within the renal papilla) exhibit one or more of the following changes: tubular epithelial swelling (degeneration) **(1pt)**, nuclear pyknosis or karyorrhexis **(1pt)** and detachment from the basement membrane, tubular ectasia **(1pt)** with lining of the basement membrane by attenuated epithelium **(1pt)**, formation of cellular and granular casts **(1pt)** containing rare neutrophils, tubular epithelial hyperplasia with papillary projections **(1pt)** into the lumen, tubular epithelium with basophilic cytoplasm and vesicular nuclei and occasional mitotic figures **(1pt)** (regeneration) **(1pt)**, mineralization **(1pt)** of necrotic tubules and basement and multifocal marked peritubular fibrosis arranged in a concentric pattern that effaces the tubule. Multifocally intratubular crystalline mineral has breached the basement membrane. Within the cortex, proximal convoluted tubules (portions P1 and P2) are largely intact, but exhibit rare tubular swelling, limited necrosis, and rare mitoses. **(1pt)** In areas of tubular necrosis, the interstitium is mildly to moderately expanded by low to moderate numbers of lymphocytes, macrophages **(1pt)**, neutrophils **(1pt)**, and rare multinucleated giant cell macrophages **(1pt)** admixed within a background of increased collagen and plump fibroblasts. **(1pt)** In the deep medulla and renal papilla, tubules are often mildly ectatic and contain eosinophilic protein, aggregates of neutrophils, or a combination of both. **(1pt)**

**MORPHOLOGIC DIAGNOSIS:** Kidney, distal convoluted tubules and collecting ducts: Tubular degeneration, necrosis and regeneration **(1pt)** diffuse, severe, with granulomatous **(1pt)** tubular interstitial nephritis, rare intratubular crystals, and marked tubular mineralization

**CAUSE:** Lots of stuff can do this! This is alloxan, but I will also take acetaminophen, aminoglycoside, furans, ochratoxin) **(1pt)**

Case 4. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Tongue: The lingual submucosa is effaced by multifocal to coalescing foci of granulomatous inflammation **(1pt.)** which are centered on fragments of birefringent plant material **(2pt.)** which have a consistent diameter of 60um and are up to 575um in length **(1pt.)** and embedded in a bed of granulation tissue **(2pt.)**. Plant fragments are surrounded by numerous degenerate neutrophils **(1pt.)** and fewer eosinophils admixed with abundant cellular debris and granular eosinophilic protein (a complex of fibrin and likely Ag-Ab complexes). **(1pt.)**. Peripherally to this, there are up to 5-6 layers of epithelioid macrophages **(1pt.)**, numerous neutrophils and fewer lymphocytes and plasma cells **(1pt.)** enmeshed in small amounts of haphazardly arranged to lamellar collagen. **(1pt.)** The surrounding edematous granulation tissue contains numerous vessels lined by plump reactive endothelium **(1pt.)** whose lumen often contains numerous paved neutrophils and eosinophils. Fibrous connective tissue separates and surrounds markedly atrophic skeletal muscle fibers **(1pt.)** throughout which are scattered low to moderate numbers of lymphocytes, plasma cells, neutrophils and histiocytes, often in perivascular locations. The overlying mucosa is 70% ulcerated **(1pt.)** and replaced by variable amounts of necrotic debris, hemorrhage, fibrin, and exfoliating inflammatory cells and mucosal epithelium. Remaining epithelium is hyperplastic **(1pt.)** with long downward anastomosing cords of epithelium multifocally infiltrated by moderate numbers of neutrophils, often in aggregates, and multifocal intercellular edema and single cell necrosis. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Tongue: Glossitis, pyogranulomatous **(1pt.)** and ulcerative, multifocal to coalescing, chronic, with granulation tissue **(1pt.)** and abundant plant material. **(1pt.)**

O/C – **(1pt.)**