

WSC 2014-2015, Conference 7

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Kidney: Within the cortex **(1pt)** and extending into the medulla are numerous dilated endothelial-lined **(1pt)** thin-walled blood-filled **(1pt)** vessels which range up to 5mm in diameter **(1pt)**. Occasionally, vessels contain organizing fibrin thrombi **(2pt)** with lines of Zahn. Vessels are surrounded by dense bands of fibrous connective tissue **(1pt)**, which contains variable combinations and concentrations of lymphocytes **(1pt)**, plasma cells **(1pt)**, histiocytes, admixed with hemorrhage. In areas of hemorrhage, there are moderate to large numbers of hemosiderin laden macrophages **(1pt)**. In areas of vascular proliferation, there is marked loss of renal parenchyma **(1pt)**. The interstitium in these areas is expanded by moderate amounts of fibrous connective tissue throughout which are scattered aggregates of low to moderate numbers of lymphocytes and plasma cells. **(1pt)** Entrapped tubules are shrunken and atrophic **(1pt)**, with thickened basement membranes and swollen vacuolated epithelium (degeneration). Glomeruli are occasionally shrunken (atrophic) with thickened Bowman's capsule, and hypertrophy of parietal epithelium. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Kidney, cortex and medulla: Telangiectasia, multifocal, severe, with thrombosis. **(3pt)**

Kidney: Nephritis, interstitial, chronic, diffuse, mild to moderate. **(2pt)**

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

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Case 2. Tissue from a dog

MICROSCOPIC DESCRIPTION: Kidney: Scattered throughout the cortex and medulla (often in linear aggregates in cortex), the interstitium is moderately expanded and parenchyma is effaced by numerous plasma cells **(1 pt.)** and histiocytes **(1 pt.)**, and fewer lymphocytes **(1 pt.)**. Within macrophages and rarely extracellularly, there are numerous 5-15um diameter **(1 pt.)** round to oval thin-walled sporangia **(1 pt.)** with flocculent amphophilic centers that contain 2 to 4, distinct, basophilic, wedge shaped endospores **(1 pt.)** surrounded by a clear halo (algae) **(1 pt.)**. Glomeruli within affected areas have one or more of the following changes: increased basement membrane within capillary tufts, **(1 pt.)** mild hypercellularity, moderate hyperplasia of the parietal epithelium, thickening of Bowman's capsule, and occasionally, tufts are segmentally thickened by histiocytes containing algae. Multifocally, there is tubular atrophy, loss and rare tubular necrosis **(1 pt.)**, characterized by epithelial loss, pyknosis, and intraluminal cellular and karyorrhectic debris. The walls of small vessels are occasionally disrupted by infiltrating macrophages, with extrusion of bright pink polymerized fibrin into the surrounding interstitium (vasculitis) **(2 pt.)**.

Liver: Multifocally, aggregates of small numbers of hepatocytes within centrilobular and midzonal areas are swollen with numerous coalescing clear vacuoles giving the cytoplasm a lacy appearance (glycogen). **(1 pt.)** Fewer hepatocytes, in a random pattern, contain discrete intracytoplasmic granules (lipid). Kupffer cells are often contain a brown granular pigment. There are low to moderate numbers of lymphocytes and plasma cells within portal areas, and small amounts of polymerized fibrin within hepatic veins.

MORPHOLOGIC DIAGNOSIS: 1. Kidney: Nephritis, granulomatous, multifocal, moderate, with mild membranoproliferative glomerulonephritis, vasculitis, and numerous intrahistiocytic and extracellular endosporulating algaalgae. **(2 pt.)**

2. Liver, hepatocytes: Glycogenosis, multifocal, mild. **(1 pt.)**

CAUSE: *Prototheca* sp., steroid hepatopathy. **(3 pt.)**

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

Tissue from a pig.

MICROSCOPIC DESCRIPTION: Liver Centrilobular and midzonal **(1pt.)** hepatocytes within each lobule are brightly eosinophilic with granular cytoplasm, loss of nuclei, and a loss of differential staining **(1pt.)** (coalulative necrosis) **(2pt.)**. Hepatocellular architecture is largely preserved, sinusoids are often dilated and empty, and Kupffer cells are prominent. **(1pt.)** Variable amounts of hemorrhage **(1pt.)** are present within necrotic areas, ranging from filling the space of Disse, to diffuse hemorrhage which obscures underlying hepatic architecture. The cytoplasm of adjacent degenerating hepatocytes and viable periportal hepatocytes contains numerous discrete clear vacuoles (lipid) **(1pt.)**. There are increased numbers of mitotic figures within periportal hepatocytes. **(1pt.)** Portal areas are moderately expanded by edema **(1pt.)**, with dilated lymphatics and frequently contain low to moderate numbers of lymphocytes and plasma cells, with rare neutrophils. Similar changes are present within the periportal connective tissue. The overlying capsule is mildly undulant due to dilation of subcapsular lymphatics **(1pt.)**

Heart: There is multifocal and random necrosis **(1pt.)** of cardiomyocytes, which is characterized by one or more of the following changes: tinctorial changes ranging from pale cytoplasm to brightly eosinophilic, hyalinization **(1pt.)**, the presence of clear, variably-sized, often coalescing vacuoles, loss of cross-striations **(1pt.)**, hypertrophy and hyperplasia of satellite nuclei, and rarely, infiltrating macrophages.

MORPHOLOGIC DIAGNOSIS: 1. Liver: Necrosis, centrilobular and midzonal, with hemorrhage. **(2pt.)**

2. Heart, myocardium: Degeneration and necrosis, multifocal and random, acute. **(1pt.)**

CAUSE: Vitamin E/Selenium imbalance **(2pts)**

Name the condition: Hepatosis dietetica **(1pt.)**

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

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Case 4. Tissue from a piglet.

MICROSCOPIC DESCRIPTION:

Haired skin: The epidermis is covered by a thick layer of brightly eosinophilic **(1pt.)** cornified and nucleated **(1pt.)** squamous epithelial cells which range up to 150um thick **(1pt.)** (parakeratosis) **(3pt.)**. The parakeratotic layer is occasionally clefted and entraps hair, plant material, and numerous colonies of cocci as well as keratin debris. **(2pt.)** Cells of the stratum spinosum demonstrate profound intracellular swelling **(2pt.)**, there is no apparent stratum granulosum **(1pt.)**, and basal cells are mildly hyperplastic **(1pt.)**. There are focal areas of full thickness ulceration **(1pt.)** with marked congestion of superficial dermal vessels subjacent to them.

MORPHOLOGIC DIAGNOSIS: Haired skin: Parakeratosis, diffuse, moderate, with epidermal hyperplasia, acanthosis, and spongiosis. **(3pt.)**

NAME THE CONDITION: Ichthyosis congenita **(3pt.)**

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