

WSC 2018-2019 Conference 16.

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Liver: Diffusely throughout the section, hepatocytes are often mildly swollen with numerous discrete cytoplasmic lipid vacuoles **(1pt.)** (degeneration). **(1pt.)** Multifocally, there is loss of hepatocellular plate architecture with individual and small groups of hepatocytes exhibiting one or more of the following disassociation, individualization, rounding up **(1pt.)**, hypereosinophilia **(1pt.)**, and often nuclear pyknosis or karyorrhexis **(1pt.)** (necrosis) **(1pt.)**. Throughout the section, numerous hepatocytes **(1pt.)** (including degenerating and necrotic hepatocytes contain deeply eosinophilic, 4-6 um diameter **(1pt.)**, round to oval intranuclear **(1pt.)** viral inclusion **(1pt.)** bodies that are surrounded by a clear halo **(1pt.)**, marginate chromatin, and occasionally enlarge the nucleus. There are mildly increased numbers of neutrophils **(1pt.)** within sinusoids. Similar intranuclear inclusion bodies are frequently present in endothelial cells **(1pt.)** lining sinusoids and within portal vessels. Portal areas are often expanded by edema and contain low numbers of neutrophils. Lymphatics surrounding interlobular veins are markedly expanded (edema). **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing **(1pt.)**, diffuse, mild, with edema and numerous eosinophilic hepatocellular **(1pt.)** and endothelial **(1pt.)** intranuclear viral inclusion bodies **(1pt.)**.

ETIOLOGIC DIAGNOSIS: Adenoviral hepatitis **(1pt.)**

CAUSE: Canine adenovirus type 1 (CAV1) **(2pt.)**

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

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Case 2. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Liver: There is profound expansion of portal areas **(1pt.)** by mature fibrous connective tissue **(1pt.)** which bridges adjacent portal areas **(1pt.)**. Areas of bridging fibrosis often breach the limiting plate **(1pt.)**, compressing, separating and surrounding adjacent, often atrophic **(1pt.)** hepatocytes, and subdividing remaining hepatic lobules unevenly, and there is variable loss of periportal hepatocytes **(1pt.)**. Hepatocytes at the periphery of the remaining remodeled lobules contain large amounts of a coarsely clumped brown pigment **(1pt.)** (iron) **(2pt.)**, and similar cells are entrapped within adjacent mature fibrous connective tissue. Kupffer cells **(1pt.)** also contain abundant iron pigment, and (presumably) siderophages **(1pt.)** are present in large numbers within expanded portal areas as well as within fibrous bands. There is moderate biliary hyperplasia within portal areas **(1pt.)**. Multifocally, there are numerous dilated blood vessels **(1pt.)** within fibrous bands as well as in portal areas, and fewer number of dilated lymphatics **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Liver: Fibrosis, bridging, porta **(2pt.)** with marked portal hepatocellular and macrophage iron accumulation **(1pt.)**.

NAME THE CONDITION: Hemochromatosis. **(2pt.)**

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

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Case 3. Tissue from an ox

MICROSCOPIC DESCRIPTION: Liver: At one edge of the section, there is a focally extensive area 0.5 x 1cm of variably mature collagen which effaces hepatic parenchyma **(1pt)**. Within this area of fibrosis, there is a cross section of a larval trematode **(1pt)** which has a thick hyaline eosinophilic tegument **(1pt)** with spines, somatic cell nuclei subjacent to the tegument, spongy body cavity **(1pt)** without a pseudocoelom, oral and ventral suckers **(1pt)**, and numerous cross sections of intestine. (Note: vitellarian glands, gonads and eggs) are present within hermaphroditic adults). Also within this area are cross-sections of a tortuous hepatic arteriole which contains a lamellated fibrinocellular thrombus **(1pt)** as well as evidence of recanalization, **(1pt)** numerous ectatic bile ducts, dilated lymphatics, and a diffuse mild infiltrate of macrophages, lymphocytes and plasma cells, as well as fewer neutrophils and eosinophils with scattered hemorrhage. Areas of hemorrhage, abundant eosinophilic and basophilic cellular debris and large numbers of viable and degenerate neutrophils, macrophages, and eosinophils **(1pt)** are scattered randomly throughout the section (migration tracts) **(1pt)** which range up to 2mm in diameter. Within the adjacent hepatic parenchyma, portal areas are moderately to markedly expanded by mature collagen**(1pt)** and contain numerous profiles of proliferating bile ducts **(1pt)** and low to moderate numbers of lymphocytes and plasma cells and scattered hemorrhage. The collagen often breaches the limiting plate, entrapping and surrounding individual and small groups of atrophic hepatocytes **(1pt)**, and there is bridging portal fibrosis **(1pt)**. Multifocally, there is coagulative necrosis of centrilobular to midzonal necrosis within some lobules. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Liver: Fibrosis **(1pt)**, portal, bridging, diffuse, moderate to severe, with parasite migration tracts **(1pt)** and larval trematode parasite **(1pt)**.

2. Liver, centrilobular hepatocytes: Necrosis, multifocal. **(1pt)**

CAUSE: *Fasciola hepatica* **(2pt)** (the centrilobular coagulative necrosis may be shock-related as this animal was recumbent for 12 hours before euthanasia).

Case 4. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Liver: There are coalescing areas of coagulative and lytic necrosis which form a retiform pattern throughout the section. Within these areas, hepatocytes barely maintain lobular architecture and are swollen, hypereosinophilic, have lost differential staining, and have faded to pyknotic nuclei **(1pt)** (coagulative necrosis) **(1pt)** and are occasionally replaced with moderate amounts of cellular and nuclear debris and infiltrating, often degenerate neutrophils **(1pt)** (lytic necrosis) **(1pt)** and hemorrhage. Kupffer cells are hypertrophied within areas of necrosis. Central and sublobular veins often contain disassociated, necrotic hepatocytes. At the edges of necrotic foci, hepatocytes are mildly swollen and their cytoplasm contains low to moderate numbers of discrete lipid vacuoles (degeneration). Bile canaliculi are distended (cholestasis) **(1pt)**. Throughout the section, hepatocytes **(1pt)** and Kupffer cells **(1pt)** contain intracytoplasmic cysts which in turn contain numerous 2-3um round protozoal zoites **(1pt)** which are occasionally extracellular (in areas of necrosis). Randomly throughout the section, individual and small groups of hepatocytes are markedly swollen, with coalescing discrete clear vacuoles which do not peripheralize the nucleus **(1pt)** (glycogenosis) **(1pt)**. Portal areas often are infiltrated by low to moderate numbers of neutrophils **(1pt)**, contain low numbers of lymphocytes and plasma cells, and in areas of necrosis, are bordered by hypertrophic fibroblasts. Lymphatics within portal areas and around sublobular veins and beneath the hepatic capsule are markedly dilated (edema) **(1pt)**.

MORPHOLOGIC DIAGNOSIS: 1. Liver: Hepatitis, necrotizing **(1pt)**, random, multifocal to coalescing, moderate, with edema, and intrahepatocytic, intrahistiocytic, and extracellular protozoal zoites. **(2pt)**

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

NAME TWO CAUSES (or conditions): *Toxoplasma gondii* **(2pt)**; steroid hepatopathy **(1pt)**

O/C: (1pt)