

Case 1. Tissue from an ox.

MICROSCOPIC DESCRIPTION: Kidney: Multifocally surrounding cortical vessels **(1pt.)**, expanding the interstitium **(1pt.)**, and surrounding, separating and replacing tubules **(1pt.)** are numerous macrophages **(1pt.)** and eosinophils **(2pt.)**, fewer lymphocytes and plasma cells, which are admixed with low numbers of multinucleated macrophages **(2pt.)** and cellular debris. Within affected areas, remaining and or adjacent tubules are mildly ectatic, contain bright pink homogenous to granular protein **(1pt.)** within their lumens, and are lined by epithelial cells that are either swollen with vacuolated cytoplasm (degeneration) **(1pt.)**, or regionally, are shrunken with hypereosinophilic cytoplasm, pyknotic, and are often sloughed into the lumen (necrosis) **(1pt.)**. Areas of confluent necrosis of tubules are infiltrated by low numbers of neutrophils. There is diffuse mild swelling of tubular epithelium in the remainder of the cortex which often contains or multiple clear vacuoles **(1pt.)**. Glomerular tufts are hypercellular, primarily within the mesangium and often enlarged **(1pt.)**. Vessels within inflamed spaces contain markedly hypertrophic endothelium.

MORPHOLOGIC DIAGNOSIS: Kidney: Nephritis, granulomatous, multifocal to coalescing, moderate with multinucleated giant cell macrophages, and tubular degeneration and necrosis. **(3pt.)**

CAUSE: Hairy vetch toxicosis (citrus pulp or isobutane ok) **(3pt.)**

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

WSC 2015-2015, Conference 23

Case 2. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Liver: Diffusely, periportal, and to a lesser extent, midzonal sinusoids **(1pt)** are expanded and often effaced by a florid proliferation of bile ducts **(1pt)**, which are accompanied by small amounts of mature collagen **(1pt)** plump fibroblasts, and few neutrophils and lymphocytes. There is loss of normal hepatocellular architecture within this region, and hepatocytes are separated, surrounded and often replaced by proliferating bile ducts. **(1pt)** Hepatocytes are often enlarged up to 2-3 times normal **(1pt)**. Hepatocyte cytoplasm ranges from a lacy, pink, ground glass appearance (glycogenosis) **(1pt)** to microvacuolated (microvesicular steatosis) **(1pt)**, and both changes may be seen in the same hepatocyte. Many hepatocytes contain nuclei which are three times the size of surrounding cells with marginated chromatin and a prominent nucleolus (megalocytosis) **(2pt)**. Entrapped hepatocytes are shrunken (atrophic, and hypereosinophilic. Some hepatocytes contain large amounts of a granular brown pigment, and scattered macrophages within areas of biliary reduplication contain a similar pigment. **(1pt)** There are rare necrotic hepatocytes which are shrunken, hypereosinophilic and are occasionally surrounded by low numbers of neutrophils **(1pt)**. Hyperplastic nodules of hepatocytes are scattered throughout the section **(1pt)**, and the overlying capsule has an undulant appearance. Portal areas contain small numbers of lymphocytes and plasma cells and rare hemosiderin-laden macrophages, and portal lymphatics are moderately ectatic **(1pt)**.

MICROSCOPIC DIAGNOSIS: Liver: Biliary hyperplasia, portal and bridging, diffuse, severe, with hepatocellular anisocytosis and megalocytosis, necrosis, and nodular regenerative hyperplasia. **(3pt)**

CAUSE(S): Pyrollizidine alkaloid toxicosis **(3pt)**

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

WSC 2015-2015, Conference 23

Case 3. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, alveolar walls are necrotic **(1pt)**, and their outlines, while maintained **(1pt)**, are replaced by abundant eosinophilic and basophilic cellular debris **(1pt)**, capillary congestion **(1pt)**, edema, and fibrin **(1pt)**, and infiltrated by low to moderate numbers of heterophils **(1pt)**. The intervening alveolar spaces contains variable combinations and concentrations of of polymerized fibrin **(1pt)** (which occasionally forms hyaline membranes **(1pt)** that line discontinuous alveolar walls, edema fluid, extravasated red blood cells, cellular debris, and aggregates of degenerate heterophils **(1pt)**. Similar materials are refluxed into adjacent airways**(1pt)**, and airway epithelial cells are multifocally swollen and or necrotic **(1pt)**, with infiltration by low numbers of heterophils **(1pt)**. Multifocally, pulmonary vessels are surrounded by low to moderate numbers of degenerate heterophils and cellular debris. **(1pt)** There is moderate perivascular edema around pulmonary arterioles, and periarteriolar lymphatics are markedly distended with edema fluid and polymerized fibrin. **(1pt)** the pleura is moderately and multifocally expanded by small amounts of edema, hemorrhage, fibrin and aggregates of degenerate heterophils. Rare megakaryocytes are circulating within alveolar capillaries.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, interstitial, necrotizing, diffuse, severe, with multifocal hyaline membrane formation. **(3pt)**

CAUSE: Ricin toxicosis **(2pt)**

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

WSC 2015-2015, Conference 23

Case 4. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Liver: Diffusely, portal areas **(1pt)** are expanded by abundant fibrosis **(1pt)**, which occasionally bridges portal areas **(2pt)**. Within the fibrotic portal areas there are numerous variably-sized biliary duct profiles **(1pt)** which are surrounded by whirling collagen. Biliary epithelium is swollen and angular **(1pt)**, with a loss of polarity **(1pt)** and a moderate amount of finely granular eosinophilic cytoplasm, and lumens are often not visualized **(1pt)**. Biliary ductules are multifocally expanded or effaced by acicular clefts **(2pt)** which often transfix epithelial cells and extend into the adjacent fibrous connective tissue. Portal areas are infiltrated by low numbers of lymphocytes, histiocytes, and neutrophils **(1pt)**. At the edge of portal areas, fibrous connective tissue frequently surrounds, separates and individualizes periportal hepatocytes **(1pt)**. Hepatocytes are moderately swollen with accumulations of glycogen, clear lipid, or both within their cytoplasm. **(2pt)**

MORPHOLOGIC DIAGNOSIS: Liver: Fibrosis, portal and bridging, diffuse, moderate, with biliary ductular hyperplasia, hepatocellular degeneration, necrosis, and loss. **(3pt)**

CAUSE: *Tribulus terrestris* (Lecheguilla, Panicum OK) **(2pt)**

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