WSC 2009-2010, Conference 16, Case 1.

Tissue from a dog.

MICROSCOPIC DESCRIPTION: Lung: Multifocally, approximately 40% of the lung is replaced by multifocal to coalescing granulomas **(1 pt.)** composed of a central core of variable amounts of granular eosinophilic celllar debris, surrounded by numerous epithelioid macrophages **(1 pt.)** and foreign body macrophages, which are in turned surrounded by large numbers of lymphocytes and lesser plasma cells and concentric rings of fibrous connective tissue. **(1 pt.)** Occasionally, within the core of the granulomas, there are either cross sections of a curved metrastrongyle nematode larva measuring 15-20 um in diameter, or ovoid morulated or larvated eggs measuring up to 40-60 um in diameter **(1 pt.)**. Moderate numbers of lymphocytes, plasma cells and macrophages extend into the surrounding alveolar interstitium, along with aggregates of hemosiderin-laden macrophages. Multifocally, there is marked interstitial fibrosis, often effacing alveoli, and remaining alveoli contain variable combinations and concentrations of hemorrhage, fibrin, edema fluid, and increased numbers of alveolar macrophages. **(1 pt.)** Throughout the section, several pulmonary arteries contain fibrin thrombi **(1 pt.)** which are multifocally attached to the arterial wall Arterial walls are thickened by mature fibrous connective tissue **(1 pt.)** which focally effaces the tunica intima and media and occasionally forms villar proliferations **(1 pt.)**. There is multifocal neovascularization of the arterial wall in these areas, with infiltration of low to moderate numbers of lymphocytes and macrophages (proliferative endarteritis). Within several thrombosed arteries, there are cross sections of an adult filarid nematode up to 200um in diameter with a smooth cuticle, a pseudocoelom, inapparent lateral cords, an intestine and paired uteri. **(1 pt.)** Additionally, an adjacent thrombosed artery contains a second, smaller nematode approximately 80um in diameter with platymyarian musculature, a thick cuticle, and a large intestine composed of few multinucleate intestinal cells and a paired uterus. **(1 pt.)** Small arterioles are tortuous, and their walls are markedly thickened by fibrous connective tissue which effaces the tunica intima and media as well as thickened disorganized smooth muscle, and lumina are often recanalized. **(1 pt.)** There are low to moderate numbers of macrophages, lymphocytes, and few plasma cells in perivascular areas, as well as a few hemosiderin-laden macrophages. Some arterioles contain a cross section of a 4-8 um microfilaria. **(1 pt.)**

MICROSCOPIC DIAGNOSIS: 1. Lung: Pneumonia, granulomatous, multifocal to coalescing, moderate, with chronic lymphohistiocytic interstitial pneumonia and metastrongyle larva and eggs **(2 pt.)**

2. Lung, pulmonary arteries: Arteritis, proliferative, multifocal, severe, with thrombosis and mural hypertrophy, and intraluminal filarid adults and microfilaria. **(2 pt.)**

3. Lung, pulmonary artery: Adult metastrongyle parasite.

Cause: *Angiostrongylus vasorum, Dirofilaria immitis*. **(2 pt.)**

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

WSC 2009-2010. Conference 16, Case 2

Tissue from cat.

MICROSCOPIC DESCRIPTION: Small intestine (duodenum). Diffusely, there is marked blunting of mucosal villi **(1 pt.)**. Within the superficial and middle layers of the mucosa, there is marked crypt loss **(1 pt.)**and stromal collapse **(1 pt.)**. In this area, crypts are mildly dilated and lined by necrotic **(1 pt.)**epithelium, which is often sloughed into the lumen. The lamina propria **(1 pt.)** between necrotic crypts is expanded by low numbers of neutrophils and histiocytes, edema fluid, cellular debris, fibrin, and multifocal hemorrhage **(1 pt.).** There is multifocal individual cell necrosis within the deep crypts. **(1 pt.)** Occasionally, crypts are markedly dilated and lined by either necrotic or flattened, attenuated epithelial cells, and their lumina are filled with necrotic epithelial cells, rare neutrophils, and proteinaceous debris (crypt abscess) **(1 pt.)**. Remaining epithelial cells pile up, have large open-faced nuclei with prominent nucleoli, basophilic cytoplasm, and an increased mitotic rate (hyperplasia.) **(1 pt.)** There are moderate numbers of lymphocytes and histiocytes with fewer plasma cells within the submucosa and infiltrating between Brunner's glands. Multifocally within the submucosa, and rarely in the deep lamina propria, rare macrophages contain apicomplexan merozoites **(1 pt.)**which are irregularly round and measure up from 2-4 um in diameter **(1 pt.)**. There are moderate numbers of lymphocytes in the sumucosa of the pancreatic ducts at the papilla, and the mucosa of the pancreatic duct is autolytic.

Pancreas: Diffusely, islets of Langerhans **(1 pt.)** contain a variable amount of a birefringent, waxy, homogenous eosinophilic material which surrounds and occasionally replaces islet cells (amyloid.) **(1 pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Small intestine: Enteritis, necrotizing, diffuse, moderate to severe, with villar blunting, crypt hyperplasia, crypt abscesses, and occasional apicomplexan merozoites. **(3 pt.)**

2. Pancreas, islets of Langerhans: Amyloidosis, multifocal, moderate. **(1 pt.)**

CAUSE: Feline parvovirus, Toxoplasma gondii **(2 pt.)**

O/C – **(1 pt.)**

WSC 2009-2010, Conference 16, Case 3.

Tissue from an ox.

MICROSCOPIC DESCRIPTION: Liver: There is diffuse coagulative necrosis **(2 pt.)** of centrilobular **(2 pt.)** and midzonal **(2 pt.)** hepatocytes, characterized by maintenance of cord architecture and cell borders, hyalinized cytoplasm with a lack of differential staining, and pyknotic to karyorrhectic nuclei **(2 pt.)**. Within necrotic areas, there is infiltration of low numbers of neutrophils **(1 pt.)**, hypertrophy of Kuppfercells **(1 pt.)** , and minimal to mild congestion and hemorrhage. Surviving hepatocytes often contain a large eosiniophilic cytoplasmic globule (protein) **(1 pt.)**. There is mild biliary reduplication **(1 pt.)**.

MORPHOLOGIC DIAGNOSIS: Liver, hepatocellular: Necrosis, acute, centrilobular and midzonal, diffuse. **(3pt.)**

NAME THREE POSSIBLE CAUSES: Microcystin (blue-green algae toxicity), peracute massive aflatoxicosis or pyrollizidine alkaloid toxicity, gossypol toxicity. **(4pt.)**

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

WSC 2009-2010, Conference 16, Case 4.

Tissue from a dog.

MICROSCOPIC DESCRIPTION: Lung: Approximately 80% of the lung is composed of confluent areas of pyogranulomatous inflammation **(1 pt.)** which fills and occasionally effaces alveoli and bronchioles. Alveoli are filled by various combinations of concentrations of epithelioid macrophages **(1 pt.)**, viable and degenerate neutrophils **(1 pt.)**, multinucleated foreign body macrophages **(1 pt.)**, and lesser numbers of lymphocytes admixed with hemorrhage, fibrin, edema, and cellular debris **(1 pt.)**. In affected areas, alveoli are lined by type II pneumocytes **(1 pt.)** and the alveolar interstitium contains increased numbers of neutrophils, macrophages and fibrin **(1 pt.)**, as well as fibrous connective tissue **(1 pt.)**. Within macrophages and multinucleated giant cells **(1 pt.)**, there are numerous intracytoplasmic 10-15um **(1 pt.)** diameter round yeasts **(1 pt.)** with a 1-2 um wide refractile cell wall which rarely exhibit broad-based budding **(1 pt.)**.

MORPHOLOGIC DIAGNOSIS**:** Lung: Pneumonia, interstitial, pyogranulomatous, chronic, multifocal to coalescing, with numerous broad-based budding yeats, **(4 pt.)**

Cause: **(3 pt.)** Blastomyces dermatitidis

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