WSC 2011-2012. Conference 4.
Slide 1. Tissue from a non-human primate (sooty mangabey).

MICROSCOPIC DESCRIPTION: Aorta (or other great vessel)**:** The wall of the aorta is multifocally and transmurally expanded by a combination of necrosis **(1pt.)** and fibrosis **(1pt.)**. The intimal endothelium is multifocally lost **(1pt.)**and the tunica intima and superficial tunica media is expanded by moderate numbers of plasma cells **(1pt.)**, and lesser lymphocytes **(1pt.)**, neutrophils, and histiocytes, fibroblasts, and polymerized fibrin **(1pt.)**, admixed with necrotic debris. The subjacent tunica media is multifocally effaced by a basophilic coagulum of abundant cellular debris, large numbers of viable and degenerate eosinophils **(1pt.)**and macrophages, and lesser numbers of neutrophils, lymphocytes, and plasma cells, which are admixed edema, and fibrin and rare multinucleated macrophages of the foreign body type **(1pt.)**. Within these areas, there are numerous fungal hyphae **(1pt.)** measuring up to 8-10 um in diameter, with non-parallel walls, non-dichotomous branching, and few to no septae **(2pt.)**. The adjacent tunica media is expanded by variable amounts of basophilic ground substance**(1pt.)**, smooth muscle proliferation **(1pt.)** and disarray, and low number of mature fibroblasts with collagen, and small vessels are often surrounded by low numbers of plasma cells, lymphocytes, and macrophages. The tunica adventitia is expanded by multiple aggregates **(1pt.)** of lymphocytes, and a diffuse infiltrate of low numbers of lymphocytes and plasma cells, which concentrate in slightly higher numbers around vessels.

MOPRHOLOGIC DIAGNOSIS: Aorta: Arteritis, pyogranulomatous and eosinophilic, , chronic-active, multifocal to coalescing, severe, with numerous fungal hyphae. **(3pt.)**

CAUSE: Fungi of the Mucormycetes (Zygomyces) – (Mucor, Zygomyces, Absidia, Basidiobolus all ok) **(2pt.)**

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

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Slide 2. Tissue from a Chukar partridge.

MICROSCOPIC DESCRIPTION: Liver: Scattered throughout the section, there are coalescing areas of coagulative **(1pt.)** (characterized by a maintenance of hepatocellular architecture with loss of differential staining) and lytic **(1pt.)** (characterized by loss of architecture, and replacement of hepatocytes with numerous viable and degenerate heterophils, fewer macrophages, hemorrhage, fibrin, and abundant eosinophilic cellular and karyorrhectic debris) necrosis **(2pt.)**. In other areas, hepatic parenchyma is effaced by aggregates **(1pt.)** of numerous macrophages**(1pt.)** and lymphocytes**(1pt.)**, scattered foreign body-type multinucleate giant cells **(1pt.)** with up to 7 nuclei, and heterophils**(1pt.)**. Primarily within areas of necrosis, but also within areas of inflammation and even normal parenchyma, there are innumerable 15-20 um diameter, round, lightly eosinophilic to amphophilic **(1pt.)** protozoal trophozoites**(1pt.)**, with centrally located 3-5 um diameter basophilic nuclei. Trophozoites are primarily extracellular, but are occasionally seen within the cytoplasm of macrophages and multinucleate giant cells **(1pt.)**. Within portal areas in areas of necrosis and inflammation, there is mild to moderate biliary hyperplasia (type 2 ductular reaction). The hepatic capsule is mildly thickened by low to moderate numbersof lymphocytes and histiocytes, and multifocally covered by a thin layer of fibrin containing numerous macrophages. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing, multifocal to coalescing, severe, with numerous amebic trophozoites. **(3pt.)**

CAUSE: Histomonas meleagredis **(2pt.)**

Name another possibly affected organ: Cecum **(1pt.)**

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

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Slide 3. Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Colon **(1pt.)**: Diffusely, the lamina propria of the colon is expanded, and colonic glands are separated and occasionally replaced by moderate numbers of lymphocytes **(1pt.)** and plasma cells **(1pt.)**, fewer eosinophils, foamy macrophages **(1pt.)** (which are occasionally multinucleated), and rare neutrophils. Throughout the mucosa, there are decreased numbers of mature goblet cells **(1pt.)** within glands and numerous mitotic figures **(1pt.)**. Diffusely, the superficial lamina propria contains moderate numbers of degenerate neutrophils and mucus- and debris-laden histiocytes. **(1pt.)** Deeper in the mucosa, occasional glands are dilated and contain low numbers of neutrophils (which can also be seen transmigrating the attenuated epithelium), necrotic epithelium, and cellular debris (crypt abscesses) **(1pt.)** . Lymphocytes and fewer plasma cells form small follicular aggregates multifocally in the deep lamina propria and submucosa. Scattered randomly, often in aggregates along the mucosal surface, and rarely invading the mucosa **(1pt.)**, there are low numbers of 40-100um round ciliatedprotozoans **(1pt.)** with granular eosinophilic cytoplasm and a prominent ovoid to dumbbell-shaped nucleus. **(1pt.)** On one section, there is a cross section of an adult nematode with an irregular cuticle, coelomyarian-polymyarian musculature, a pseudocoelom, an esophagus with stichosome and bacillary band, a digestive tract with uninucleate enterocytes with a microvillous border, **(1pt.)** and a uterus containing numerous thick-shelled eggs with bipolar plugs **(1pt.)**. Scattered along the mucosal surface, there is a thick mat of numerous bacteria admixed with food particles and hair. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Colon: Colitis, lymphoplasmacytic, histiocytic and proliferative, chronic, diffuse, moderate, with luminal and intramucosal ciliates, and adult aphasmid nematodes.**(3 pt.)**

CAUSE(s): *Balantidium coli*, *Trichuris trichiuris*, (and likely spirochetes as this is representative of chronic colitis of young rhesus macaques. **(2pt.)**

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

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Slide 4. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Globe: There are changes in all sections of the globe. The iris is markedly expanded **(1 pt.)** by an infiltrate of large numbers of plasma cells, lymphocytes, with fewer neutrophils and macrophages **(1 pt.)**, admixed with widely dispersed melanomacrophages, hemorrhage, fibrin, aedema, and small amounts of necrotic cellular debris. This inflammatory infiltrate extends into the adjacent ciliary body **(1 pt.)**, choroid **(1 pt.)**, and multifocally within the sclera **(1 pt.)**. The anterior face of the iris is focally expanded by the previously described inflammation, markedly dilated capillaries, edema **(1 pt.)**, and a thin pre-iridal membrane composed of few stands of fibrous connective tissue and enmeshed inflammatory cells as previously described. Scattered throughout the iris, choroid, and sclera (most definitively in the sclera), walls of small veins are expanded by low to moderate numbers of neutrophils, macrophages as well as cellular debris and small amounts of protein (vasculitis) **(2 pt.)**. Within the anterior and posterior chambers, the vitreous, and elevating the detached retina **(1 pt.)**, there is abundant eosinophilic proteinaceous fluid, hemorrhage, polymerized fibrin, and low numbers of neturophils, macrophages, lymphocytes and plasma cells (high-protein effusion). **(1 pt.)** The detached retina is also markedly expanded by hemorrhage, fibrin, and edema, and capillaries are markedly congested **(1 pt.)**, and there is marked thinning of the inner nuclear and plexiform layers. The retinal pigmented epithelium is mildly multifocally hypertrophic **(1 pt.)**. The endothelium lining the posterior surface of Descemet's membrane is discontinuous and mildly hypertrophic.

MORPHOLOGIC DIAGNOSIS: Eye: Panophthalmitis, lymphoplasmacytic, histiocytic (chronic and active), moderate to severe with uveal vasculitis, anterior and posterior chamber effusions, and retinal detachment. **(4 pt.)**

CAUSE: Mutated feline coronavirus **(3 pt.)**

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