WSC 2010-2011, Conference 5, Case 1.

Tissue from a chicken.

MICROSCOPIC DESCRIPTION: Eye: The cornea is centrally and transmurally **(1pt.)** expanded by large numbers of heterophils **(1pt.)**, histiocytes and large multinucleated foreign body-type **(1pt.)** and Langhans **(1pt.)** macrophages, admixed with lesser numbers of lymphocytes**,** plasma cells, abundant cellular karyorrhectic debris **(1pt.)**, on a background of loosely arranged collagen with numerous congested small vessels (granulation tissue) **(1pt.)** and small foci of hemorrhage. With several of the large multinucleated macrophages, there are fungal hyphae **(1pt.)** which are 4-6um **(1pt.)** in diameter, have septa, and exhibit dichotomous branching at acute angles. **(1pt.)** The overlying corneal epithelium is moderately hyperplastic and the stroma immediately subjacent to it contains abundant edema in association with the inflammation. **(1pt.)** The collagen within the cornea becomes more stratified and compact towards the limbus, and there are small foci of inflammation with multinucleated macrophages and lesser numbers of histiocytes scattered randomly in these areas. There are moderate numbers of heterophils and lesser numbers of macrophages, lymphocytes and plasma cells within the sclera to the pectin **(1pt.)**. There are low to moderate numbers of heterophils, histiocytes, lymphocytes and rare plasma cells in the anterior chamber **(1pt.)** and similar cells expand the iris **(1pt.)** and ciliary body. The iris is adherent to the anterior surface of the lens (anterior synechia) **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Eye: Keratitis, granulomatous and heterophilic, chronic, diffuse, severe, with heterophilic anterior uveitis, iridocyclitis, anterior synechia, and numerous branching fungal hyphae. **(4 pt.)**

Cause: *Aspergillus fumigatus* , *Pseudoallescheria boydii, Absidia corymbifera,* (or other non-zygomycete) **(2pt.)**

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

WSC 2010-2011. Conference 5, Case 2

Tissue from a horse.

MICROSCOPIC DESCRIPTION: Glabrous non-haired skin with sebaceous glands (site unspecified): Within the submucosal fibrous connective tissue, there is a 0.8cm nodular **(1 pt.)** focus of granulomatous inflammation **(1 pt.)**. Within this focus, there are poorly formed, often coalescing granulomas consisting of a central core of moderate numbers of macrophages **(1 pt.)** admixed with lesser numbers of multinucleate foreign-body macrophages **(1 pt.)**, surrounded by moderate numbers of lymphocytes and plasma cells **(1 pt.)** and rare eosinophils **(1 pt.)** enmeshed in loosely-arranged circumerential rings of fibrous connective tissue. **(1 pt.)** Granulomas are centered on cross and longitudinal sections of nematodes **(2 pt.)** with a smooth cuticle, pseudocoelom, a tubular digestive tract lined by low cuboidal epithelium, tapered tail **(1 pt.)**, and rhabditiform esophagus **(1 pt.)** with a corpus:isthmus:bulb ratio of 3:2:1. Mature females, larvae, and eggs are present **(2 pt.)**, and females rarely contain ova in various stages of development. At the outer edges of the nodule, there are poorly formed lymphoid follicles. The surrounding dermis is expanded by moderate numbers of histiocytes, lymphocytes, plasma cells and eosinophils which are often present in perivascular locations in areas away from the granulomas **(1 pt.)**. Diffusely, lymphatic vessels are markedly dilated.

MORPHOLOGIC DIAGNOSIS: Prepuce: Posthitis, granulomatous, focally extensive, severe with numerous adult and larval rhabditid nematodes and eggs. **(3 pt.)**

CAUSE: *Halicephalobus gingivalis* (deletrix) **(2 pt.)**

O/C – **(1 pt.)**

WSC 2010-2011, Conference 5, Case 3.

Tissue from a turkey.

MICROSCOPIC DESCRIPTION**:** Liver: Affecting approximately 50% of this section is effaced by a single, large area of necrosis **(1 pt)**, that effaces hepatic parenchyma. Within this area, hepatocytes are pale and swollen [degenerate] or hypereosinophilic with pyknotic nuclei (necrotic) and are admixed with innumerable macrophages **(1 pt)**, moderate numbers of multinucleated foreign body-type macrophages **(1 pt)**, fewer heterophils, rare lymphocytes and plama cells, and abundant edema, hemorrhage, and fibrin . Usually within macrophages either single or in small groups are numerous 10 – 20 um diameter **(1 pt)**, round, lightly eosinophilic to amphophilic protozoal **(1 pt)** trophozoites **(1 pt)** with a centrally located 3-5 um diameter basophilic nucleus **(1 pt)**. Diffusely, even in unaffected areas, there is a marked increase in the number of bile ducts [biliary hyperplasia] **(1 pt)** and occasionally hepatocytes and Kupffer cells contain brown globular material [bile or hemosiderin]. There are small numbers of lymphocytes and plasma cells around portal triads in unaffected areas of the section, and hepatocytes in these areas often contain one or more discrete clear vacuoles.

Cecum: The wall of the cecum is markedly and transmurally thickened **(1 pt)**and often effaced by innumerable macrophages, large numbers of lymphocytes and plasma cells **(1 pt)**, fewer heterophils, rare multinucleated foreign body giant cells, and abundant edema, hemorrhage, and fibrin **(1 pt)**. Usually within macrophages either single or in small groups are numerous 10 – 20 um diameter, round, lightly eosinophilic to amphophilic protozoal trophozoites with a centrally located 3-5 um diameter basophilic nucleus. The inflammatory infiltrate effaces the multifocally ulcerated mucosa and submucosa, dissects between remaining smooth muscle cells and extends into the serosa. **(1 pt)**

MORPHOLOGIC DIAGNOSIS(ES): **(4 pts)**
Liver: Hepatitis, necrotizing, multifocal and coalescing, severe with marked biliary hyperplasia and numerous protozoal trophozoites, etiology consistent with *Histomonas meleagridis*.

Cecum: Typhlitis, necrotizing, subacute, diffuse, severe, with numerous protozoal trophozoites, etiology consistent with *Histomonas meleagridis*

CAUSE (3 pts): *Histomonas meleagridis*

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

WSC 2010-2011, Conference 5, Case 4.

Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Kidney: Diffusely throughout the cortex, large numbers of proximal convoluted tubules **(1 pt)** are lined by epithelium that lacks differential staining **(1 pt)** (coagulative necrosis) **(2 pt)**. Many tubules are slightly ectatic, lined by attenuated hypereosinophilic epithelial cells (degeneration) **(1 pt)** and these tubules contain intraluminal **(1 pt)** yellow, translucent, variably-shaped, anisotropic crystals **(1 pt)** (oxalate crystals) **(2 pt)**, rare small amounts of eosinophilic amorphous material (protein), rare sloughed epithelial cells; or, intensely basophilic acellular, fragmented material (mineral) **(2 pt)**. The interstitium and perivascular connective tissue are mildly expanded by eosinophilic amorphous material (edema) **(1 pt)**, eosinophilic beaded to fibrillar material (fibrin) and few extravasated erythrocytes (hemorrhage) admixed with low numbers of neutrophils, lymphocytes and plasma cells. There is marked congestion of the medulla **(1 pt)**with small numbers of tubules containing basophilic mineral.

MORPHOLOGIC DIAGNOSIS**:** Kidney, tubules: Necrosis, acute, diffuse, with numerous oxalate crystals. **(4 pt)**

CAUSE: Any oxalate containing plant is acceptable (this one is greasewood.) **(2 pt)**

NOTE: This tissue is mildly autolytic, which may accentuate the appearance of necrotic tubules as well as account for the edema in the interstitium.

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