WSC 2009-2010. Conference 4, Case 1.

Tissue from a horse.

MORPHOLOGIC DESCRIPTION: Haired skin: Multifocally, within the deep dermis and subcutis **(1 pt.)**, and to a lesser extent in the superficial dermis, collagen fibers are separated and rarely replaced by large numbers of epithelioid macrophages **(1 pt.)** and eosinophils **(1 pt.)**, and lesser numbers of lymphocytes and plasma cells **(1 pt.)**. In some areas, large aggregates of poorly staining (degenerate eosinophils) predominate **(1 pt.)**, or histiocytes surrounding a core of eosinophilic protein (flame figure). Surrounding collagen fibers are often lacy and pale (edema) **(1 pt.)**, and are occasionally surrounding by brightly eosinophilic globular material (Splendore-Hoeppli) **(1 pt.)**, and mineral **(1 pt.)** (collagenolysis). There are foci of mineralization of collagen fibers scattered through the section **(1 pt.)**. There are multiple hair shafts embedded in the deep dermis surrounded by large numbers of macrophages, lesser lymphocytes, and rare eosinophils and plasma cells and fibrous connective tissue **(1 pt.)**. Throughout the section, vessels have reactive plump endothelium **(1 pt.)**. A large arteriole contains a central recanalized thrombus **(1 pt.)**with small channels lined by reactive endothelium, fibrin, and moderate numbers of eosinophils and macrophages. All arterioles contain abundant bluish ground substances in the tunica media (subendothelial mucinosis). There are low numbers of lymphocytes and plasma cells in the superficial dermis and in periadnexal locations **(1 pt.)**, and vessels in the superficial dermis contain increased numbers of eosinophils. There is mild acanthosis, spongiosis, and orthokeratotic hyperkeratosis of the overlying epidermis.

MORPHOLOGIC DIAGNOSIS: Haired skin: Dermatitis and cellulitis, eosinophilic and granulomatous, multifocal to coalescing, moderate with marked collagen degeneration and eosinophilic arteritis. **(3 pt.)**

Name the condition: Nodular collagenolytic granuloma (or axillary nodular necrosis) **(2 pt.)**

Give two differential diagnoses: Cutaneous habronemiasis, multisystemic eosinophilic and epitheliotropic dermatosis, axillary nodular necrosis, papular dermatosis**(1 pt.)**

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

WSC 2009-2010. Conference 4, Case 2.

Tissue from a dog.

MORPHOLOGIC DESCRIPTION: Heart: Coronary arteries are enlarged up to 3mm in diameter, characterized by narrowed lumina, loss of the internal elastic lamina, and thick walls composed of a pale core surrounded by a fibromuscular cap. Endothelial cells are plump and bulge into the lumen (hypertrophy). The intima and inner media is thickened **(1 pt.)** by abundant acicular, isotropic clear spaces (cholesterol clefts) **(1 pt.)** abutting small amounts of fibrous connective tissue **(1 pt.)**and numerous polygonal histiocytes with abundant cytoplasm swollen by numerous clear, often coalescing vacuoles **(1 pt.)** (foam cells) **(1 pt.)**. The media is further expanded by thick layers of smooth muscle in disarray **(1 pt.)**, which are separated by cholesterol clefts, and in outer portion of the tunica media, extending into the adventitia, moderate numbers of macrophages with brownish foamy cytoplasm and rare lymphocytes **(1 pt.)**, small amounts of mineral **(1 pt.)**, and prominent cross-sections of nutrient arteries. Diffusely within the section, but most commonly in perivascular areas, myocytes are surrounded and replaced **(1 pt.)** by loosely arranged fibrous connective tissue **(1 pt.)**. Within these areas, myocytes are decreased in size (atrophy) **(1 pt.)**, fragmented, pale, hyalinized and have loss of cross-striations (degeneration) **(1 pt.)**. There is multifocal fat infiltration within the myocardium **(1 pt.)**.

MORPHOLOGIC DIAGNOSIS: Heart: Atherosclerosis of coronary arteries, diffuse, moderate to severe, with myocardial fibrosis, perivascular, multifocal, mild to moderate with cardiomyocyte degeneration and loss (infarcts). **(4 pt.)**

Pathogenesis: Hypothyroidism or diabetes mellitus =>decreased activation of lipoprotein lipase =>increased levels of low-density lipoproteins and endothelial damage =>deposition of triglyceride in arterial wall => lipid peroxidation => engulfment by macrophages **(2 pt.)**

Organization and Clarity - **(1 pt.)**

There is minimal slide variation in terms of thrombosis of arteries.

WSC 2009-2010. Conference 4, Case 3.

Tissue from a cat.

MORPHOLOGIC DESCRIPTION: Lung: Multifocally, approximately 60% of the alveolar spaces are filled with large numbers of viable neutrophils **(1 pt.)**, alveolar macrophages **(1 pt.)**, lesser lymphocytes and plasma cells, small amounts of edema fluid and polymerized fibrin **(1 pt.)**, and cellular debris **(1 pt.)**. Macrophages are expanded by the intracytoplasmic accumulation of numerous 2-4um diameter **(2 pt.)** round yeasts **(2 pt.)**, with a central dark nucleus surrounded by a clear halo. **(1 pt.)** The inflammatory infiltrate extends into and multifocally expands the overlying/adjacent pleura, and there is mild me There is diffuse marked congestion of septal capillaries**.** Multifocally, alveolar septa are expanded by modest amounts of edema, fibrin, and small numbers of emigrating neutrophils and rare type II pneumocyte hyperplasia **(1 pt.)**. There are small to moderate numbers of lymphocytes, plasma cells, and neutrophils surrounding vessels and infiltrating submucosal glands around airways **(1 pt.)**. Airway epithelium is diffusely sloughed due to autolysis. Interlobular fibrous connective tissue is expanded by moderate edema. **(1 pt.)**.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, pyogranulomatous, multifocal to coalescing, moderate, with abundant intracellular yeasts **(3 pt.)**

Cause: ***Histoplasma capsulatum*** **(4 pts.)**

O/C – **(1 pt.)**

WSC 2009-2010. Conference 4, Case 4.

Tissue from a dog.

MORPHOLOGIC DESCRIPTION: Diffusely, the pleura is expanded up to 10 mm and thrown into plush, well-vascularized **(1 pt.)**, villous (papillary) folds **(1 pt.)**. The folds are composed of a central core of loosely arranged fibrous connective tissue **(1 pt.)** covered by several layers of hyperplastic and hypertrophic mesothelial cells **(1 pt.)**. Scattered between the villi are numerous viable and degenerate neutrophils, epithelioid macrophages, lymphocytes, and plasma cells admixed with hemorrhage, fibrin, and edema, and necrotic debris **(2 pt. for all)**. Multifocally, there are dense round mats of 2um beaded, filamentous **(1 pt.)** bacilli **(1 pt.)** in a proteinaceous matrilx which are surrounded by small numbers of neutrophils (sulfur granules). **(1 pt.)** In the underlying section of lung, the pleura is thickened by a dense band of granulation tissue and more organized areas of loose fibrous connective tissue lined by hyperplastic mesothelial cells containing abundant macrophages, lesser numbers of neutrophils, and a linear band of moderate numbers of lymphocytes and plasma cells and lesser macrophages **(1 pt.)**. Within the lung parenchyma, alveoli contain moderate numbers of macrophages, occasional neutrophils, and variable amounts of edema, hemorrhage, and polymerized fibrin **(1 pt.)**. Alveolar septa are congested, contain increased numbers of neutrophils, necrotic cellular debris, fibrin, and rare megakaryocytes **(1 pt.)**. Airways contain small aggregates of 2um coccobacilli.

MORPHOLOGIC DIAGNOSIS: Lung: Pleuritis, proliferative and pyogranulomatous, chronic, diffuse, severe, with marked pleural fibrosis, and sulfur granules. **(4 pt.)**

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

Cause: *Actinomyces sp.* **(3 pt.)**

Slides vary greatly in numbers of sulfur granules.