WSC 2022-2023 Conference 3, Case 1
Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, alveoli contain or are expanded by varying combinations and concentrations of macrophages or multinucleated giant cell macrophages **(1pt)** which contain one or more spicular to rhomboidal brightly eosinophilic protein crystals **(1pt),** foamy alveolar macrophages, lymphocytes, plasma cells **(1pt)**, few neutrophils, extracellular eosinophilic crystals, edema fluid, and small amounts of cellular debris. Subpleural alveoli contain a higher number of foamy macrophages. Alveolar septa, also most prominently in subpleural areas are expanded up to three times normal **(1pt)** by one or more of the following: macrophages **(1pt)**, rare neutrophils, congestion, edema, collagen and type 2 pneumocyte hyperplasia **(1pt)**. There is expansion of perivascular and to a lesser extent peribronchiolar adventitia **(1pt)** by large numbers of lymphocytes and plasma cells **(1pt)** which extend into the adjacent alveoli. The pleura is multifocally expanded by low numbers of neutrophils, macrophages, lymphocytes and plasma cells.

Liver: Multifocally, effacing hepatic architecture, there is severe extramedullary hematopoiesis **(1pt)**which expands portal areas, surrounds central veins, and occasionally bridges the two. **(1pt)** The EMH is admixed with large numbers of plasma cells, Mott cells **(1pt)**, and moderate number of lymphocytes. Biliary epithelial cells are markedly expanded by large numbers of eosinophilic cytoplasmic droplets **(1pt)** to the point that they occlude the lumen **(1pt)**, and these ducts are surrounded by several layers of fibrous connective tissue. Similar crystals are present within the adjacent gallbladder epithelium. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Lung: Alveolitis, histiocytic **(1pt)**, diffuse, moderate with intrahistiocytic and eosinophilic crystals **(1pt)** and perivascular plasmacytosis **(1pt).**
2. Liver, gallbladder: Intraepithelial hyaline protein and extracellular crystals, diffuse, severe, with intracytoplasmic crystals. **(1pt)**
3. Liver: Extramedullary hematopoiesis, diffuse, severe. **(1pt)**

NAME THE CONDITION(S): Acidophilic macrophage pneumonia **(2pt)**, epithelial hyalinosis.

WSC 2021-2022
Conference 3, Case 2
Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Heart: The tunica intima and media of elastic arteries including the base of the pulmonary artery and aorta and a coronary artery **(1pt)** are markedly expanded **(1pt)** by a disordered array of largely extracellular lipid **(1pt)** which is arranged in variably-sized clear to lightly basophilic clefts **(1pt)**. Lipid is also present within the cytoplasm of haphazardly arranged smooth muscle cells and intramural macrophages and there is multifocal scattered mineralization**(1pt)**. There is multifocal dense mural fibrosis which surrounds and separates remnant smooth muscle cells. **(1pt)** The lipid "plaque" projects into and compromises the lumen of the aorta. Similar changes are present in the coronary artery, and there is marked intimal fibrosis, and recanalization which markedly compromises luminal diameter. **(1pt)** There is multifocal mild loss of myocytes **(1pt)** within the subendocardial myocardium of the left ventricular wall, with replacement fibrosis **(1pt)** and proliferation of interstitial cells. Entrapped cardiomyocytes are shrunken (atrophy) and contain enlarged nuclei.

Ear pinna **(1pt)**. The pinna is markedly expanded up to three times normal thickness by a predominantly intracellular accumulation of lipid on both sides of the cartilaginous plates. **(1pt)** Lipid forms long acicular clefts which are surrounded by uninucleated macrophages, fewer multinucleated foreign body type macrophages, **(1pt)**and scattered lymphocytes, neutrophils, fibroblasts, and mature collagen. **(1pt)** Vessels in these area are dilated and congested. Within the inner aspect of the ear, the epidermis is multifocally ulcerated and there are intracorneal pustules **(1pt)** containing abundant serum, viable and necrotic neutrophils, and keratin and cellular debris. The subjacent dermis often contains large numbers of viable and degenerate he adjacent epidermis is mildly hyperplastic.

MORPHOLOGIC DIAGNOSIS: 1. Heart, arteries: Atherosclerosis **(2pt)**, diffuse, marked.
2. Heart, left ventricle: Fibrosis, periventricular multifocal to coalescing, mild to moderate, with cardiomyocyte degeneration and loss. **(1pt)**
3. Ear pinna: Dermatitis, xanthogranulomatous **(1pt)**, diffuse, marked with multifocal epidermal ulceration and pustule formation. **(1pt)**

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

WSC 2021-2022, Conference 3, Case 3.
Tissue from a cat.

MICROSCOPIC DESCRIPTION: Lung: Multiple sections of lung are submitted; as all sections are essentially similar, this description is a composite of all sections. Up to 95% of each section is is effaced by a profound inflammatory response, but pulmonary architecture is preserved at the subgross level. Alveolar lumina are filled and often expanded by variable combinations and concentrations of viable and degenerate neutrophils **(1pt)**, fewer debris-laden alveolar macrophages **(1pt)**, hemorrhage **(1pt)**, edema fluid **(1pt)** and polymerized fibrin **(1pt)**. Many alveoli contain large extracellular colonies of coccobacilli **(1pt)** as well as numerous individual coccobacilli within the cytoplasm of neutrophils and macrophages. Inflammatory cells often palisade around the outside of bacterial colonies. In uninflamed areas of the lung, there is alveolar emphysema. **(1pt)** Alveolar septa are diffuse and moderately expanded **(1pt)** by congestion, edema, circulating neutrophils, hypertrophied intraseptal macrophages, and fibrin thrombi **(1pt)**. Numerous alveolar septa are discontinuous or missing (septal necrosis) **(1pt)**. Airway lumina contain alveolar contents and bacterial colonies as previously described, and are lined by flattened, attenuated epithelium **(1pt)** which is multifocally necrotic **(1pt)**, infiltrated by neutrophils, or sloughed into the lumen. Neutrophils occasionally infiltrate the airways walls, and peribronchiolar connective tissue is edematous and contains polymerized fibrin. **(1pt)** Interlobular connective tissue septa **(1pt)** are expanded by hemorrhage, edema, fibrin, dilated lymphatics, and infiltrating neutrophils and macrophages. Vessels of all sizes occasionally contain occlusive or non-occlusive fibrin thrombi and are pavemented by emigrating neutrophils. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Lung: Pneumonia, **(1pt)**, necrotizing **(1pt)** and fibrinosuppurative **(1pt)**, diffuse, severe with septal necrosis , vascular thrombosis **(1pt)**, and large colonies of cocci **(1pt.)**

CAUSE: Neisseria sp. (good luck on that one – I'm also giving credit for Staphylococcus, Yersinia, Pasteurella, Corynebacterium and Trueperella.) **(1pt)**

WSC 2020-2021
Conference 3, Case 4.
Tissue from a chicken.

MICROSCOPIC DESCRIPTION: Small intestine: Transmurally **(1pt.)** infiltrating the intestine and extending into the adjacent mesentery, there is an infiltrative, poorly demarcated, unencapsulated, densely cellular round cell neoplasm. **(1pt.)** Neoplastic round cell are arranged in sheets **(1pt.)** on a pre-existent stroma. **(1pt.)** Neoplastic round cells have a small amount of finely granular basophilic cytoplasm with indistinct cell borders. **(1pt.)** Nuclei are irregularly round with finely stippled chromatin and 1-2 small basophilic nucleoli. **(1pt.)** There is moderate anisokaryosis and anisocytosis **(1pt.)**, with extensive cellular apoptosis **(1pt.)**. Mitoses exceed 10 per $2.37^2$ field **(1pt.)**, but a definitive number is difficult to assess due t0 the extensive apoptosis. There is mild multifocal villar blunting and fusion **(1pt.)**, and numerous robust bacilli lining denuded villi. Neoplastic cells and mild fibrosis surround and separate crypts. In areas of infiltration of the muscularis by neoplastic cells, smooth muscle cells often exhibit one or more of the following: vacuolation, hypereosinophilia (degeneration) **(1pt.)**, shrinkage, fragmentation, and pyknosis (necrosis) **(1pt.)**. Neoplastic cells expand perivascular, perineural and areas of adipose tissue within the muscularis. Neoplastic cells markedly expand the edematous serosa. Neoplastic lymphocytes extend into the adjacent fibrotic mesentery, surrounding, separating and replacing adipocytes (and in one section, extend into the pancreas. **(1pt.)**

Within the lumen, there is a cross section of an adult cestode**(1pt.)** measuring 200um x 100um with a serrated tegument, a spongy body cavity, numerous somatic cell nuclei, and ovoid calcareous corpuscles. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Small intestine, mesentery, pancreas: Lymphoma **(3pt.)**.
2. Small intestine, lumen: Cestode adult.

NAME THE DISEASE: Marek's Disease **(2pt.)**

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