WSC 2021-2022
Conference 16, Case 1.

Tissue from a marmoset.

MICROSCOPIC DESCRIPTION: Jejunum (and attached mesentery): Three sections of jejunum, with attached mesentery are submitted for examination. Villi are mildly blunted **(1pt),** often fused, and the mucosal epithelium is intact. The lamina propria and submucosa are mildly edematous with dilated lymphatics **(1pt)**. Lining the villar epithelium **(1pt)** and extending into the crypts are low to moderate numbers of 3-6um spherical intracytoplasmic **(1pt)**, extracellular **(1pt)** apicomplexan **(1pt)** schizonts **(1pt)** and gamonts **(1pt)** (cryptosporidia). Within the intestinal lumen, admixed with food particles, bacillia and few sloughed epithelial cells, are low numbers of pyriform **(1pt)** 4x8um protozoa **(1pt)**with visible flagella **(1pt)** and paired nuclei **(1pt)**. There is minimal fat within the attached mesentery (fat atrophy) **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Jejunum: Villar blunting **(1pt)**, diffuse, mild to moderate with numerous intracytoplasmic, extracellular apicomplexan schizonts and gamonts, **(1pt)**, etiology consistent with *Cryptosporidium* sp.
2. Jejunum, lumen: Few extracellular protozoal flagellates, etiology consistent with *Giardia* sp. **(1pt)**
3. Mesentery: Fat atrophy, diffuse, marked. **(1pt)**

CAUSE: *Cryptosporidium sp.* **(2pt)** Giardia sp. **(1pt)**

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

WSC 2021-2022
Conference 16, Case 2.
Tissue from a dog.

MICROSCOPIC DESCRIPTION: Submandibular (seromucus) salivary gland: Approximately 50% of the glandular tissue is replaced by a large area of coagulative necrosis **(1pt.)** characterized by retention of tissue architecture with a loss of differential staining **(1pt)** (infarct). There is infiltration of the interior of the infarct by low numbers of necrotic neutrophils. Vessels within this area are multifocally congested, thrombosed **(1pt.)** , or filled with neutrophils. The periphery of the infarcted areas and the expanded interlobular septa **(1pt.)** (and the innermost layers of the capsule) contain variable combinations and concentrations of hemorrhage **(1pt.)**, fibrin, edema, granulation tissue **(1pt.)**, and moderate numbers of necrotic neutrophils **(1pt.)**, and eosinophilic and karyorrhectic debris (lytic necrosis) **(1pt.)** Viable lobules adjacent to the areas of necrosis are largely effaced by granulation tissue **(1pt.)** and contain numerous proliferating and regenerating **(1pt.)** ducts **(1pt.)** with hyperplastic and hypertrophic epithelium encroaching on the lumen. There is keratinization centrally in some of the regenerating ducts. Ductal epithelium is infiltrated by low numbers of viable and necrotic neutrophils which also are found in the lumen of regenerating ducts, when present. **(1pt.)** Ducts are surrounded by one or more layers of variably mature fibrous connective tissue. Within adjacent viable lobules, the interstitium is expanded by mildly increased amounts of fibrous connective tissue **(1pt.)**, lymphocytes, plasma cells, and there is mild atrophy of acinar tissue **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Salivary gland, submandibular: Coagulative necrosis (infarct) **(1pt.)**, multifocal, with ductular degeneration, necrosis, regeneration **(1pt)** and acinar atrophy. **(1pt.)**

CONDITION: Necrotizing sialometaplasia **(2pt.)**

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

WSC 2021-2022
Conference 16
Case 3. Tissue from a Male NSG (NOD.*Cg-Prkdc*^{scid}*Il2rg*^{tm1Wjl}/SzJ) mouse.

MICROSCOPIC DESCRIPTION: Lung: Approximately 50% of the section of lung is effaced by a 7mm diameter abscess **(2pt.)** and an additional 30% of multifocal to coalescing areas of lytic necrosis **(1pt.)**. The abscess is composed of a central area of abundant eosinophilic and granular cell debris admixed with serpiginous aggregates of deeply basophilic nuclear material, and long eosinophilic spicular crystals. **(1pt.)** This area is surrounded by bands of degenerate and ultimately intact neutrophils **(1pt.)**, foamy debris laden macrophages **(1pt.)**, and numerous layers of centripetally maturing fibrous connective tissue **(1pt.)** infiltrated by low numbers of neutrophils, macrophages, lymphocytes and plasma cells. In the adjacent lung, areas of lytic necrosis measure up to 250 µ in diameter and are centered primarily on airways. **(1pt.)** and composed largely of eosinophilic and granular basophilic cellular debris **(1pt.)** throughout which is scattered moderate numbers of viable and degenerating neutrophils **(1pt.)** are present. Areas of necrosis are often centered on airways which are segmentally to circumferentially lined by cuboidal respiratory epithelium. Lesions are expansile, compressing adjacent alveolar septa and infiltrating and filling adjacent airways and bronchioles. **(1pt.)** , Between areas of necrosis there are remnant areas of distorted pulmonary architecture in which alveolar spaces contain numerous foamy macrophages **(1pt.)** fewer neutrophils, and rare multinucleated giant cell macrophages **(1pt.)** lymphocytes, and cellular debris. Adjacent to areas of necrosis, low numbers of 1-2um bacilli **(1pt.)** are present within the alveoli and are contained within macrophage cytoplasm within vacuoles.

MORPHOLOGIC DIAGNOSIS: 1. Lung: Pneumonia, necrosuppurative **(1pt.)**, multifocal to coalescing, severe, with abscess formation **(1pt.)** and intra- and extracellular bacilli. **(1pt.)**

(interestingly, there are extracellular eosinophilic crystals within areas of inflammation, but very few macrophages with intracytoplasmic crystals – so I did not include a morphologic diagnosis for this.)

CAUSE: *Klebsiella pneumoniae* **(2pt.)**

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

WSC 2021-2022 Conference 16
Case 4. Tissue from a ferret.

MICROSCOPIC DESCRIPTION: Adrenal gland **(1pt.)**: A fragmented section of adrenal gland is submitted for examination. Replacing approximately 95% of the testis **(1pt.)** and sparing a thin rim of compressed subcapsular vacuolated adrenocortical cells **(1pt.)** is an unencapsulated, moderately cellular, well-demarcated, expansile and cystic neoplasm **(1pt.)** composed of cells from three cell layers (ectoderm, mesoderm, endoderm). **(1pt.)** There are globular areas of crystalline mineral scattered throughout the remaining adrenocortical cells. At the periphery of the neoplasm is an area of well-differentiated haired skin **(1pt)** with keratinizing stratified squamous epithelium **(1pt)** with numerous hair follicles occasionally containing hair shafts **(1pt)** adnexa, and fat **(1pt)** (ectoderm). In this section, this haired skin is apposed by a large cystic area containing abundant granular eosinophilic proteinaceous fluid which contains lamellated keratin debris, hair shafts, and desquamated squamous epithelium admixed with few neutrophils and cellular debris **(1pt.)**; this cystic area composes 60% of the section. Adjacent to this area and forming one non-surgical margin of the section is a strip of well-differentiated spongiotic nervous tissue (ectoderm) **(1pt.)**. Interposed between this area of well-differentiated skin, and the overlying adrenocortical tissue and capsule, there is an area of dense fibrous connective tissue containing large islands of well-differentiated bone **(1pt.)** with marrow **(1pt.)** (mesoderm). There are cystic areas which are lined by attenuated cuboidal, occasionally ciliated respiratory epithelium **(1pt.)** (endoderm). Fragments of the adrenal capsule are present at one edge of the section.

MORPHOLOGIC DIAGNOSIS: Adrenal gland: Teratoma. **(4pt)**

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