

Case 1. Tissue from a cat.

(NOTE: Some slides have lymph nodes. They are not part of this description.)

MICROSCOPIC DESCRIPTION: Liver: Multifocally and randomly there are numerous foci of coagulative and lytic necrosis **(2pt)** and characterized by loss of hepatocytes, which are replaced by moderate numbers of viable and degenerate neutrophils **(1pt)**, fewer macrophages, hemorrhage and abundant cellular debris. Adjacent hepatocytes are shrunken with pale, vacuolated cytoplasm (degeneration) **(1pt)**, or pyknotic nuclei (necrosis) (I didn't use the term hypereosinophilic, as my slide is really blue! ☺) . Necrotic areas often have a thin rim of low numbers of neutrophils and fewer histiocytes within sinusoids at the periphery of the areas of necrosis. Peripheral, less affected hepatocytes often contain numerous filamentous (1x10um) bacilli **(2pt)** which are haphazardly oriented **(1pt)** within hepatocyte cytoplasm. Portal areas and the subcapsular space are expanded up to three times normal by ectatic lymphatic vessels (edema) **(1pt)**, and contain low numbers of lymphocytes, plasma cells, macrophages, and rare neutrophils.

Colon: Colonic glands are multifocally dilated and lined by swollen vacuolated epithelium (degeneration), which is occasionally fragmented with pyknotic nuclei (necrosis) **(1pt)**, sloughed, and often attenuated. Numerous colonic epithelial cells, often down in the crypts contain haphazard arrays of 1-6um filamentous bacilli. Colonic lumina contain variable combinations and concentrations of mucous, degenerate neutrophils, necrotic epithelial cells (crypt abscesses) **(1pt)** and numerous mixed colonies of bacilli **(1pt)**, including both filamentous rods and coccobacilli, which also fill the lumen proper. The lamina propria is infiltrated by moderate numbers of neutrophils and histiocytes. There are increased numbers of mitotic figures within the colonic epithelium at the deeper levels of the glands (hyperplasia) **(1pt)**.

MORPHOLOGIC DIAGNOSIS: 1. Liver: Hepatitis, necrotizing, multifocal, random, with numerous intracytoplasmic filamentous bacilli. **(2pt)**

2. Colon: Colitis, necrotizing, diffuse, moderate, with mild epithelial hyperplasia. **(2pt)**

CAUSE: *Clostridium piliforme* **(2pt)**

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

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Case 2. Tissue from a cat.

(Note: Some recuts contain a neoplasm within the submucosa which resembles a mast cell tumor – however, this was not described by the contributor, and we are currently trying to ascertain whether this may be a separate neoplasm or part of the adjacent tumor. It is also not part of this description as it is not present in all slides.)

MICROSCOPIC DESCRIPTION: Colon: Asymmetrically and transmurally **(1pt)** expanding the colonic wall up to 1.5 cm, **(1pt)** partially effacing the mucosa, is an infiltrative, unencapsulated, moderately cellular neoplasm. **(1pt)** Neoplastic cells are arranged in streams and bundles **(1pt)** in a storiform pattern and separated by a fine fibrous stroma **(1pt)**. Neoplastic cells are spindle **(1pt)** and plump with distinct cell borders **(1pt)** and a moderate amount of a finely granular, occasionally vesicular eosinophilic cytoplasm **(1pt)**. Nuclei are oval to elongate with finely stippled chromatin and small eosinophilic nucleolus. **(1pt)** There is moderate anisokaryosis. **(1pt)** there is scattered single cell necrosis. Mitoses average 1/400X field. **(1pt)** The neoplasm is infiltrated by low numbers of neutrophils, lymphocytes, and plasma cells. In areas of infiltration, the mucosa **(1pt)** and submucosa are replaced by an eosinophilic coagulum composed of abundant cellular debris, hemorrhage, fibrin and edema, which also contains large colonies of mixed bacilli and small amounts of mineral. **(1pt)** At the areas of the necrotic mucosa, colonic glands are dilated and lined by attenuated or necrotic **(1pt)** epithelial cells, and their lumina contain moderate amounts of brightly eosinophilic cellular debris.

MORPHOLOGIC DIAGNOSIS: Colon: Gastrointestinal stromal tumor **(3pt)**

Name a diagnostic immunostain: c-kit **(2pt)**

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

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Case 3. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Testis: Multifocally within and expanding the tunica vaginalis **(2pt)**, there are multiple cross sections of viable and degenerate **(1pt)** cestode **(2pt)** larvae **(1pt)** that measure up to 500 um in diameter **(1pt)**, have a thick smooth hyaline pink tegument **(1pt)**, a loose parenchymatous matrix **(1pt)**, lack a pseudocoelom, with numerous somatic cell nuclei in close apposition with the tegument, an invaginated unarmed scolex with suckers (may not be present in all sections), and numerous calcareous corpuscles **(2pt)**. The cestodes are surrounded by a fibrous capsule **(1pt)**, with contains low to moderate numbers of histiocytes, lymphocytes, and plasma cells, and is occasionally and segmentally lined by cuboidal epithelioid macrophages. **(1pt)** Multifocally, the tunica vaginalis contains low numbers of similar inflammatory cells. The remainder of the testis is within normal limits.

MORPHOLOGIC DIAGNOSIS: Testis, vaginal tunic: Larval cestodes (tetrathyridia), multiple, with mild granulomatous periorchitis **(3pt)**.

CAUSE: *Mesocestoides* sp. **(3pt)** (One point for other cestodes, but this is one that can be found in the abdominal cavity of the dog, so the tunica vaginalis is a fairly logical extension)

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

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Case 4. Tissue from a chicken.

MICROSCOPIC DESCRIPTION: Kidney: Multifocally and randomly **(1pt)**, clusters of tubules are dilated, and epithelial cells range from swollen and vacuolated (degenerate) **(1pt)**, fragmented with pyknotic to karyorrhectic nuclei (necrosis) **(1pt)** and sloughed into the lumen, and in some areas, tubules are lined by flattened, attenuated, often basophilic **(1pt)** (regenerative) **(1pt)** epithelium with occasional mitotic figures **(1pt)**. Tubular lumina contain variable combinations and concentrations of granular eosinophilic cellular debris, eosinophilic protein necrotic tubular epithelium, viable and degenerate heterophils, and pink fan-shaped eosinophilic crystals. **(2pt)** In areas of tubular loss, the interstitium is infiltrated by low to moderate numbers of histiocytes, heterophils, lymphocytes, and plasma cells. **(2pt)** Many tubules are lined by basophilic epithelium (regeneration? or is this normal?) Rare tubules are expanded and occasionally replaced by low to moderate numbers of epithelioid and foreign body macrophages (urate tophi) **(1pt)**.

MORPHOLOGIC DIAGNOSIS: Kidney, tubules: Degeneration, necrosis, and regeneration, multifocal, with intratubular eosinophilic crystals and rare gouty tophi. **(4 pt.)**

CAUSE: Avian coronavirus **(3 pt.)**

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