

Case 1 – Tissue from a crocodile. (NOT a good descriptive slide. Not going to distribute points, but note the important structures and move on.)

MICROSCOPIC DESCRIPTION: Peripheral blood (apparently paraffin-embedded): The EM contains cross sections of 3-4 nucleated red cells and a single granular white blood cell. The cytoplasm of the white blood cell contains numerous osmiophilic variably sized elliptical granules. Within the cytoplasm of granulocyte are numerous cross and tangential sections of microsporidian spores. Microsporidian have a thick, bilaminar cell wall (exospore and endospore) with an inner plasma membrane and abundant granular cytoplasm. At the periphery of the spores, there are numerous cross sections of a coiled polar filament. There is a poorly preserved osmiophilic nucleus, adjacent to an anchoring disk at end of the spore. At the opposite end, there is a terminal round to oval well-demarcated vacuole.

Morphologic diagnosis: Granulated leukocyte: Intracytoplasmic microsporidian spores.

Case 2 – Tissue from a foal.

MICROSCOPIC DESCRIPTION: Adrenal gland: Multifocally and assymmetrically , within all three layers of the adrenal cortex **(1pt)**, there are areas of necrosis and hemorrhage. Within the necrotic areas, adrenocortical cells are vacuolated **(1pt)** and swollen (degenerative) **(1pt)** or fragmented, disassociated, shrunken, and pale with loss of differential staining **(1pt)** (coagulative necrosis) **(1pt)**, and admixed with abundant hemorrhage **(1pt)**, and moderate amounts of cellular debris. Multifocally adjacent areas of necrosis, the nuclei of degenerating adrenocortical cells are expanded by a single eosinophilic irregularly round intranuclear viral inclusions **(1pt)**. Additionally, especially within the zona glomerulosa, there are numerous viral syncytia **(2pt)**, the nuclei of which often contain viral inclusions **(1pt)**. Scattered throughout all layers of the gland, to include the capsule, small vessels are occluded by fibrin thrombi **(1pt)**, and there is a single focus of hemorrhage and necrosis within the medulla adjacent to occluded vessels. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Adrenal gland, cortex: Adrenitis, necrohemorrhagic **(1pt)**, multifocal to coalescing, moderate, with intranuclear viral inclusions **(1pt)** and viral syncytia **(1pt)**.

2. Adrenal gland, vessels: Thrombosis, multifocal, moderate. **(1pt)**

CAUSE: Equine herpesvirus-1 **(3pt)**

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

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Case 3 – Tissue from an ox.

MICROSCOPIC DESCRIPTION: Omasum **(1pt)**: There is diffuse necrosis of the mucosa, characterized by a diffuse eosinophilic and lack of differential staining of the mucosal epithelium **(1pt)** (coagulative necrosis) **(1pt)**. There is infiltration of the mucosa by large numbers of viable and degenerate neutrophils **(1pt)** admixed with abundant cellular debris **(1pt)**, edema, hemorrhage, and fibrin which effaces the middle level of the mucosa (lytic necrosis) **(1pt)** and extends to the deep mucosa. Remaining intact mucosal epithelium exhibits a variety of morphologic changes to include individualization, marked intracellular edema **(1pt)** and individual cell apoptosis **(1pt)**. Multifocally, the deep mucosal border is clefted **(1pt)**, with lifting of the mucosa off of the underlying mucosa.; in other areas there is full-thickness coagulative necrosis and the border between the mucosa and underlying lamina propria is smudgy and obscured. **(1pt)** The lamina propria is moderately thickened **(1pt)**, congested and edematous, with multifocal variable combinations and concentrations of infiltrating neutrophils, and hemorrhage, fibrin, and edema. **(1pt)** The muscularis mucosa is intact. The submucosa **(1pt)** is markedly expanded by edema, low numbers of infiltrating neutrophils, and scattered areas of fibrin polymerization. There is moderate autolysis within the luminal mucosa of the abomasum, and there are moderate numbers of lymphocytes and fewer plasma cells within the deep mucosa. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Omasum: Omasitis, necrotizing **(1pt)**, diffuse, severe, with marked submucosal edema **(1pt)**.

Give two differential diagnoses for this lesion: **(3pt)**

Arsenic toxicosis
Carbohydrate overload
Bovine pestivirus
Baccharis cordifolia toxicosis

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

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Case 4 – Tissue from an ox (Not a descriptive slide. Just note changes).

MICROSCOPIC DESCRIPTION: Pons: Multifocally, the perikarya and axons of many neurons is expanded by globular aggregates of a hyaline glassy material which range up to 15 um. (Lafora bodies)

MORPHOLOGIC DIAGNOSIS: Pons, neurons: Polyglucosan (Lafora) bodies, numerous.

WHY WAS THIS CASE CHOSEN? I haven't the faintest idea.

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