

Case 1. Tissue from a turtle.

**MICROSCOPIC DESCRIPTION:** Cross-section through skull: There is bilateral and extensive full-thickness **(1pt.)** necrosis **(2pt.)** of oral mucosa within the section. Mucosal epithelium is hypereosinophilic **(1pt.)**, granular, and often sloughed and admixed with fibrin, hemorrhage, large colonies of bacteria **(1pt.)**, keratin, and plant material. At the edges of necrotic areas, mucosal epithelium exhibits intracytoplasmic swelling **(1pt.)**, and nuclei are often shrunken and condensed (degenerate) **(1pt.)**, and necrotic epithelial cells are scattered throughout all levels of the mucosa. Submucosal capillaries **(1pt.)** are congested and surrounded by moderate numbers of lymphocytes, plasma cells, and fewer heterophils, and the submucosa is mildly edematous. Unilaterally, there is a focal area of lytic necrosis **(2pt.)** within the lacrimal gland **(1pt.)**, in which mucus epithelium is necrotic and replaced by a coagulum of eosinophilic karyorrhectic debris which effaces glands and stroma. The necrotic area is infiltrated at the periphery by low to moderate numbers of histiocytes, admixed with fewer lymphocytes and plasma cells **(1pt.)**. Similar but smaller areas of necrosis, often incorporating only one glandular acinus are scattered through the remainder of the gland, and the interstitium contains low numbers of lymphocytes and plasma cells. there is mild multifoal myofibers degeneration (shrinkage, eosinophilia, fragmentation) within the skeletal muscle of the face, and mild to moderate dilation of dermal lymphatics.

**MORPHOLOGIC DIAGNOSIS:**

1. Oral cavity: Stomatitis, necrotizing, focally extensive, severe. **(2pt)**
2. Lacrimal gland: Dacryoadenitis, necrotizing, multifocal, mild. **(2pt)**

**CAUSE:** Chelonian ranavirus **(3pt.)**

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

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Case 2. Tissue from a snake.

**MICROSCOPIC DESCRIPTION:** Liver **(1pt.)**: Replacing approximately 90% of the hepatic parenchyma, there is a poorly demarcated, infiltrative, moderately cellular, unencapsulated, multilobular neoplasm **(2pt.)**. Neoplastic cells are arranged in nests and packets **(1pt.)** on a fine fibrovascular stroma **(1pt.)**. Neoplastic cells have indistinct cell borders, range from polygonal to spindle **(1pt.)**, and have moderate to abundant granular eosinophilic cytoplasm **(1pt.)**. Nuclei are irregularly round to oval with finely clumped chromatin and 1-2 small blue nucleoli **(1pt.)**. There is moderate to marked anisokaryosis **(1pt.)** with pleomorphic nuclei **(1pt.)** scattered through the neoplasm. Mitotic figures are rare **(1pt.)**. There are islands of normal iridophores with greenish-black birefringent pigment granules **(1pt.)** scattered throughout the neoplasm and multifocal areas of coagulative necrosis **(1pt.)** and hemorrhage. The remaining hepatocytes often contain one or multiple small discrete cytoplasmic vacuoles (lipid) **(1pt.)**.

**MORPHOLOGIC DIAGNOSIS:** Liver: Iridophoroma **(5pt.)**.

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

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Case 3. Tissue from a cape buffalo.

**MICROSCOPIC DESCRIPTION:** Kidney: The renal pelvis is diffusely and irregularly dilated **(1pt.)** and filled by irregular laminated **(1pt.)**, birefringent **(1pt.)** amphophilic crystals ranging from 30- 250um in diameter **(1pt.)**. Occasionally crystals are outlined by highly birefringent greenish black pigment **(1pt.)**. Crystals are admixed with low to moderate amounts of degenerate neutrophils **(1pt.)**, sloughed epithelial cells, fibrin, and protein. There is mild to moderate multifocal hyperplasia of the transitional epithelium **(1pt.)** and pelvic submucosa is infiltrated by low to moderate numbers of neutrophils and lymphocytes **(1pt.)**. Crystals are occasionally present within the transitional epithelium **(1pt.)**, and higher up within the tubules, where they have a more homogenous amphophilic aspect. Throughout all levels of the medulla and cortex, tubules are mildly ectatic **(1pt.)**, and lined by variably hypertrophic to attenuated epithelium and contains variable combinations and concentrations of pink homogenous eosinophilic protein **(1pt.)**, viable and degenerate neutrophils **(1pt.)** admixed with sloughed necrotic tubular epithelium, and granular cellular debris **(1pt.)**. The interstitium is multifocally expanded by low numbers of lymphocytes and plasma cells. there is mild diffuse fibrosis of the interstitium throughout the cortex **(1pt.)**. Glomeruli are fetal.

**MORPHOLOGIC DIAGNOSIS:**

Kidney, pelvis: Pelvic urolithiasis, focally extensive, severe, with diffuse, mild suppurative tubulitis. **(4pt)**

**CAUSE:** Congenital xanthinuria **(1pt.)**

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

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Case 4. Tissue from a snake.

**MICROSCOPIC DESCRIPTION:** Intestine: Diffusely and circumferentially, the mucosa, submucosa, and inner layers of the muscularis are replaced by a brightly eosinophilic necrotic coagulum **(1pt.)** which is composed of abundant karyorrhectic cellular debris, hemorrhage **(1pt.)**, fibrin **(1pt.)**, edema, bacterial colonies **(1pt.)**, and numerous heterophils **(1pt.)** and hemosiderin-laden macrophages **(1pt.)** with rare multinucleated macrophages. Scattered throughout the coagulum and extending into the underlying remaining muscularis, are low to moderate numbers of 20-30um **(1pt.)** amebic trophozoites **(2pt.)**, with amphophilic smudgy cytoplasm, occasional cytoplasmic vacuoles, and nucleus with a single prominent nucleolus (endosome). **(2pt.)** The remaining muscularis and serosa are multifocally infiltrated with low to moderate numbers of heterophils and macrophages (often hemosiderin-laden), admixed with cellular debris, hemorrhage and edema. **(1pt.)** Scattered throughout the muscularis Vessels within the muscularis and serosa often have brightly eosinophilic walls which contain cellular debris (vasculitis), and often contain nonocclusive fibrin thrombi **(1pt.)**, and are surrounded by low to moderate numbers of lymphocytes and plasma cells **(1pt.)**.

**MORPHOLOGIC DIAGNOSIS:** Intestine: Enteritis, necrotizing, circumferential, diffuse, severe, with numerous amebic trophozoites. **(3pt.)**

**CAUSE:** *Entamoeba histolytica* **(2pt.)**

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