

WSC 2011-2012, Conference 16

Case 1. Tissue from a silver carp.

MORPHOLOGIC DESCRIPTION: Eye, globe: Effacing the anterior chamber and vitreous **(1pt)**, multifocally infiltrating the uvea, sclera **(1pt)**, and cornea, displacing the lens posteriorly **(1pt)** and elevating the retina, there is an unencapsulated, infiltrative, poorly demarcated, moderate cellular neoplasm **(1pt)**, which contains three distinct neoplastic cell populations **(1pt)**. The predominant cell type is a spindle cell **(1pt)**, which is arranged in long streams and interweaving bundles **(1pt)**, has indistinct cell borders and a moderate amount of mildly vacuolated eosinophilic cytoplasm. Nuclei are elongate with finely stippled chromatin and one to two small nucleoli. Mitoses are rare in this population. The second neoplastic population are large polygonal cells **(1pt)** which resemble neurons **(1pt)**. These cells have distinct cell borders with an moderate amount of finely granular basophilic cytoplasm **(1pt)**. Nuclei are large, randomly placed within the cells, with finely clumped chromatin and a single large eosinophilic nucleolus. Mitoses are also rare in this population. Finally, scattered throughout the neoplasm are small polygonal cells with a moderate amount of brightly eosinophilic cytoplasm and apical nuclei which form prominent rosettes **(1pt)** (neuroblasts). **(1pt)** There are multifocal areas of lytic necrosis **(1pt)** scattered throughout the neoplasm which are infiltrated by low to moderate numbers of histiocytes. The overlying cornea is focally infiltrated by the neoplasm **(1pt)**, ulcerated, and necrotic. The adjacent corneal stroma is markedly edematous, and there is moderate hyperplasia of the corneal epithelium. The lens capsule is multifocally lost, and in areas, the neoplasm infiltrates the lens itself. **(1pt)** In these areas, there is marked swelling of lenticular fibers, infiltration of large numbers of histiocytes and lymphocytes, and at one edge, there is woven bone **(1pt)** lined by osteoblasts (which may have arisen from metaplasia of extruded lens fibers). The retina is detached from the underlying choroid, infiltrated by the neoplasm, and markedly thinned across all layers. **(1pt)**

MICROSCOPIC DIAGNOSIS: Eye, globe: Ganglioneuroblastoma **(2pt.)**

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

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Case 2. Tissue from a Moorish idol.

MORPHOLOGIC DESCRIPTION: Intestine: Multifocally, intestinal villi appear markedly thickened **(1pt)**, crowded and have odd branching patterns **(1pt)**. On these villi, the epithelium is moderately to markedly hypertrophic **(1pt)** and hyperplastic **(1pt)**, occasionally with piling up of multiple layers **(1pt)** of epithelium. Approximately half of the epithelial cells **(1pt)** contain a large, centrally placed cytoplasmic **(1pt)** vacuole containing 4-8 round to oval **(1pt)** myxosporidian **(2pt)** pansporoblasts which measure between 6-8 um **(1pt)** in diameter. The sporoblasts have distinct cell borders with a moderate amount of vacuolated eosinophilic cytoplasm and a centrally placed nucleus. **(1pt)** The lamina propria of affected segments of intestine is expanded by increased numbers of histiocytes and lymphocytes **(2pt)**. In an adjacent, unaffected section of intestine, villi are carpeted with large numbers of round to elongate ciliates **(1pt)** ranging up to 15um in diameter with abundant microvacuolated cytoplasm and large basophilic nucleoli. (Note: these are hugely cool-looking, but may not be present in all sections due to variation.) within this intestinal section, enterocytes often have apical autophagocytic vacuoles and occasionally, pyknotic nuclei. Within hepatic bile ducts, there are tangential or cross-sections of a second myxosporidian parasite which is elongate to spindled with a thick cell wall and multiple nuclei **(1 pt.)**

MICROSCOPIC DIAGNOSIS: Intestine: Enteritis, histiocytic and lymphocytic, segmental, moderate to marked, with mucosal hypertrophy and hyperplasia and numerous intracytoplasmic myxosporidian pansporoblasts. **(3 pt)**.

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

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Case 3. Tissue from a mudpuppy.

MORPHOLOGIC DESCRIPTION: Kidney: Diffusely, the renal interstitium is variably expanded and tubules and glomeruli are surrounded, separated, and occasionally replaced **(1pt)** by moderate numbers of macrophages **(1pt)**, fewer neutrophils **(1pt)** and rare multinucleated macrophages **(1pt)**, lymphocytes, and low to moderate amounts of extravasated erythrocytes, collagen and plump fibroblasts (fibrosis). The cellular infiltrate is also occasionally present within Bowman's capsule in some glomeruli, resulting in moderate expansion of Bowman's space **(1pt)**. Tubules range from atrophic to ectatic **(1pt)**, and occasionally contain numerous sloughed epithelial cells with lesser number of histiocytes and neutrophils and small amounts of cellular debris pale pink protein **(1pt)**. Within aggregates of inflammatory cells within tubular lumina, the interstitium, and even glomeruli, there are numerous pigmented **(1pt)** fungal hyphae **(1pt)**. Hyphae are septate with dichotomous branching and have parallel walls that are 4-6 um in diameter **(2pt)**.

Liver: Diffusely, portal areas are expanded by low to moderate numbers of macrophages, lymphocytes and rare neutrophils, and there is mild ductular reaction (biliary hyperplasia) **(1pt)**. Multifocally, subcapsular hepatocytes are replaced by moderate numbers of histiocytes and neutrophils, which in some sections, form pyogranulomas **(1pt)**. Rare fungal hyphae as previously described are also present within these areas **(1pt)**.

MICROSCOPIC DIAGNOSIS: 1. Kidney: Nephritis, tubulointerstitial, pyogranulomatous, diffuse, moderate, with numerous pigmented fungal hyphae. **(3pt)**

2. Liver: Hepatitis, pyogranulomatous, multifocal, mild to moderate, with rare pigmented fungal hyphae **(1pt)**.

NAME THE CONDITION: Phaeohyphomycosis **(1pt)**

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

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Case 4. Tissue from a brook trout.

MORPHOLOGIC DESCRIPTION: Pancreas: Exocrine pancreatic cells **(2pt)** multifocally and extensively exhibit loss of zymogen granules **(1pt)** and shrinkage (degeneration) **(1pt)**, and in many areas have a loss of differential staining, with granular eosinophilic cytoplasm and pyknotic to karyorrhectic nuclei **(1pt)** (necrosis) **(2pt)**. Within some sections of intestine, there are scattered individual and small groups of enterocytes which exhibit hypereosinophilic cytoplasm and pyknotic to karyorrhectic nuclei **(1pt)** (necrosis) **(2pt)**

MICROSCOPIC DIAGNOSIS: 1. Exocrine pancreas: Necrosis, multifocal to coalescing. **(3pt)**

2. Intestine: Enteritis, necrotizing, multifocal, mild. **(2pt)**

NAME THE DISEASE: Infectious Pancreatic Necrosis **(2pt)**

CAUSE: Piscine Aquabirnavirus **(2pt)**

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