

WSC 2019-2020 Conference 10

Case 1. Tissue from a Caribbean spiny lobster

MICROSCOPIC DESCRIPTION: Hepatopancreas (sections also contain midgut and gill) **(2pt.)**: Multifocally, hemal sinuses are variably dilated and filled with a moderate numbers of circulating hemocytes and proliferating spongy connective tissue. **(2pt.)** Fixed phagocytes surrounding the hepatopancreatic tubules are hypertrophic **(2pt.)**, with loss of the typical rosette-like arrangement. Circulating hemocytes, fixed phagocytes, and spongy connective tissue cells **(2pt.)** often have enlarged, hypertrophic nuclei **(1pt.)** that contain large eosinophilic to amphophilic inclusion bodies **(2pt.)**, occasionally surrounded by a clear halo, with margination of the nuclear chromatin along the nuclear membrane (Cowdry-type A inclusion bodies). **(1pt.)** Similar inclusions are also seen within circulating hemocytes within the hepatopancreas, as well as the midgut and gill. The cytoplasm of the affected cells often contain smaller, variably-sized, round eosinophilic globules. **(1pt.)** Reserve inclusion cells throughout the hepatopancreas are decreased in number. Multifocally, epithelial cells lining the hepatopancreatic tubules are atrophic or lost, and the lumen contains a moderate amount of basophilic granular material and few individual sloughed epithelial cells.

MORPHOLOGIC DIAGNOSIS:

1. Hepatopancreas: Hepatopancreatitis, interstitial, hemocytic **(1pt.)**, diffuse, moderate, **(1pt.)** with numerous eosinophilic intranuclear inclusion bodies **(1pt.)**
2. Hepatopancreas, gill, midgut; circulating hemocytes: Eosinophilic intranuclear inclusion bodies.
3. Hepatopancreas: Atrophy, tubular, diffuse, severe. **(1pt.)**

CAUSE: *Panulus argus* virus 1 **(2pt)**

O/C - (1pt.)

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Case 2. Tissue from an oscar.

MICROSCOPIC DESCRIPTION: Kidney. The parenchyma of the kidney is expanded by concurrent neoplastic and infectious processes. Effacing 95% of the kidney, there is an unencapsulated, cystic, moderately cellular, infiltrative and poorly demarcated neoplasm. **(1pt.)** The neoplasm is composed of epithelial cells **(1pt.)** which are arrayed in tubules **(1pt.)** of widely variable diameter up to 3mm. **(1pt.)** Neoplastic cells are cuboidal to columnar **(1pt.)** with indistinct cell borders and a moderate amount of eosinophilic granular cytoplasm. **(1pt.)** Nuclei are irregularly round with finely stippled chromatin and a small basophilic nucleolus. **(1pt.)** Mitoses are rare. **(1pt.)** Neoplastic tubules are often filled with variable combinations and concentrations of granular brown to pink cellular debris, and eosinophilic homogenous protein. **(1pt.)** Epithelium lining neoplastic tubules is often degenerate. **(1pt.)** Both neoplastic and remnant normal tubules occasionally contain fam-like birefringent crystals within their lumina. **(1pt.)** Scattered randomly throughout the neoplasm, and measuring up to 3.1 mm in diameter are single to coalescing granulomas **(1pt.)**, composed of a central area of brightly eosinophilic vacuolated cellular debris containing aggregates of crystalline mineral , surrounded by thin lamellated brightly eosinophilic histiocytes **(1pt.)**, surrounded by a thick layer of epithelioid macrophages **(1pt.)** infiltrated by few granulocytes. Histiocytes at the periphery of the granulomas often contain dark brown granular pigment (melanin/lipofuscin). Remnant normal kidney is infiltrated by sheets of macrophages that often replace normal hematopoietic tissue. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Kidney: Renal cystadenoma. **(3pt.)**

2. Kidney: Granulomas, numerous. **(1pt.)**

CAUSE: *Mycobacterium* sp. (*M. marinum* probably the best guess.) **(1pt.)**

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

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Case 3. Tissue from a bearded dragon.

MICROSCOPIC DESCRIPTION: Liver: The liver has a profound nodularity **(1pt)** at subgross magnification. Within nodular areas, hepatocytes are diffusely swollen **(1pt)**, obscuring sinusoids, **(1pt)** and their cytoplasm contains numerous discrete clear lipid vacuoles **(1pt)**. There are numerous individualized and small groups of necrotic **(1pt)** hepatocytes. Occasional hepatocyte nuclei are often swollen by a dark basophilic **(1pt)** rhomboidal **(1pt)** viral inclusion surrounded by a clear halo **(1pt)**, and many of these hepatocytes are individualized, shrunken and hypereosinophilic **(1pt)** (necrosis) **(1pt)**. Areas of necrosis are often infiltrated by moderate numbers of macrophages **(1pt)**, and fewer heterophils admixed with cellular debris. In some areas, macrophages form nodular aggregates **(1pt)**. Areas of nodular hepatocellular regeneration are separated by moderately atrophic hepatocytes which often contain brown pigment (lipofuscin, melanin) **(1pt)**, infiltrating macrophages, rare fibroblasts, and small amounts of fibrous connective tissue. **(1pt)** There is mild biliary epithelial hypertrophy and rare intranuclear inclusions within biliary epithelium. Abundant fibrous connective tissue containing plump fibroblasts extends outward into the surrounding parenchyma from most portal areas.

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing, **(1pt)** multifocal to coalescing, chronic **(1pt)**, moderate with fibrosis **and** numerous hepatocellular intranuclear viral inclusions **(1pt)**.

Cause: Agamid adenovirus-1 **(2pt)**

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

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Case 4. Tissue from a silvery salamander.

MORPHOLOGIC DESCRIPTION: Skin **(1pt.)**: Multifocally, the epidermis **(1pt.)** is expanded by the presence of multiple sporangia **(2pt.)** measuring .0.3 x 0.6mm **(1pt.)** with a thin eosinophilic wall**(1pt.)** and containing numerous endospores **(2pt.)** measuring 10um **(1pt.)** in diameter with a basophilic 1um wall, no discernable contents, which are floating in light eosinophilic proteinaceous fluid. **(1pt.)** Multifocally, there are areas of the epidermis in which the cells are diffusely pink, have lost differential staining, are elevated from the underlying dermis, and pooled edema fluid is present within the cleft. **(1pt.)** There is thrombosis and aggregation of granulocytes along the underlying blood vessels. There is multifocal epidermal acanthosis. Scattered through the underlying skeletal muscle, rare skeletal muscle cells are hypereosinophilic, shrunken, and angular with loss of cross striations **(1pt.)** and hyperchromatic to pyknotic nuclei **(1pt.)** (necrosis) **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: 1. Skin, epidermis: Sporangia, numerous. (2pt.)

2. Skin, epidermis: Necrosis, multifocal, with vasculitis, dermatitis, and epidermal hyperplasia.

2. Skeletal muscle: Necrosis, multifocal, minimal. **(2pt.)**

Cause: *Amphibiocystidium* sp. **(1pt.)**

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