

WSC 2013-2014, Conference 23

Case 1. Tissue from a carp.

(NOTES ON THIS CASE: Be very careful when identifying necrosis in fish that were found dead, as this one was. Autolysis is accelerated, and even an hour of floating dead in the water can cause significant changes which are often overinterpreted as necrosis and edema.)

MICROSCOPIC DESCRIPTION: Gill. Gill filaments are uneven, with multifocal clubbing. Secondary lamellae are diffusely expanded **(1pt)**, primarily as a result of hypertrophy and hyperplasia of epithelium **(2pt)** (pavement cells) at both the gill tips and at the base of the primary filaments, which often results in fusion of lamellae, and these areas are infiltrated by moderate numbers of eosinophilic granular leukocytes **(1pt)** and lymphocytes **(1pt)**, with fewer histiocytes. Mucus cells are moderately increased **(1pt)** in number especially within the hyperplastic epithelium at the gill tips. The primary lamellae are congested, and the interstitium is infiltrated by moderate numbers of granulocytes and lymphocytes, with fewer plasma cells and rare macrophages. **(1pt)** Cartilage within the gills is abnormally tortuous and appears to stain a lighter pink than normal (mild chondrodysplasia – nutrition?) **(1pt)** At the base of the gill arch, the venous sinus is markedly dilated and there are numerous lymphocytes and fewer plasma cells in the adjacent soft tissue. **(1pt)** Within the gill arch, arterioles contain multiple fibrin thrombi **(2pt)**, some of which are organized. There is mild atrophy of fat at the base of the gill arch. There is moderate hyperplasia of the oral mucosal epithelium and mild increase in mucus cells, and is infiltrated by numerous lymphocytes. **(1pt)** Numerous epithelial cells contain variably shaped 2-4um eosinophilic intranuclear inclusions **(1pt)** (these don't look like viral inclusions though).

MORPHOLOGIC DIAGNOSIS:

Gill: Branchitis, proliferative, diffuse, severe, with marked epithelial hypertrophy and hyperplasia, fusion of secondary lamellae, and numerous fibrin thrombi. **(4pt)**

NAME THE CONDITION: Carp edema virus **(2pt)**

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

WSC 2013-2014, Conference 23

Case 2. Tissue from a zebrafish.

(This is not a good descriptive slide; find the organism, and move on to the next....once again, fish tissues often look necrotic ewhen they aren't and in regular formalin, neural tissue often has heavy vacuolation artifact. I'm not even going to grade this out for you...)

MICROSCOPIC DESCRIPTION: Sagittal section: Multifocally, within the brain and the spinal cord, there are few microsporidian cysts ranging from 25-50um in diameter. The cysts contain oval spores measuring 5-6um in diameter. Rarely, within the spinal cords, the cysts are ruptured and small aggregates of macrophages contain few spores within their cytoplasm.

MORPHOLOGIC DIAGNOSIS: 1. Brain, spinal cord: Microsporidial xenomas, multiple 2. Spinal cord – Ganglioneuritis, histiocytic, multifocal, mild with intracytoplasmic microsporidian spores.

CAUSE: *Pseudoloma neurphilia*

O/C: (1pt.)

WSC 2013-2014, Conference 23

Case 3. Tissue from a salmon.

MICROSCOPIC DESCRIPTION:: Pseudobranch: Expanding and replacing the pseudobranch is an encapsulated, well-demarcated, expansile, densely cellular, moderately cellular, nodular neoplasm **(2pt)**. The neoplasm is composed of three basic cell types **(2pt)**. One cell type is primitive blastema **(1pt)**, spindled to polygonal, with small amounts of homogenous amphophilic to lightly eosinophilic cytoplasm. **(1pt)** Nuclei are irregularly oval with 1-3 small blue nucleoli. Mitotic figures are rare **(1pt)**, and there are occasional apoptotic cells. **(1pt)** The second cell type is epithelial, which forms stacks of columnar cells resembling secondary lamellae **(1pt)** with moderate amounts of homogenous eosinophilic cytoplasm, with nuclei as previously described. **(1pt)** Mitotic figures average 1-2/400x HPF in fields containing these structures. **(1pt)** In other areas, there are foci of well-differentiated cartilage containing chondrocytes **(1pt)**, surrounded by concentrically whirling arrays of blastemal cells **(1pt)**, and bounded by a population of closely packed blastemal cells which palisade in rows. **(1pt)** The connective tissue of the neoplasm contains numerous granulocytes **(1pt)** and lymphocytes, as well as aggregates of mucus containing cells. **(1pt)**

MORPHOLOGIC DIAGNOSIS:

Pseudobranch: Branchioblastoma **(3pt)**

(Notes on diagnosis: Yes, this is a rare tumor. While I would probably give full credit for teratoma (there are both epidermal and mesodermal differentiation here), note that the tissues contained in the neoplasm attempt to recapitulate a pseudobranch just in a jumbled fashion – so it is a bit different from a teratoma, or for that measure, a hamartoma or choristoma.)

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

WSC 2013-2014, Conference 23

Case 4. Tissue from a turtle

**MICROSCOPIC DESCRIPTION:**

Kidney: Renal tissue is separated, surrounded and largely replaced **(1pt)** by anastomosing trabeculae **(1pt)** of lamellar **(2pt)** bone which contains regularly spaced osteocytes within lacunae. Bony trabeculae are lined by flattened osteoblasts **(1pt)** and occasionally osteoclasts **(1pt)** in Howship's lacunae **(1pt)** and trabeculae contain numerous reversal lines **(1pt)** indicating ongoing remodeling, and are separated by pre-existent renal tissue, or occasionally, fibrous connective tissue. **(1pt)**. Multifocally, entrapped renal tubules are occasionally ectatic **(2pt)** and epithelial cells exhibit marked swelling and vacuolation **(1pt)** (degeneration) **(2pt)** and are occasionally hypereosinophilic with granular cytoplasm and pyknotic nuclei (necrosis.) **(2pt)**

**MORPHOLOGIC DIAGNOSIS:** Kidney: Osseous metaplasia, diffuse, severe, with renal tubular degeneration and necrosis. **(3pt.)**

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