

WSC 2021-2022

Conference 13, Case 1.

Tissue from a White's tree frog.

MICROSCOPIC DESCRIPTION: Sections of legs with skin and underlying muscle and bone: There is multifocal marked hyperplasia of the epidermis **(1pt)** with loss of normal stratification and overlying hyperkeratosis **(1pt)** to a variable degree based on location. Within the stratum corneum **(1 pt)**, including the overlying hyperkeratotic debris **(1pt)**, there are numerous chytrid thalli **(2pt)** which are round, vary in size from 5-15 um in diameter, and have 1-2 um thick walls. **(1pt)** There are three forms including cyst-like thalli (zoosporangium) that contain multiple discrete, basophilic, 2-3 um spores (zoospores) **(1pt)**; fewer multinucleate forms with finely granular basophilic cytoplasm, multiple nuclei, and occasional internal septation **(1pt)**; and rare uninucleate forms with homogenous basophilic cytoplasm and a single nucleus. Empty thalli **(1pt)** are outlined by a 2um thick eosinophilic wall. Primarily within the areas of hyperkeratosis, but occasionally within the stratum corneum are basophilic septate fungal hyphae **(1pt)** which are 4-6um in diameter with dichotomous acute angle branching, as well as numerous colonies of small bacilli **(1pt)**. There are small numbers of granulocytes and lymphocytes scattered throughout the underlying dermis **(1pt)**. Multifocally, epidermal mucus glands are infiltrated by low numbers of degenerate granulocytes.

MORPHOLOGIC DIAGNOSIS: Skin, epidermis: Hyperplasia **(1pt)** and hyperkeratosis **(1pt)**, multifocal to coalescing, diffuse, moderate to severe, with numerous fungal thalli and zoospores. **(1pt)**

CAUSE: *Batrachochytrium dendrobatidis* **(3pt)**

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

WSC 2021-2022
Conference 13, Case 2.
Tissue from a tilapia.

MICROSCOPIC DESCRIPTION: Transverse section at level of head kidney: Scattered randomly throughout the renal parenchyma **(1pt.)**, there are several well-formed granulomas **(1pt.)**. The granulomas range up to 0.5mm in diameter **(1pt.)** and are composed of a central area of necrotic macrophages and neutrophils admixed with abundant cellular debris and occasional aggregates of 1-3µm bacilli **(1pt.)**, which are centrifugally surrounded by up to 8 layers of epithelioid macrophages **(2pt.)** with moderate amounts of vacuolated cytoplasm and rarely, discrete cysts containing flocculent eosinophilic material **(1pt.)**. In some areas, the interstitium is expanded by disorganized aggregates of macrophages and fewer granulocytes and lymphocytes, **(1pt.)** and in some areas, infiltrate necrotic renal tubules. In these areas, there is one or more of the following: loss of basement membrane with infiltration of inflammatory cells into the wall or lumen, **(1pt.)** individualization, swelling and hypereosinophilia of renal tubular epithelium (degeneration) **(1pt.)**, shrinkage, fragmentation and pyknosis (necrosis) **(1pt.)**. There is a focal granuloma as previously described within the liver as well. **(1pt.)** Multifocally, there is mild to moderate thickening of the epidermis with disorganization of normal stratification and infiltration of low numbers of lymphocytes within the basal layers. **(1pt.)** There are multiple cross sections of trichodinid parasites on top of the areas of hyperplastic epidermis.

MORPHOLOGIC DIAGNOSIS: 1. Kidney: Granulomas **(1pt.)**, multiple, with multifocal granulomatous nephritis and multifocal renal tubular degeneration, necrosis, and loss. **(1pt.)**

2. Liver: Granuloma, focal. **(1pt.)**

3. Scaled skin, epidermis: Dermatitis, proliferative and lymphocytic, multifocal, mild to moderate, with trichodinid ectoparasites. **(1pt.)**

Cause: *Edwardsiella anguilera*. **(2pt.)**

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

MICROSCOPIC DESCRIPTION: Intestine: Diffusely and circumferentially, there is blunting **(1pt)** and occasional fusion **(1pt)** of mucosal folds. The lamina propria-submucosa **(1pt)** is expanded by an infiltrate of moderate numbers of histiocytes **(1pt)**, lymphocytes **(1pt)** and fewer granulocytes. Multifocally and randomly primarily within the mucosal epithelium **(1pt)** but also within the lamina propria are cross- and tangential sections of adult **(1pt)** aphasmid nematodes which measure up to 30um **(1pt)** in diameter with a thin ridged eosinophilic cuticle, a prominent basophilic stichosome **(1pt)**, inapparent musculature and bacillary bands **(1pt)**, a uterus containing eggs or testis with sperm, and an intestine lined by large uninucleate cells. Eggs are also present within the intestinal lumen and are oval, measuring 12umx20um and bioperculate with a thin hyaline shell and a granular eosinophilic embryo. **(1pt)** The overlying mucosal epithelium is multifocally eroded, ulcerated **(1pt)** and rarely hyperplastic, and occasionally fused between villi. Lymphocytes occasionally migrate into the villar epithelium. **(1pt)** Proprial vessels are dilated with prominent endothelium, and segmentally, the deep lamina propria is edematous. **(1pt)** There is diffuse edema of the gastric submucosa, and there are numerous well-demarcated granulomas **(1pt.)**, scattered throughout, composed of a central area of necrotic macrophages and neutrophils admixed with abundant cellular **(which are centrifugally surrounded by up to 4-5 layers of epithelioid macrophages .**

MORPHOLOGIC DIAGNOSIS: Intestine: 1. Enteritis, lymphohistiocytic **(1pt)**, diffuse, moderate, with intramucosal aphasmid adults **(1pt)** and luminal eggs. **(1pt)**.
2. Stomach, submucosa: Granulomas, multiple.

CAUSE: Capillaria **(2pt)** pterophylli (but all points are given for genus and none for species).

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

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Case 4. Tissue from a trout.

MICROSCOPIC DESCRIPTION: Scaled skin and underlying soft tissue **(1pt)**: Arising from the dermis, and effacing the overlying necrotic scaled skin **(1pt)** and infiltrating the underlying skeletal muscle **(1pt)**, there is an infiltrative, unencapsulated, moderately cellular, variably dense, poorly demarcated neoplasm. **(2pt)** The neoplasm is composed of spindle cells **(1pt)** in long interlacing streams and bundles **(1pt)** with a small amount of fibrillar eosinophilic cytoplasm **(1pt)** on abundant myxomatous **(1pt)** stroma. Less than ten percent of neoplastic cells have cytoplasmic melanin **(1pt)**. Nuclei are oval to spindle with finely stippled chromatin and indistinct nuclei. **(1pt)** There is mild to moderate anisocytosis and anisokaryosis. **(1pt)** Mitoses average three per 2.37mm^2 . **(1pt)** Neoplastic cells infiltrate and surround myocytes of the underlying skeletal muscle. **(1pt)** Myocytes exhibit one or more of the following: Shrinkage (atrophy) **(1pt)**, hypereosinophilia, loss of cross striations, fibrillation, fragmentation, and pyknosis of satellite nuclei (degeneration) **(1pt)**

MORPHOLOGIC DIAGNOSIS: Scaled skin and dermis: Sarcoma (melanoma, nerve sheath tumor OK). **(4pt)**

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