WSC 2021-2022
Conference 10, Case 1.

Tissue from a tomato frog.

MICROSCOPIC DESCRIPTION: Cross section of head with eyes, rhinencephalon, and oral cavity **(1pt.)**: Arising from and effacing the maxillary submucosa and maxillary bone and elevating the multifocally eroded mucosa and extending into the oral cavity **(1pt.)** is an exophytic, unencapsulated, infiltrative, moderately cellular, multilobular neoplasm **(1pt.)** composed of disorganized islands and trabeculae **(1pt.)** of odontogenic epithelium **(1pt.)** attempting to recapitulate teeth (prototeeth or denticles) **(1pt.)** on a moderate fibrovascular stroma **(1pt.)**. Focally clustered at one edge of the are well-formed denticles, characterized by a prominent layer of columnar **(1pt.)** cells with oval nuclei and a moderate amount homogenous eosinophilic cytoplasm (ameloblasts or odontogenic epithelium) **(1pt.)** which palisade along a basement membrane, and abut a layer of pink tubular dentin **(1pt.)** ranging up to 200um in diameter. On the other side of the ameloblasts are loosely arranged stellate to spindled cells recapitulating stellate reticulum **(1pt.)**. On the opposite side of the dentin from the ameloblasts are smaller palisading columnar cells with basilar nuclei which are more tightly packed (odontoblasts.) **(1pt.)** The dentin and odontoblasts border and rarely enclose a loose arrangement of spindle cells with numerous congested vessels, which recapitulates the dental pulp **(1pt.)**. Elsewhere in the neoplasm, less differentiated areas of the neoplasm contain islands and serpentine arrays of odontogenic epithelium which contain varying quantities of ameloblasts, dentin, and odontoblasts, but which lack induction of surrounding mesenchyme. Scattered throughout the neoplasm are nests of ameloblastic epithelium which lacks production of any matrix. **(1pt.)** The stroma throughout the neoplasm is composed of loosely arranged collagen which contains numerous fibroblasts and scattered low numbers of granulocytes, histiocytes, and lymphocytes. **(1pt.)** There is active remodeling of bone adjacent and within the neoplasm, with predominance of bone resorption and small areas of woven bone production. **(1pt.)**

Within the salivary gland and primarily within the salivary ducts, there are numerous cross sections of larval nematodes which are 30um in diameter, with a thin cuticle, a rhabditiform esophagus, and numerous brightly eosinophilic globules within the pseudocoelom.

MORPHOLOGIC DIAGNOSIS: Gingiva: Compound odontoma **(3pt.)**

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

WSC 2021-2022
Conference 10, Case 2.
Tissue from a penguin.

MICROSCOPIC DESCRIPTION: Kidney: There is multifocal degeneration **(1pt.)** (cell swelling, aggregates of brightly eosinophilic cytoplasmic inclusions) and necrosis **(1pt.)** (pyknosis, karyorrhexis) of individual, small segments or rarely the entirely lining of proximal convoluted tubules **(1pt.)** with sloughing of necrotic cells and granular eosinophilic cellular and proteinaceous debris into the lumen. Diffusely, proximal convoluted tubular epithelium often has moderate amounts of granular brown pigment (lipofuscin) **(1pt.)** in the cytoplasm. Proximal convoluted tubular epithelial cells occasionally exhibit mild karyomegaly and have a single lightly eosinophilic intranuclear inclusion **(2pt.)** which is surrounded by a clear halo which marginates the chromatin. Tubules are occasionally obscured by densely packed sheaves of spicular radiating crystals **(1pt.)** within their lumina which replace the epithelial lining (gout) **(1pt.)**, and which are surrounded by a rim of epithelioid macrophages **(1pt.)** (which are most prominent in affected tubules in the medulla) . Multifocally, few lymphocytes and plasma cells infiltrate the interstitium, as well as low numbers of heterophils adjacent to necrotic tubules. **(1pt.)**

Liver: There is diffuse expansion of Kupffer cells by abundant intracytoplasmic iron. **(1pt.)** Portal areas are expanded by low to moderate numbers of lymphocytes and plasma cells. There are aggregates of erythrocytic and myeloid precursors **(1pt.)** scattered randomly throughout the sections in centrilobular and portal areas. Hepatocytes often small amounts of granular pigment (lipofuscin) **(1pt.)** within their cytoplasm as well as few discrete fat vacuoles.

Spleen: No significant findings.

MORPHOLOGIC DIAGNOSIS: 1. Kidney, tubules: Degeneration and necrosis, multifocal, with multifocal karyomegalic eosinophilic intranuclear inclusions. **(2pt.)**

2. Kidney, tubules: Nephritis, granulomatous, multifocal, mild, with gouty tophi. **(1pt.)**

3. Liver, Kupffer cells: Siderosis, diffuse, moderate (hemozoin OK – unfortunately, this is a digits.

4. Liver, hepatocytes, and renal tubular epithelium: Lipofuscinosis.

5. Liver: Extramedullary hematopoiesis, diffuse, mild.

CAUSE: Lead toxicosis **(2pt.)**

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

WSC 2021-2022 Conference 10
Case 3. Tissue from fish.

MICROSCOPIC DESCRIPTION: Swim bladder **(2pt.)** : The wall of the swim bladder is diffusely expanded up to 5 times normal thickness **(1pt.)** by multiple well-formed and occasionally coalescing granulomas **(1pt.)** which efface up to 50% of normal tissue. Granulomas infiltrate and multifocally efface the gas gland and rete mirabile and range up to 2mm in diameter. **(1pt.)** Granulomas are often centered on a brightly eosinophilic mass of necrotic neutrophils **(1pt.)** and eosinophils admixed with abundant cellular debris which are surrounded by one to multiple layers of epithelioid macrophages **(1pt.)**, fewer lymphocytes **(1pt.)** and rodlet cells, and often enmeshed with lamellations of collagen. **(1pt.)** In larger, more longstanding granulomas, macrophages have undergone epithelioid transformation with desmosome formation. **(1pt.)** There is diffuse fibrosis **(1pt.)** between granulomas and within the swim bladder wall, edema, and there are widely scattered moderate numbers of rodlet cells **(1pt.)**, and fewer histiocytes, neutrophils, and lymphocytes **(1pt.)**. There is ulceration of and extension of the overlying mucosa **(1pt.)**, and the external tunic is sloughed. **(1pt.)** Scattered throughout the section within the granulomas and intervening space ether are low numbers of 8x10um oval to pyriform spores **(1pt.)** with a 1um wall and two polar capsules **(1pt.),** which are often present within macrophages. There is a large optically clear gas bubble in the center of the section.

MORPHOLOGIC DIAGNOSIS: 1. Swim bladder: Aerocystitis **(1pt.)**, granulomatous **(1pt.)**, multifocal to coalescing , severe, with rodlet cell hyperplasia and mural gas bubble.
2. Swim bladder: Myxosporidial spores, intrahistiocytic and extracellular, numerous. **(1pt.)**

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

WSC 2021-2022 Conference 10
Case 4. Tissue from a Sydney rock oyster.

MICROSCOPIC DESCRIPTION Multiple impression smears are submitted for evaluation. The smears contain nuclear material in streaks or clusters, and abundant sperm **(1pt.).** There are numerous digestive gland epithelial cells **(2pt.)** with mild variation in size between 15-25µm, with large pale vacuolated cytoplasm and a loosely stained single nuclei. **(1pt.)** Occasionally there are basophilic secretory cells present, with dark blue cytoplasm and smaller size (approximately 5-10 µhm diameter) **(1pt.)**, and rare hemocytes. There are numerous various protozoal life cycle stages, including daughter cells **(2pt.)** (small 5-10 µm oval cells with blue cytoplasm), daughter cells containing secondary cells (larger 10-15 µm containing one or more plasmodia) **(2pt.)**, immature sporonts **(1pt.)**and mature sporonts **(1pt.)** (containing numerous blue refractile bodies and two spores), admixed with cellular debris and ruptured nurse cells (sporangiosori) **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Digestive gland, oyster: Numerous intrahistiocytic sporangia and myxospores **(3pt.)**

CAUSE: *Martiella sydneyi* **(3 pt)**

NAME THE DISEASE: QX Disease **(1pt.)**

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