

WSC 2021-2022

Conference 9, Case 1.

Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Kidney: Multifocally within the cortex and medulla, but most prominently at the corticomedullary junction **(1pt.)**, renal tubules and less commonly glomeruli are effaced by aggregates of moderate numbers of macrophages **(1pt.)** and fewer multinucleated giant cell macrophages **(1pt.)** which are centered on extracellular and intrahistiocytic, concave, 8-20 um **(1pt.)** diameter yeasts **(1pt.)** that have a pale, amphophilic center, a thin, refractile wall, are surrounded by a clear, 5 um wide, non-staining capsule **(1pt.)**, and occasionally exhibit narrow based budding. There are low numbers of lymphocytes and plasma cells at the periphery of these inflammatory foci **(1pt.)**, and occasionally, there are central aggregates of viable and necrotic neutrophils **(1pt.)**. Within areas of inflammation, tubules demonstrate a range of degenerative changes to include tubular epithelial vacuolation and swelling (degeneration) **(1pt.)**, pyknosis and karyorrhexis (necrosis) **(1pt.)**, and rupture. Within the cortex, occasional glomeruli contain previously described yeasts **(1pt.)** which expand glomerular capillaries, and in areas for glomerular capillary rupture, small numbers of macrophages surround/engulf yeasts. Yeasts are multifocally present within glomeruli capillaries, tubular lumina, and the renal interstitium without inciting any accompanying inflammation **(1pt.)**; affected glomerular tufts as well as tubular epithelium are compressed by fungal capsules. There is multifocal degenerative and necrotic changes of the epithelium as previously described in unaffected tubules. **(1pt.)** Multifocally, epithelium of the proximal convoluted tubules contain a granular brown intracytoplasmic pigment (lipofuscin). **(1pt.)** Diffusely, tubular lumens contain granular eosinophilic protein, and reflux of this protein often fills Bowman's space. There are low to moderate numbers of lymphocytes and plasma cells in the pelvic submucosa. There is diffuse congestion of glomerular and interstitial vessels.

**MORPHOLOGIC DIAGNOSIS:** Kidney: Nephritis, granulomatous **(1pt.)**, multifocal, marked, with numerous extracellular, intravascular, intratubular and intrahistiocytic yeasts, **(1pt.)**

**CAUSE:** *Cryptococcus neoformans* **(3pt.)**

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

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Conference 9, Case 2.

Tissue from a sheep.

**MICROSCOPIC DESCRIPTION:** Respiratory mucosa: Nasal cavity: Arising from the respiratory epithelium **(1pt.)** and a densely fibrotic lamina propria, is an unencapsulated, poorly circumscribed, moderately cellular, multilobulated neoplasm. **(1pt.)** Neoplastic epithelial cells form papillary projections **(1pt.)** on a moderate fibrovascular stroma; epithelial cells often form papillary projections **(1pt.)** into the lumen. Neoplastic cells are ciliated **(1pt.)** cuboidal to columnar epithelial cells **(1pt.)** with indistinct cell borders and a moderate amount of finely granular eosinophilic cytoplasm. **(1pt.)** Nuclei are round to oval with moderately stippled chromatin, and one variably distinct nucleolus. **(1pt.)** Anisocytosis and anisokaryosis are mild and the mitotic rate is 1-2 per 10 HPF (2.37mm<sup>2</sup>). **(1pt.)** The neoplastic stroma is infiltrated by moderate numbers of lymphocytes and plasma cells, **(1pt.)** which occasionally form large aggregates, and few neutrophils and rare eosinophils which also infiltrate the neoplastic epithelium. Remaining respiratory epithelium is hyperplastic **(1pt.)** with extensive areas of erosion and ulceration **(1pt.)**. The underlying submucosa is diffusely infiltrated by moderate numbers of lymphocytes **(1pt.)**, plasma cells and macrophages, with moderate numbers of neutrophils within and adjacent to areas of ulceration. Overlying the respiratory mucosa, there is an exudate of low to moderate numbers of neutrophils admixed with mucin and cellular debris. **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Nasal cavity: Respiratory carcinoma (adenocarcinoma OK). **(3pt.)**

**CAUSE:** Enzootic Nasal Tumor Virus (beta retrovirus: ENTV-1 in sheep, ENTV-2 in goats) **(2pt.)**

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

MICROSCOPIC DESCRIPTION: Larynx : Arising in the submucosa, and infiltrating the adjacent skeletal muscle, there is an unencapsulated, moderately cellular, poorly demarcated multilobular neoplasm. **(1pt.)** Neoplastic cells are arranged in vague short bundles **(1pt.)** on a fine fibrovascular matrix **(1pt.)**. Neoplastic cells are present in two distinct morphologies. **(1pt.)** The first morphology is polygonal to spindled **(1pt.)** with indistinct cell borders and a moderate to abundant finely granular eosinophilic cytoplasm. **(1pt.)** Nuclei are irregularly round with coarsely stippled chromatin and 2-3 small basophilic nucleoli. **(1pt.)** There is moderate anisocytosis and anisokaryosis **(1pt.)** and cytoplasmic invaginations **(1pt.)** are common. There are numerous multinucleated cells **(1pt.)** within this population and multinucleated cells are often spindled with nuclear rowing of up to 5 nuclei. Rare large polygonal multinucleated cells have up to 30 nuclei. **(1pt.)** Mitoses are rare. **(1pt.)** There are occasionally apoptotic cells of this morphology. The second morphologic appearance are smaller uninucleate cells which often surround the larger eosinophilic neoplastic cells. **(1pt.)** These cells possess a small amount of eosinophilic cytoplasm and indistinct cell borders, resembling satellite cells. **(1pt.)** Nuclei are irregularly round with coarsely stippled chromatin and indistinct nuclei. Mitoses are rare in this population also. In areas of infiltration of the underlying skeletal muscle, myofibers exhibit one or more of the following changes: shrinkage, loss of cross-striations, hypereosinophilia (atrophy) **(1pt.)** and occasional pyknosis and mineralization (necrosis). **(1pt.)** There is a focal area of hemorrhage within the neoplasm with rare scattered siderophages, and overlying submucosa is mildly edematous. There is multifocal erosion of the overlying mucosal epithelium with infiltration of low numbers of neutrophils in the subjacent superficial submucosa.

MORPHOLOGIC DIAGNOSIS: Larynx: Rhabdomyoma (rhabdomyosarcoma OK) **(3pt.)**.

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

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Case 4. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Lymph nodes (multiple): Scattered throughout the nodes, in largest numbers within the vascular lumina **(1pt)**, but also free within the paracortex **(1pt)**, and within the subcapsular, medullary **(1pt)** and cortical sinuses**(1pt)**, are large numbers of macrophages **(2jpt.)** that are enlarged up to 40 um **(1pt.)** in diameter by intracytoplasmic, developing schizonts **(1pt.)** containing up to 50, basophilic, 1 to 3 um merozoites **(1pt.)**. There are multifocal areas of edema **(1pt)** within the paracortex which correspond to areas in which vessels are largely occluded by schizonts. There is diffuse marked reactive hyperplasia **(1pt)** with marked expansion of the paracortex **(1pt)**. There is extensive draining hemorrhage **(1pt)** within the subcapsular, cortical and medullary sinuses and rare siderophages.

**MORPHOLOGIC DIAGNOSIS:** Lymph nodes: Apicomplexan schizonts **(1pt)**, intra- and extravascular, **(1pt)** numerous, with diffuse mild to moderate reactive hyperplasia and draining hemorrhage. **(1pt)**

**CAUSE:** *Cytosuxoon felis* **(3 pt)**

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