

WSC 2020-2021  
Conference 8, Case 1.

Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Spinal cord: The peripheral 50% of the white matter of all funiculi **(1pt)** is characterized by marked pallor and hypercellularity. and infiltrated by moderate numbers of histiocytes, Gitter cells **(1pt)**, lymphocytes **(1pt)**, and few neutrophils (rarely in aggregates) **(1pt)** and plasma cells. Nerve fibers are separated by clear space and edema **(1pt)**, and there are scattered dilated myelin sheaths, occasionally dilated axons (spheroids) , and rare myelin sheaths contain axonal debris. There is a moderate increase in astroglia and oligodendroglial hypertrophy. Virchow-Robins spaces **(1pt)** are distinct by their expansion by moderate numbers of lymphocytes, plasma cells and histiocytes, mature collagen and fibroblasts from the overlying meninges and a similar although decreased population of inflammatory cells is present within the overlying meninges. **(1pt)** Scattered throughout this layer are low numbers of round apicomplexan **(1pt)** cysts which range up to 30um in diameter, with hyaline 3um cyst wall containing numerous oval tachyzoites. **(1pt)** Occasional cysts are ruptured with release of zoites and occasional engulfment by macrophages.

Skeletal muscle: Multifocally, skeletal muscle fibers exhibit shrinkage, basophilia, loss of cross striations, and hypertrophy of satellite nuclei. (degeneration). There is multifocal necrosis **(1pt)** of muscle fibers with the previously described changes as well as multifocal pyknosis and karyorrhexis, and replacement by moderate numbers of neutrophils, macrophages, lymphocytes, and few plasma cells. **(1pt)** Occasionally intact myofibers contain intracellular apicomplexan cysts **(1pt)** with numerous bradyzoites as previously described.

**MORPHOLOGIC DIAGNOSIS:** 1. Spinal cord: Meningomyelitis, **(1pt)** necrotizing and histiocytic **(1pt)**, diffuse, marked, with intracellular apicomplexan cysts. **(1pt)**

2. Skeletal muscle: Myositis, necrotizing **(1pt)**, multifocal, moderate, with intracellular apicomplexan cysts. **(1pt)**

**CAUSE:** *Neosporum caninum* **(2pt)**

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

WSC 2020-2021  
Conference 8, Case 2.

Tissue from a horse.

**MICROSCOPIC DESCRIPTION:** Liver: Diffusely, portal areas are markedly expanded by abundant loosely arranged fibrous connective tissue **(1pt)** and plump fibroblasts which surround and replace portal hepatocytes **(1pt)**, and occasionally bridge **(1pt)** adjacent portal areas. There is marked biliary reduplication **(1pt)**. The proliferating biliary epithelium is pale and swollen with prominent of vesicular nuclei **(1pt)**. Portal areas are occasionally infiltrated by small numbers of lymphocytes and macrophages, and portal lymphatics and venules are moderately ectatic. The sinusoidal architecture **(1pt)** of the remaining lobule (primarily centrilobular and midzonal areas) is effaced and remaining hepatocytes are enlarged up to 2-3 times normal **(1pt)**, with abundant eosinophilic vacuolated cytoplasm **(1pt)**, and large nuclei with marginated chromatin and a prominent nucleolus **(1pt)** (megalocytosis) **(1pt)**. There are occasional multinucleated hepatocytes. Hepatocytes often contain brown granular pigment **(1pt)**. Bile canaliculi are occasionally distended with bile (cholestasis) **(1pt)** Rare hepatocytes are rounded up and hyper eosinophilic (necrosis) and are occasionally surrounded by low numbers of neutrophils.

Cerebrum: There is diffuse pallor of the superficial lamina of the cerebral cortex, and Virchow-Robins spaces have prominent cleared spaces often with a small amount of edema. **(1pt)** There is often a clear halo surrounding cellular elements in this area. There is mild diffuse gliosis of the affected grey matter. Astrocytes are often enlarged, with large vesicular nuclei (Alzheimer's type II astrocytes.) **(1pt)** Neurons in this area are occasionally shrunken and basophilic, and often bordered by 3 or more glial cells (satellitosis). **(1pt)**

**MICROSCOPIC DIAGNOSIS:** Liver: Fibrosis **(1pt)**, portal and bridging **(1pt)**, diffuse, moderate, with hepatocellular anisocytosis and megalocytosis **(1pt)**, necrosis, and cholestasis.

Cerebrum: Neuronal degeneration and necrosis, multifocal, moderate, with edema and Alzheimer's type 2 cells.

**CAUSE(S):** Pyrrolizidine alkaloid toxicosis **(2pt)**

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Conference 8, Case 3. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Ileocecal junction.. The serosa and outer layer of the muscular tunic(1 pt.) is markedly expanded and multifocally effaced by multifocal to coalescing poorly formed granulomas ranging up to 500 um in diameter and are centered on lakes of necrotic fat (1 pt.). The foci are composed of a central area of flocculent eosinophilic lipid which is occasionally mineralized (likely ectatic and effaced lymphatics<sup>0</sup> and few degenerate neutrophils and macrophages and small amounts of cellular debris. This degenerating fat is surrounded by large numbers of lipophages (1 pt.) (polymorphic foamy macrophages with numerous clear intracytoplasmic vacuoles) (1 pt.) admixed with rare neutrophils, lymphocytes, and plasma cells, and surrounded by concentric lamellae of loosely arranged fibrous connective tissue. (1 pt.). Granulomas are separated by mature fibrous connective tissue which effaces mural smooth muscle in this area. Mural smooth muscle which is adjacent or between granulomas is entwined in proliferating fibrous connective is frayed, shrunken and atrophic. (1 pt.) Similar, but far less severe changes are present around lymphatics within the more centripetal muscularis and submucosa (1 pt.), and the submucosa contains numerous nodular aggregates of moderate numbers of lymphocytes and plasma cells. Nerve plexes and submucosal nerve fibers are prominent in the section. Lacteals within ileal villi are occasionally dilated. (1 pt.)

**MORPHOLOGIC DIAGNOSIS:** Ileum, cecum: Lymphangitis, lipogranulomatous, diffuse, chronic, severe, with lymphangiectasia (3 pt.)

**NAME THE CONDITION:** Intestinal lymphangiectasia (2 pt.)

**NAME AN AFFECTED BREED:** Soft-coated wheaten terrier, Yorkshire terrier, Norwegian Lundehund (1pt)  
O/C: (1 pt.)

WSC 2020-2021  
Conference 8, Case 4.

Tissue from a calf.

**MICROSCOPIC DESCRIPTION:** Cerebellum: Throughout 80% of the section the normal cerebellar architecture is effaced by necrosis and hemorrhage. Throughout these areas and within both the parenchyma **(1pt.)** and folial meninges **(1pt.)**, there are numerous partially to totally thrombosed vessels **(1pt.)** of all sizes, both arterial and venous. The walls of these vessels are infiltrated by moderate numbers of viable and degenerate neutrophils **(1pt.)** admixed with hemorrhage, polymerized fibrin, and cellular debris (vasculitis). **(1pt.)** Some vessel walls are almost totally replaced by polymerized fibrin **(1pt.)**, and cells within the wall have lost stain affinity (fibrinoid necrosis) **(1pt.)**. Surrounding these vessels and infiltrating the adjacent cerebellar parenchyma or meninges, there are innumerable viable and necrotic neutrophils **(1pt.)** which are admixed with abundant hemorrhage, polymerized fibrin and cellular debris. There is a focal area of malacia and cavitation at one edge of the section in which cellular components have lost stain affinity (infarct) **(1pt.)**. Within thrombosed vessels, perivascular spaces, and areas of necrosis, profiles of moderate numbers of 2-4um **(1pt.)** thick non-dichotomously branching pauciseptate fungal hyphae **(1pt.)** may be seen in negative relief. (1 pt.). Within the areas of necrosis, neurons of all sizes are shrunken, angular, and have lost stain affinity (necrosis) **(1pt.)**. In lesser affected areas, vessels are surrounded by 1-2 layers of neutrophils and glial cells are hypertrophied, and rarely Virchow Robin's space is expanded by either clear space or pink proteinaceous fluid (edema.) **(1pt.)**

**MORPHOLOGIC DIAGNOSIS:** Cerebellum: Meningoencephalitis **(1pt.)**, necrotizing and fibinosuppurative **(1pt.)**, with vasculitis, thrombosis **(1pt.)**, fibrinoid necrosis, hemorrhage, and moderate numbers of fungal hyphae. **(1pt.)**

Cause: *Aspergillus* species ok (actually *Mortierella wolfii*) **(2pt.)**

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