

WSC 2016-2017, Conference 12

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Cerebellum: Cerebellar folia are diffusely thinner than normal **(2 pt.)**. There is diffuse and severe loss **(3 pt.)** of granular cell nuclei **(2 pt.)** with marked vacuolation of the underlying neuropil **(1 pt.)**. Remaining granular cells are often shrunken and surrounded by a clear halo **(1 pt.)**. There is multifocal and mild loss of Purkinje cells **(1 pt.)** with replacement by clusters of glial cells (Bergmann's astrocytes). **(1 pt)**

MORPHOLOGIC DIAGNOSIS: Cerebellum, granular cell layer: Degeneration and loss, diffuse, severe, with white matter spongiosis and mild multifoal Purkinje cell loss. **(4 pt.)**

NAME THE CONDITION: Cerebellar abiotrophy **(4 pt.)**

O/C: (1 pt.)

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Case 2. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Cervical spinal cord: There is diffuse bilateral but asymmetrical **(1pt.)** dilation of myelin sheaths **(1pt.)** surrounding axons of the dorsal funiculi **(2pt.)**. Within a focally extensive region primarily along the midline **(1pt.)**, there is cavitation **(2pt.)** and loss of white matter **(1pt.)** with infiltration of low to moderate numbers of Gitter cells **(2pt.)**. Remaining axons in this area are occasionally swollen (spheroids) **(1pt.)**, and blood vessels are surrounded by 2-5 layers of lymphocytes **(1pt.)** and Gitter cells with few neutrophils and eosinophils. **(1pt.)** Similar inflammatory cells infiltrate the adjacent white matter **(1pt.)** and within and adjacent to areas of cavitation, microglia and oligonuclei are plentiful (gliosis) **(1pt.)** and hypertrophic. There is infiltration of moderate numbers of lymphocytes, plasma cells and fewer histiocytes in the overlying leptomeninges. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Spinal cord, dorsal funiculi: Necrosis, focally extensive, with lymphohistiocytic perivasculitis and meningitis. **(3 pt.)**

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

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Case 3. Tissue from an ox.

(NOTE: This one is not for describing. Note the changes and move on to #4.)

MICROSCOPIC DESCRIPTION: Lumbar spinal cord. Within the gray matter, primarily within the ventral horns, neuronal cell bodies are swollen, pink, and there is marked chromatolysis. The cytoplasm of severely affected neuronal cell bodies is expanded by innumerable clear vacuoles.

MORPHOLOGIC DIAGNOSIS: Brainstem, grey matter neurons: Degeneration, diffuse, moderate to severe, with chromatolysis and cytoplasmic vacuolation.

CAUSE: *A. clavatus*. (Other plant toxins, including swainsonine, *Astragalus* and lupins are acceptable.)

O/C: (1 pt.)

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CASE 4. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Cerebrum at level of basal nuclei **(1 pt.)**: There is a focal area of cavitation **(1 pt.)** and neuropil loss which occupies up to 20% of the section. Throughout the areas of necrosis, there are numerous thrombosed vessels **(1 pt.)**, which are partially to totally occluded by fibrinocellular thrombi **(1 pt.)**. The walls of these vessels are infiltrated by moderate numbers of viable and degenerate neutrophils **(1 pt.)** admixed with hemorrhage, polymerized fibrin, and cellular debris (vasculitis). Some vessel walls are almost totally replaced by polymerized fibrin, and cells within the wall have lost stain affinity (fibrinoid necrosis) **(1 pt.)**. There is abundant hemorrhage surrounding these vessels (often in the form of ring hemorrhage) **(1 pt.)**, as well as in the surrounding neuropil. The surrounding neuropil is fragmented, infiltrated with low to moderate numbers of neutrophils, which often forms small aggregates with histiocytes **(1 pt.)** which are centered on colonies of small bacilli **(1 pt.)** ranging from 1-3um in diameter. Colonies of bacilli are also present within fibrin thrombi within vessels **(1 pt.)**, and within the perivascular space. Within the areas of necrosis, neurons of all sizes are shrunken, angular, and have lost stain affinity (necrosis) **(1 pt.)**. Outside of the area of necrosis, vessels contain numerous neutrophils and histiocytes, which are occasionally present within the perivascular space. Perivascular spaces are markedly expanded by clear space (edema). There is infiltration of low numbers of neutrophils into the overlying leptomeninges. **(1 pt.)**

MORPHOLOGIC DIAGNOSIS: Cerebrum: Vasculitis , fibrinonecrotic **(1 pt.)**, with, fibrinoid necrosis, multifocal suppurative encephalitis**(1 pt.)**, hemorrhage, numerous colonies of bacilli **(1 pt.)** and mild neutrophilic meningitis.

Cause: *Histophilus somni* **(2 pt.)**

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