

Case 1 – Tissue from a cat

**MICROSCOPIC DESCRIPTION:** Cerebellum: Within the deep cerebellar white matter **(1pt)** ,vessels are surrounded **(1pt)** by plump, highly vacuolated macrophages **(2pt)** and low to moderate numbers of similar macrophages are present within the intervening neuropil **(1pt)** . There is moderate gliosis and an increase in both hypertrophic astrocytes **(1pt)** as well as microglia **(1pt)** and similarly affected neurons are scattered throughout the affected neuropil. Bilaterally and symmetrically within the deep white matter, there is generalized pallor (demyelination) **(1pt)** , and there are moderate numbers of clustered clear vacuoles **(1pt)** within the most affected neuropil. Similar changes are bilaterally present within the ventral and lateral (pyramidal and spinocerebellar tracts) within the underlying brainstem **(1pt)** as well as the spinal tracts of the trigeminal nerves .

**MORPHOLOGIC DIAGNOSIS:** Cerebellum and brainstem: Histiocytosis **(1pt)** , perivascular **(1pt)** , multifocal, moderate, with demyelination **(1pt)** and gliosis **(1pt)** .

Name the condition: Globoid cell leukodystrophy **(3pt)**

CAUSE: Galactocerebrosidase deficiency **(2pt)**

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

WSC 2017-2018 Conference 2.

Case 2 – Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Liver: There are multifocal, randomly scattered **(1pt)**, and often coalescing areas of coagulative **(1pt)** necrosis in which hepatocellular architecture is lost, cells are dissociated, have lost appropriate stain quality, and nuclei are either faded or fragmented **(1pt)**. There is moderate hemorrhage **(1pt)** within these areas. There are scattered individual necrotic hepatocytes within the section as well. At the periphery of these areas of necrosis, hepatocytes are multifocally swollen and vacuolated (degenerate) and nuclei often contain a single 2-4um pink intranuclear viral inclusion often separated from the adjacent chromatin by a thin clear halo **(2pt)**. Throughout the section, centrilobular and rarely portal veins contain fibrinocellular thrombi. **(1pt)**

Kidney: Multifocally, there is necrosis of glomerular **(1pt)** mesangial and endothelial cells, with intraglomerular hemorrhage. Throughout the section, there are clusters of proximal convoluted tubules **(1pt)** in which epithelium is necrotic with brightly eosinophilic anuclear cells lining the basement membrane, admixed with cellular debris.

Spleen: There is diffuse loss of splenic architecture with few periarteriolar lymphoid sheaths remaining. **(1pt)**. Over 95% of lymphocytes and macrophages are necrotic. **(1pt)**

**MORPHOLOGIC DIAGNOSIS:** Liver: Hepatitis, necrotizing, multifocal to coalescing, moderate with occasional intrahepatocytic intranuclear viral inclusions. **(3pt)**

Kidney: Nephritis, necrotizing, tubular and glomerular, multifocal, mild with rare intranuclear viral inclusions. **(2pt)**

Lymph node: Lymphadenitis, necrotizing, diffuse, severe. **(2pt)**

**CAUSE:** Canine herpesvirus-1 **(2pt)**

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

Case 3 – Tissue from a horse.

**MICROSCOPIC DESCRIPTION:** Nasal mucosa **(1pt)**: The submucosal connective tissue is moderately edematous and expanded **(1pt)** by moderate numbers of viable and degenerate neutrophils **(1pt)**, macrophages **(1pt)**, lymphocytes **(1pt)** and plasma cells, admixed with fungal sporangia **(2pt)** in various stages of maturity**(1pt)**, as well as increased fibrous connective tissue and necrotic debris. Juvenile sporangia are round, range from 10 to 50 um in diameter, have a 2 um thick wall, and contain a single karyosome (nucleus) surrounded by granular cytoplasm **(2pt)**. Mature sporangia are arranged along and extended into the epithelium, are round and up to 200 um in diameter with a 2-3 um thick anisotropic wall **(2pt)** and contain immature and mature endospores **(1pt)**, which consist of a thin wall, scant clear cytoplasm, and multiple eosinophilic bodies. Mature sporangia multifocally discharge mature endospores through an apical pore to the epithelial surface. **(1pt)** There is multifocal mucosal epithelial hyperplasia **(1pt)**, with piling up and papillary projections, as well as occasional squamous metaplasia. The epithelium is transmigrated by numerous neutrophils and fewer lymphocytes. The nasal cavity contains a superficial exudate composed of numerous endospores, mucus, degenerate neutrophils, necrotic debris, and hemorrhage.

**MICROSCOPIC DIAGNOSIS:** Nasal mucosa: Rhinitis, proliferative**(1pt)** , chronic-active **(1pt)**, diffuse, moderate, with epithelial hyperplasia **(1pt)**, and numerous multiple sporangia and endospores. **(1pt)**

**CAUSE:** Rhinosporidium seeberi. **(3pt)**

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

Case 4 – Tissue from a cat.

MICROSCOPIC DESCRIPTION: Haired skin: Expanding the dermis and elevating the overlying superficial dermis and epidermis **(1pt)**, there is a well-demarcated, unencapsulated, densely cellular, infiltrative, multinodular neoplasm **(2pt)**, which is composed of two morphologically distinct cellular populations **(1pt)**. The first population of neoplastic cells are polygonal **(1pt)**, and arranged in islands nests and cords **(1pt)** on a fine fibrovascular stroma. **(1pt)** Neoplastic cells are cuboidal to columnar with indistinct cell borders **(1pt)** and a moderate amount of finely granular cytoplasm and the outermost cells palisade along the stroma. **(1pt.)** Nuclei are irregularly round to oval with finely stippled chromatin and 1-2 prominent pink nucleoli. Mitotic rate averages 3-5/hpf. **(1pt)** The center of a number of islands is diffusely necrotic (comedo pattern) **(1pt)**. Surrounding and separating nests (but not in all lobules of the neoplasm, a second cellular population of neoplastic spindle cells is arranged in thick streams and bundles **(1pt)**, also on a fine fibrovascular stroma. The neoplastic cells have indistinct cell borders with a moderate amount of a vacuolated eosinophilic cytoplasm. **(1pt)** Nuclei are oval with finely stippled chromatin and 1-2 prominent eosinophilic nucleoli. **(1pt)** There is mild anisokaryosis and mitotic figures average 4-6 per high power field. **(1pt)** There are dense bands of fibrous connective tissue separating areas of the neoplasm **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Mammary gland: Carcinoma, poorly differentiated. **(4pt.)**

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