

WSC 2023-2024  
Conference 17, Case 1  
Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Adipose tissue, site unspecified: Two sections of a neoplasm are submitted for examination. Within the adipose tissue, there is an infiltrative, unencapsulated, poorly demarcated, moderately cellular, multilobular neoplasm. **(2pt)** The neoplasm is composed of two cellular populations on a moderate fibrous stroma and is crisscrossed by bands of connective tissue resembling peripheral nerve. **(1pt)** The first cell type is a small round to polygonal cell **(1pt)** arranged in poorly defined nests and packets **(1pt)** on a moderate fibrous stroma. Neoplastic cells have indistinct cell borders and a small to moderate amount of granular eosinophilic cytoplasm. **(1pt)** Nuclei are irregularly round with coarsely stippled chromatin and 1-3 large basophilic nucleoli. **(1pt)** Anisocytosis and anisokaryosis is mild to moderate, and mitoses average 10 per 2.37mm<sup>2</sup>. **(1pt)** The second cell type is polygonal and scattered throughout first population. **(1pt)** Neoplastic cells have distinct cell borders with a moderate amount of granular eosinophilic cytoplasm with basophilic rim. **(1pt)** Nuclei are irregularly round with coarsely stippled chromatin and a single prominent nucleoli. **(1pt)** Anisocytosis and anisocytosis is moderate, multinucleated forms are occasionally seen **(1pt)**, and mitoses are rare. **(1pt)** There is coagulative necrosis of approximately 15% of the neoplasm in a geographic pattern. **(1pt)** In some areas of necrosis, there are foci of crystalline mineral.

**MORPHOLOGIC DIAGNOSIS:** Adipose tissue, site unspecified: Ganglioneuroblastoma. **(5pt)**

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

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Conference 16, Case 2

Tissue from a rhesus macaque.

**MICROSCOPIC DESCRIPTION:** Pituitary gland, pars distalis: Compressing the overlying hypothalamic neural parenchyma **(1pt)** and replacing the normal pituitary architecture **(1pt)** there is a nodular, expansile, unencapsulated, well circumscribed, moderately cellular neoplasm **(2pt)** composed of polygonal **(1pt)** cells arranged in nests and packets **(1pt)**, supported by a fine fibrovascular stroma **(1pt)** and separated by variably-sized blood-filled spaces. Neoplastic cells often palisade around vessels **(1pt)** (pseudorosettes) **(1pt)** or a central area of fibrillar neuropil **(1pt)** (Homer-Wright rosettes) **(1pt)**. Neoplastic cells have indistinct cell borders, small amounts of vacuolated eosinophilic cytoplasm **(1pt)**, a round nucleus with finely clumped chromatin and 1-3 indistinct basophilic nucleolus. **(1pt)** Anisocytosis and anisokaryosis are minimal and mitoses are rare. **(1pt)** There are multifocal areas of necrosis in which the neoplastic cells have clear cytoplasm and pyknotic nuclei. **(1pt)** Within the overlying compressed neural parenchyma, there are few dilated axon sheaths, rare chromatolytic neurons, and mild gliosis.

**MORPHOLOGIC DIAGNOSIS:** Pituitary gland: Pituitary adenoma. **(3pt)**

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

**NAME AN ASSOCIATED CLIN PATH FINDING:** Hyperprolactinemia **(1pt)**

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Conference 17, Case 3.

Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Cerebrum: Two sections of neocortex and overlying meninges are submitted for examination. The meninges **(1pt.)** and Virchow Robin's spaces **(1pt.)** are expanded by large numbers of eosinophils **(1pt.)** and fewer hemosiderin laden macrophages **(1pt.)** with fewer lymphocytes **(1pt.)**, macrophages, and rare multinucleated giant cell macrophages, as well as edema **(1pt.)** and small amounts of hemorrhage and cellular debris. There is rarefaction of the adjacent submeningeal neuropil **(1pt.)** and random **(1pt.)** areas of the neocortex in proximity to hypercellular Virchow-Robins spaces. Within the rarefied neuropil, there is marked edema **(1pt.)** and infiltration of moderate numbers of eosinophils, Gitter cells **(1pt.)**, and fewer lymphocytes, as well as moderate gliosis **(1pt.)** with increased numbers of astrocytes **(1pt.)** (frequently of the gemistocytic **(1pt.)** type), as well as microglia **(1pt.)**. Low numbers of spheroids **(1pt.)** are scattered throughout areas of rarefaction. Vessels often contain eosinophils within their lumina.

**MORPHOLOGIC DIAGNOSIS:** Cerebrum: Meningoencephalitis **(1pt.)**, eosinophilic **(1pt.)** and necrotizing **(1pt.)**, diffuse, marked. **(1pt.)**

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

WSC 2023-2024  
Conference 17, Case 4.  
Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Spinal cord: Three sections of spinal cord, one transverse and two longitudinal, area submitted for examination. There is rarefaction of the white matter in all funiculi. Rarefied white matter (1 pt.) diffusely contains dilated axon sheaths, which occasionally contain dilated eosinophilic axons (spheroids) and occasionally axonal debris. One the longitudinal section, there are numerous digestion chambers. The rarefied white matter is infiltrated by large numbers of macrophages ranging up to 30 microns which possess abundant amphophilic fibrillary and flocculant cytoplasm (1 pt.) and crescentic peripheralized nuclei (globoid cells) (2 pt.). Rarely, Gitter cells are multinucleated. These cells are present both individually and in perivascular aggregates (1 pt.). They are also seen within dilated myelin sheaths (1 pt.). Within affected areas there are increased numbers of astrocytes, and microglial cells. (1 pt.) Diffusely, capillary endothelial cells are hypertrophied (reactive) (1 pt.). Gitter cells are also present in low numbers surrounding leptomeningeal blood vessels (1 pt.).

**MORPHOLOGIC DIAGNOSIS:** Spinal cord, white matter: Histiocytosis, perivascular, diffuse, marked, with abundant intracellular myelin and gliosis. (2 pt.)

**NAME THE DISEASE:** Globoid cell leukodystrophy (2 pt.)

**PATHOGENESIS:** Defect in lysosomal galactocerebrosidase => accumulation of toxic psychosine within oligodendroglia, with release of galactosylceramide into extracellular space. Galactosylceramide accumulates within macrophages, psychosine results in oligodendroglial death and demyelination. (3 pt.)