

WSC 2020-2021

Conference 18, Case 1.

Tissue from a dog.

MICROSCOPIC DESCRIPTION: Heart, myocardium, muscular artery and fibrovascular tissue: Infiltrating the myocardium, arterial wall, and adjacent mediastinal tissue **(1pt.)**, there is a multilobular, moderately cellular, encapsulated, well demarcated, moderately cellular neoplasm **(2pt.)**. The neoplasm is composed of polygonal cells **(1pt.)** arranged in nests and packets **(1pt.)** and supported by a fine to moderate fibrovascular stroma **(1pt.)** of variable thickness. Neoplastic cells are polygonal with indistinct cell borders and a moderate amount of a coarsely granular **(1pt.)** amphophilic cytoplasm. Nuclei are round with coarsely stippled chromatin and indistinct nucleoli. **(1pt.)** There is moderate anisocytosis and anisokaryosis, and scattered cells with pleomorphic nuclei ranging up to 20um in diameter. **(1pt.)** Mitotic figures are rare **(1pt.)**. Nest of neoplastic cells present within dilated lymphatics within the adjacent muscular artery and surrounding fibrovascular tissue. **(1pt.)** Within areas of arterial infiltration, there is multifocal hemorrhage **(1pt.)**, edema, and fibrin deposition admixed with moderate numbers of hemosiderin-macrophages **(1pt.)** as well as ground-substance-rich fibroplasia **(1pt.)**. Similar changes are present in areas of myocardial infiltration at the periphery of the neoplasm, and to a lesser extent within adjacent fibroadipose tissue. In areas of myocardial infiltration, cardiomyocytes show a range of changes including variation of fiber size, vacuolation, (degeneration) and shrinkage (atrophy) **(1pt.)** and there is multifocal replacement of cardiomyocytes by mature adipocytes. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Heart and great vessels: Neuroendocrine carcinoma (chemodectoma, paraganglioma, aortic body tumor OK). **(3pt.)**

NAME 2 APPROPRIATE IMMUNOHISTOCHEMICAL MARKERS: Synaptophysin, chromagranin, S-100, NSE **(1pt.)**

O/C: (1pt.)

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Conference 18 Case 2.

Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Heart, right ventricle **(1pt.)** The ventricular myocardium **(2pt.)** is replaced by sheets of well-differentiated adipocytes **(3pt.)** At the advancing edge of the infiltrating adipocytes, remnant cardiomyocytes and/or Purkinje cells are compressed, shrunken (atrophy) **(1pt.)**, basophilic and granular **(1pt.)**, often with loss of cross-striations **(1pt.)**, and contain one or more discrete often perinuclear clear cytoplasmic vacuoles (degeneration) **(2pt.)**. Within the uninfiltated myocardium, there is marked variation in fiber size with clear cytoplasmic vacuoles, and nuclei are often enlarged up to 2-3 times normal, with a wavy irregular nuclear membranes coarsely stippled chromatin and prominent nucleoli. **(2pt.)** There is moderate multifocal expansion of the endocardium by fibrous connective tissue. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Heart: Fibrofatty infiltration **(2pt.)**, focally extensive, severe, with myofiber degeneration, atrophy, hypertrophy, karyomegaly **(1pt.)**, and endocardial and myocardial fibrosis.

Name the condition: Boxer cardiomyopathy (ARVC) **(2 pt.)**

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

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Conference 18, Case 3.

Tissue from a dog.

MICROSCOPIC DESCRIPTION: Cerebrum: Arising from the meninges **(1pt.)**, and compressing the underlying cerebral cortex **(1pt.)**, there is an expansile, well-demarcated, unencapsulated, moderately cellular, multilobular neoplasm **(2pt.)**. Neoplastic cells are arranged in interlacing long streams and bundles **(1pt.)** and occasional whorls **(1pt.)** on a moderate fibrovascular stroma **(1pt.)**. Neoplastic cells are elongate to spindled **(1pt.)** with indistinct cell borders and a moderate amount of a finely granular eosinophilic cytoplasm **(1pt.)**, with occasional large clear cytoplasmic vacuoles **(1pt.)**. Nuclei are oval with finely clumped chromatin and 1-2 prominent basophilic nuclei. **(1pt.)** Mitotic figures average 12 per 2.37mm^2 . **(1pt.)** Large aggregates of crystalline mineral **(1pt.)**, ranging up to 750um are present within neoplastic whorls. . The neoplasm is largely surrounded by a rim of compressed neuropil with increased numbers of microglia and astrocytes (gliosis), and mild edema. **(1pt.)**.

MORPHOLOGIC DIAGNOSIS: Cerebrum: Meningioma **(3pt.)**, microcystic subtype. **(1pt.)**

(O/C)- (1pt.)

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Conference 18, Case 4.

Tissue from a dog.

MICROSCOPIC DESCRIPTION: Cerebrum: Effacing the neuroparenchyma and infiltrating adjacent tissues, there is a 1.3x1.0 section of an unencapsulated, densely cellular, well-demarcated infiltrative multilobular neoplasm **(2pt.)** . Neoplastic cells are arranged in nests and packets **(1pt.)** and numerous rosettes **(1pt.)** and pseudorosettes **(1pt.)** on a fine fibrovascular stroma (1pt). Both Homer-Wright and Flexner-Wintersteiner rosettes are present within the neoplasm. **(1pt.)** Neoplastic cells are pyramidal to columnar with a small amount of finely eosinophilic cytoplasm and indistinct cell borders. **(1pt.)** Nuclei are irregularly round to elongate, with moderately stippled chromatin, 1-3 large basophilic nuclei (1pt), and anisokaryosis (1pt) is prominent. **(1pt.)** The mitotic rate exceeds 50 per 2.37mm² **(1pt)**. There are numerous apoptotic cells throughout the neoplasm, and extensive coalescing areas of necrosis **(1pt.)** comprising up to 20% of the section, with prominent areas of peritheliomatous survival or neoplastic cells. There is scattered vascular mineralization **(1pt.)** throughout the mass. Within the adjacent infiltrated/compressed neuroparenchyma, there is mild edema, increased numbers of microglia and astrocytes **(1pt.)** with abundant eosinophilic cytoplasm (gemistocytes), and rare dilated axons and Gitter cells. Vessels within the adjacent neuroparenchyma have prominent endothelial nuclei.

Nasal cavity: A similar neoplasm is present within the nasal cavity (see above). Multifocally, the neoplasm infiltrates and effaces turbinates architecture , with only resorbed spicules of bone remaining in some areas. **(1pt.)** In less affected areas, the neoplasm multifocally infiltrates the overlying massively edematous overlying respiratory mucosa. **(1pt.)** The mucosa also contains large numbers of lymphocytes and plasma cells **(1pt.)** within the submucosa, and moderate hyperplasia of the overlying epithelium.

MORPHOLOGIC DIAGNOSIS: Nasal cavity and cerebrum: Esthesioneuroblastoma (olfactory neuroblastoma). **(4pt.)**

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