WSC 2018-2019 Conference 14.

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Thyroid gland with external parathyroids. The follicular architecture is diffusely effaced **(1pt)** by an infiltrate of large numbers of lymphocytes **(1pt)** and fewer plasma cells **(1pt)** and macrophages which extends into the surrounding adipose tissue. Remaining follicles are rare, shrunken, ectatic, lined by attenuated cuboidal epithelium (which is often lifed off the basement membrane) and devoid of colloid. **(2pt)** Large nests of polygonal parafollicular with abundant cells granular basophilic cytoplasm remain **(1pt)** (hyperplasia) **(1pt)** Throughout the section, there are multiple cross-sections tortuous cyst lined by columnar, often ciliated epithelium which are filled with numerous foamy macrophages and proteinaceous debris. (Kursteiner's cyst.) **(1pt)** Vessels within the gland and in the second section of fibrovascular tissue and peripheral nerve are tortuous and markedly thickened **(1pt)** with disorganized vessel walls and a narrowed, slit-like lumen, which is often recanalized. **(1pt)**. The internal elastic lamina is lost and there is often fibrosis and expansion of the superficial tunica intima. **(1pt)** The outer half to the full thickness of the tunica media is effaced by aggregates of histiocytes **(1pt)** with abundant foamy cytoplasm (foam cells), abundant lightly eosinophilic cellular debris laden with cholesterol clefts **(1pt)** , small amounts of mineral, **(1pt)**, , and small to moderate amounts of nuclear debris. In some areas, the smooth muscle of the adjacent tunic media is brightly eosinophilic (degenerate and occasionally has pyknotic nuclei (necrosis) Some vessels contain low to moderate numbers of lymphocytes and fewer plasma cells and rare foamy macrophages within the adventitia. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Thyroid gland: Thyroiditis, lymphoplasmacytic **(1pt)**, diffuse, severe with severe follicular atrophy **(1pt)** and moderate parafollicular hyperplasia.

2. Thyroid gland, adjacent perivascular fibroadipose tissue, arterioles: Atherosclerosis, diffuse, sever with thrombosis and recanalization. **(2pt)**

O/C: (1pt)

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Case 2. Tissue from a horse.

Lung: Approximately 33% of the section is replaced by multifocal to coalescing nodular areas of lytic necrosis **(1 pt.)** Within these areas, alveolar septa are discontinuous, often lack differential staining, are variably thickened by congestion, fibrin thrombi, cellular debris, and variable amounts of hemorrhage into the adjacent alveoli (septal necrosis) **(1 pt.)**. Alveoli are filled with large numbers of degenerate neutrophils**(1 pt.)** and cellular debris, few foamy, debris- or hemosiderin-laden macrophages, hemorrhage, fibrin, and edema. **(1 pt.)**, Also within alveoli are moderate numbers of 15-25 um amebic trophozoites **(1 pt.)** characterized by granular basophilic cytoplasm and a nucleus with a prominent nucleolus (karyosome **(1 pt.)** which are primarily extracellular**(1 pt.)** but rarely engulfed by macrophages. Also scattered throughout the section are 20-30 um amebic cysts **(1 pt.)** characterized by the presence of an amphophilic refractile 2-4um cyst wall **(1 pt.)** and abundant granular eosinophilic cytoplasm. Within areas of necrosis, vessels are often occluded with fibrin thrombi **(1 pt.)**, and walls are expanded by extruded fibrin, transmigrating neutrophils and cellular debris (vascular necrosis) **(1 pt.)** and these is occasional hemorrhage into the perivascular space. Alveoli in adjacent areas contain variable amounts of hemorrhage, fibrin, and edema, as well as few macrophages; septal are often expanded by congestion and edema as well. **(1 pt.)** Multifocally, interlobular septa**(1 pt.)** and the overlying pleura is expanded by variable amounts of hemorrhage, fibrin and edema and infiltrated by moderate numbers of macrophages, neutrophils, lymphocytes, and plasma cells, and septal vessels are often congested, lined by hypertrophic endothelium and surrounded by low to moderate numbers of lymphocytes and plasma cells. **(1 pt.)**

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, necrosuppurative **(1 pt.)**, multifocal to coalescing, moderate, with numerous intra- and extracellular amebic trophozoites **(1 pt.)** and cysts.

CAUSE: *Acanthamoeba* sp. **(3 pt.)**

O/C: (1 pt.)

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Case 3. Tissue from a goat.

MICROSCOPIC DESCRIPTION: Lung: Approximately 60% of the section is effaced by multiple pyogranulomas **(2pt)**, which compress adjacent parenchyma. Pyogranulomas are composed of a central area of necrosis **(1pt)**, characterized by abundant eosinophilic debris and scattered cellular basophilic cellular debris and scattered degenerate macrophages **(1pt)** with numerous 2-3um coccobacilli within their cytoplasm **(2pt)**. Centrally, some pyogranulomas contain variable amounts of hemorrhage and crystalline mineral **(1pt)**. Peripheral to this are numerous degenerate neutrophils **(1pt)** with swollen nuclei and macrophages, with lesser cellular debris, which become less degenerate at the most peripheral edge of the pyogranuloma. Adjacent alveoli **(1pt)** not incorporated within granulomas are expanded by variable combinations and concentrations of alveolar macrophages, neutrophils, lymphocytes, edema and hemorrhage, and in some areas of the section yield to coalescing areas of emphysema **(1pt)**. Airways **(1pt)** often contain moderate amounts of alveolar reflux, including edema fluid, viable and degenerate neutrophils, macrophages, and cellular debris. Septal vessels are markedly congested and expanded by edema and circulating neutrophils. Vessels throughout the septa are lined by hypertrophic endothelium and contain numerous circulating neutrophils which are often pavemented, perivascular tissue contains moderate numbers of lymphocytes and macrophages. **(1pt)** There are aggregates of lymphocytes and fewer plasma cells and macrophages surrounding occasional airways and veins. **(1pt)** Interlobular fibrous connective tissues is variably expanded by edema, hemorrhage, and emphysema. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Lung: Pyogranulomas **(2pt)**, multiple, with numerous intracytoplasmic coccobacilli. **(1pt)**

CAUSE: *Rhodococcus equi* (*Corynebacterium pseudotuberculosis* OK as well). **(2pt)**

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

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Case 4. Tissue from a rat.

MICROSCOPIC DESCRIPTION: Lung: Extending along the pleural surface **(1pt.)** and expanding and dissecting between lung lobes is an unencapsulated, infiltrative and exophytic, well demarcated, moderately cellular, multilobular neoplasm **(1pt.)**. The neoplasm is composed of columnar to cuboidal **(1pt.)** epithelial **(1pt.)** cells which line pleural surfaces and form variably sized papillary and micropapillary projections **(2pt.)** along moderately dense fibrous cores **(1pt.)**, as well as occasional tubules **(1pt.)**. Neoplastic cells are columnar to cuboidal with indistinct cell borders and a moderate amount of apically vacuolated eosinophilic cytoplasm. **(1pt.)** Nuclei are largely centrally placed, round and have coarsely clumped chromatin and 1-2 large basophilic nucleoli. **(1pt.)** Mitoses are rare. **(1pt.)** Multifocally throughout the neoplasm, spaces between papillary fronds contain moderate to numbers of macrophages **(1pt.)**, which are occasionally hemosiderin-laden **(1pt.)**, as well as small amounts of hemorrhage – larger aggregates of macrophages and siderophages multifocally expand the fibrous core of papillary projections. **(1pt.)** The neoplasm multifocally compresses adjacent alveoli, **(1pt.)** which contains small amounts of edema fluid and slightly increased numbers of macrophages.

MORPHOLOGIC DIAGNOSIS: Lung: Alveolar-bronchiolar carcinoma. **(4pt.)**

O/C – **(1pt.)**