WSC 2014-2015, Conference 5

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Liver: There are multifocal random areas of in which hepatocytes are hypereosinophilic, have lost differential staining, and have faded to pyknotic nuclei **(1pt)** (coagulative necrosis) **(2pt)** and are admixed with small to moderate amounts of cellular and nuclear debris. At the edges of necrotic foci, hepatocytes are mildly swollen and their cytoplasm contains low to moderate numbers of discrete lipid vacuoles (degeneration) **(1pt.)**. Throughout the section, hepatocytes **(1pt)** and Kupffer cells **(1pt)** contain numerous 2-3um round protozoal zoites **(1pt)** which are occasionally extracellular. Within centrilobular and midzonal areas, small groups of hepatocytes are swollen, with coalescing discrete clear vacuoles which do not peripheralize the nucleus **(1pt)** (glycogenosis) **(1pt)**. Lymphatics within portal areas and around sublobular veins are markedly dilated (edema) **(1pt)**.

MORPHOLOGIC DIAGNOSIS: 1. Liver: Hepatitis, necrotizing, random, multifocal, moderate, with edema, and intrahepatocytic, intrahistiocytic, and extracellular protozoal zoites. **(3pt)**

2. Liver, hepatocytes: Glycogenosis, multifocal, moderate. **(2pt)**

NAME TWO CAUSES: *Toxoplasma gondii;* steroid hepatopathy **(2pt each)**

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

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Case 2. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Haired skin: Haired skin and subcutis: Expanding the deep dermis, extending into the subcutis and elevating the overlying epidermis, is focally extensive nodular focus of coalescing poorly formed pyogranulomas **(1 pt.)** composed of numerous epithelioid macrophages **(1 pt.)**, fewer degenerate neutrophils **(1 pt.)**, lymphocytes, plasma cells, occasional multinucleated giant cells, and necrotic debris centered on multiple, up to 1 mm diameter, occasionally fragmented aggregates ("granules") of densely packed, 5-10 um wide, septate hyphae **(1 pt.)** with thick, nonparallel walls, rare irregular non-dichotomous branching **(1 pt.)**, and up to 25 um diameter bulbous swellings **(1 pt.)** embedded in an amorphous eosinophilic material (Splendore-Hoeppli reaction) **(1 pt.)**. Multifocally infiltrating the superficial dermis, are low numbers of periadnexal to perivascular lymphocytes, plasma cells and fewer macrophages. There is diffuse mild epidermal and multifocal follicular orthokeratotic hyperkeratosis.

MORPHOLOGIC DIAGNOSIS: Haired skin and subcutis: Dermatitis and panniculitis, pyogranulomatous, focally extensive, severe, with aggregates of fungal hyphae and Splendore-Hoeppli material. **(2 pt.)**

ULTRASTRUCTURAL DESCRIPTION: The electron micrograph contains cross sections of two macrophages **(1 pt.)** with indented nuclei, a prominent nucleolus, abundant mitochondria, moderate amounts of smooth and small amounts of rough endoplasmic reticulum, and numerous lysosomes. **(1 pt.)** Within the mildly lucent cytoplasm, there are several cross sections of fungal hyphae **(1 pt.)** with a thick lamellar cell wall **(1 pt.)** enclosing granular cytoplasm **(1 pt.)** with moderate numbers mitochondria and vacuoles. The hyphae contains multiple transverse septations. **(1 pt.)** The hyphae are surrounded by a moderate amounts of an electron-dense fibrillar material (Splendore-Hoeppli material). **(1 pt.)**

ULTRASTRUCTURAL DIAGNOSIS: Granulomatous inflammation with fungal hyphae. **(1 pt.)**

CAUSE: *Microsporum canis* **(1 pt.)**

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

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Case 3. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Soft tissue adjacent to salivary gland: Infiltrating and effacing soft tissue and skeletal muscle, there is a multilobular, well-demarcated, unencapsulated, infiltrative, moderately cellular neoplasm **(2 pt.)**. Neoplastic cells are arranged in cords **(1 pt.)**, nests, and packets **(1 pt.)** on a variably dense fibrous stroma **(1 pt.)**. Neoplastic cells are polygonal **(1 pt.)** to occasionally spindled **(1 pt.)**, have indistinct cell borders, and a moderate amount of a granular amphophilic cytoplasm **(1 pt.)**. Nuclei are irregularly round with finely stippled chromatin and 1-2 large eosinophilic nuclei **(1 pt.)**. Ther is mild anisokaryosis and anisocytosis **(1 pt.)**. Mitotic figures average 1-2 per 400X field **(1 pt.)**. Multifocally, neoplastic cells abut and occasionally invade the overlying mucosal epithelium (junctional activity) **(1 pt.)** There are extensive areas of both coagulative and lytic necrosis scattered throughout the neoplasm **(1 pt.)**. Multiple veins in the overlying submucosa contains fibrinocellular thrombi **(1 pt.)**. The overlying submucosa contains low numbers of lymphocytes and plasma cells subjacent to the mucosal epithelium **(1 pt.)**, and the mucosa is occasionally ulcerated in areas of necrosis.

MORPHOLOGIC DIAGNOSIS: Fibrovascular tissue adjacent to salivary gland: Melanoma **(4pt.)**.

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

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Case 4. Tissue from a dog.

Tissue from a dog.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, alveolar septa are expanded **(1 pt.)** up to 5x normal by variable combinations and concentrations of macrophages **(1 pt.)**, neutrophils **(1 pt.)**, fewer lymphocytes, edema fluid **(1 pt.)**, mature collagen **(1 pt.)**, and patchy type II pneumocyte hyperplasia **(1 pt.)**. Alveoli are filled by large numbers of large foamy alveolar macrophages, macrophages, **(1 pt.)** neutrophils and fewer lymphocytes and plasma cells, multinucleated macrophages **(1 pt.)**, admixed with variable amounts of hemorrhage, fibrin and edema**(1 pt.)** ; there is extensive alveolar hemorrhage is approximately 33% of the slide (not present on every section). This cellular exudate has refluxed into airways **(1 pt.)** throughout the slide, and mulfocally, there is necrosis and loss of airway epithelium **(1 pt.)**. Scattered throughout the section, alveoli contain one or more 6-8um yeasts **(2 pt.)** with a retractile 1-2cm hyaline cell wall **(1 pt.)** and inner cytoplasm (often surrounded by a clear halo due to fixation artifact)

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, interstitial, granulomatous, chronic diffuse, moderate to severe with type II pneumocyte hyperplasia, focally extensive hemorrhage, and moderate numbers of intracellular yeasts **(3 pt)**

CAUSE: *Blastomyces dermatitidis* **(3 pt)**

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