WSC 2016-2017, Conference 11

Case 1. Tissue from a rat.

MICROSCOPIC DESCRIPTION: Rat: There are changes within the iris and ciliary body, lens, and retina. Both the anterior and posterior faces of the iris are expanded by a variably thick fibrovascular membrane (PIFM) **(2 pt.)**. The iris is unilaterally adhered to the anterior surface of the lens (posterior synchiae.) **(2 pt.)** There is circumferential and marked swelling and cataractous degeneration of lenticular cells (Morgagnian change) around the diameter of the lens as well as multifocal disordered proliferation of lenticular epithelium. Additionally, lens epithelium at one edge undergoes fibrous metaplasia. **(1 pt.)**. There is a small amount of hemorrhage in the vitreous chamber. The retina is mildly thinned, and there is atrophy of the inner layers of the retina, with marked loss of neurons primarily within the inner nuclear layer. There is moderate numbers of vacuoles within the ganglion cell layer as well as the inner nuclear layer. There are numerous rosettes within the inner nuclear layer in which a layer of nuclei palisade around nerve bundles. The underlying choroid contains low numbers of macrophages containing a tan-brown pigment which occasionally are present within the retina.

MORPHOLOGIC DIAGNOSIS: 1. Eye: Uveitis, chronic, diffuse, mild, with anterior and posterior iridal fibrovascular membranes and posterior synechia formation. **(1 pt.)**

2. Eye, lens: Cataract with multifocal lenticular epithelial hyperplasia and focal lenticular epithelial fibrous metaplasia. **(1 pt.)**

3. Eye, retina, inner nuclear and ganglion cell layers: Degeneration and atrophy, diffuse, moderate. **(1 pt.)**

4. Eye, retina: Dysplasia, diffuse, moderate, with rosette formation. **(1 pt.)**

(Note: I have broken this into four different morphologic diagnoses, as I can't truly connect them together.) The uveitis and the cataract may be related….the retinal atrophy may be light induced, and the dysplastic change is likely congenital.

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

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Case 2. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Testis **(1 pt.)**: 99% of the testis is effaced **(1 pt.)** by a multinodular, well-demarcated, unencapsulated, moderately cellular, expansile neoplasm **(2 pt.)**. The neoplasm is composed of sheets **(1 pt.)** of polygonal cells **(1 pt.)** on a pre-existent stroma **(1 pt.)**. Neoplastic cells range from 40-80um **(1 pt.)** in diameter, have variably distinct cell borders with a large amount of granular **(1 pt.)** eosinophilic **(1 pt.)** cytoplasm. Nuclei are small, often peripheralized, round with finely stippled chromatin and indistinct nucleoli. **(1 pt.)** There is mild anisokaryosis. Mitoses are rare. **(1 pt.)** The tunica vaginalis is separated from the neoplasm by a moderate amount **(1 pt.)** Epididymal tubules are dilated, lined by attenuated epithelium, and devoid of sperm; **(1 pt.)** they are filled with a granular lightly eosinophilic proteinaceous material. There is moderate edema of the vaginal tunics with infiltration of low numbers of neutrophils, macrophages, lymphocytes, and plasma cells. **(1 pt.)**

MORPHOLOGIC DIAGNOSIS: Testis: Granular cell tumor **(4 pt.)**

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

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Case 3. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Liver: Multifocally bile ducts are tortuous and markedly ectatic (up to 3 mm in diameter), often compressing the surrounding hepatic parenchyma. **(1 pt.)** Ducts are lined by hyperplastic **(1 pt.)** biliary epithelium which forms branching papillary projections consisting of a single layer of columnar to cuboidal epithelial cells supported on a dense fibrous stroma. **(1 pt.)** Epithelial cells frequently have karyorrhectic, karyolytic, or pyknotic nuclei (necrosis). Many cells contain protozoal schizonts, macrogametes and microgametes in various stages of gametogony. Epithelial cells often contain 3-5 um round coccidial schizonts **(1 pt.)** within their apical cytoplasm which contain 2 or more small 2-3um zoites. **(1 pt.)** Microgametes **(1 pt.)** are round, 25-50 um in diameter, with peripheral lightly basophilic granules. **(1 pt.)** Within the lumen there are numerous oocysts, gametocytes and cellular debris. Macrogametes **(1 pt.)** are round, 15-35 um in diameter, with a central nucleus, prominent nucleolus, and brightly eosinophilic 3-4 um diameter peripheral granules. **(1 pt.)** Oocysts **(1 pt.)** are 20-40 um in diameter with thick eosinophilic refractile wall that are often collapsed and contain lightly basophilic, granular cytoplasm with a nucleus. **(1 pt.)** Numerous oocysts present within the lumen, where they are admixed with fewer gametocytes, sloughed epithelium and abundant cellular debris, **(1 pt.)** and multifocally, small numbers of oocysts are phagocytized by epithelioid macrophages beneath the epithelium. **(1 pt.)** Ectatic bile ducts are surrounded by a thick rim of fibrous connective tissue which contain numerous cross sections of hyperplastic biliary ductules, **(1 pt.)** moderate numbers of lymphocytes, and plasma cells with histiocytes within subepithelial locations, along with increased clear space and ectatic lymphatics (edema). Diffusely, there is mild chronic portal and periportal lymphoplasmacytic inflammation. Hepatocytes are multifocally compressed at the edge of expanding bile ducts, and diffusely contain one more more clear vacuoles (lipidosis).

MORPHOLOGIC DIAGNOSIS: Liver: Cholangiohepatitis **(1 pt.)** , proliferative **(1 pt.)** and lymphoplasmacytic, chronic, diffuse, severe, with ductular ectasia, fibrosis, and numerous intraepithelial schizonts, gametocytes, and oocysts**. (1 pt.)**

CAUSE: *Eimeria steidae* **(2 pt.)**

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

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CASE 4. Tissue from a mole.

MICROSCOPIC DESCRIPTION: Liver: There are multifocal to coalescing, often bridging areas of coagulative **(1 pt.)** necrosis **(1 pt.)** throughout the section. At the periphery of necrotic areas, hepatocytes have lost differential staining, retaining cord architecture and outlines of nuclei. **(2 pt.)** Within the center of the areas of necrosis, hepatocyte architecture is lost, with swelling of hepatocytes, pyknotic to rrhectic nuclei, and fragmentation. **(2 pt.)** Areas of necrosis contain small amounts of hemorrhage **(1 pt.)** admixed with cellular debris **(1 pt.)**, hyperplastic Kupffer cells, and rare infiltrating neutrophils. At the edge of areas of necrosis, and scattered in fewer numbers throughout the section, hepatocytes **(1 pt.)** contain an intracytoplasmic 15-20 um schizont **(1 pt.)** with numerous basophilic zoites **(2 pt.)**. Rarely, schizonts are ruptured **(1pt.)**, and zoites are free in the extracellular space. There are few neutrophils, lymphocytes, and plasma cells within portal areas.

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing **(1pt.)**, multifocal to coalescing, marked with intra- and extracellular apicomplexan zoites. **(2 pt.)**

CAUSE: *Toxoplasma gondii* **(3 pt.)**

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