WSC 2016-2017, Conference 9

Case 1. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Haired skin (with mucosal membrane at one edge). The dermis is hypercellular **(1pt.)** and mildly expanded by a moderately dense population of mesenchymal cells **(1pt.)** which range from spindle to stellate with small to abundant amounts of amphophilic cytoplasm **(1pt.)**, and an ovoid, moderately anisokaryotic nucleus **(1pt.)** with finely stippled chromatin which separate and surround and often whorl around pre-existent skeletal muscle and vessels. Occasional mitotic figures are present within this cellular population **(1pt.)**. The dermis is moderately edematous **(1pt.)** with small foci of hemorrhage, and contains an infiltrate of low to moderate numbers of heterophils **(1pt.)** (often within aggregates in the superficial dermis), and fewer histiocytes, lymphocytes, and plasma cells, admixed with low numbers of necrotic mesenchymal cells and heterophils. **(1pt.)** The overlying epithelium is moderately hyperplastic **(1pt.)**, and approximately 50% of keratinocytes at all levels of the dermis are swollen due to intracellular edema **(1pt.)** and often contain a 2-4um pink eosinophilic viral inclusion **(1pt.)**. There are moderate numbers of apoptotic keratinocytes **(1pt.)** scattered through the epidermis as well. There is moderate orthokeratotic hyperkeratosis. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Haired skin: Atypical fibroblastic proliferation **(1pt.)**, diffuse, moderate with epidermal hyperplasia **(1pt.)** and ballooning degeneration **(1pt.)**, dermal edema, multifocal heterophilic dermatitis, and numerous intraepithelial intracytoplasmic inclusions **(1pt.)**.

CAUSE: Leporipoxvirus **(2pt.)**

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

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Case 2. Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Kidney: Multifocally, up to 20% **(1pt.)** of tubules **(1pt.)** are filled and often expanded (ectatic) by variable combinations and concentrations of oval 3-6um **(1pt.)** yeasts **(1pt.)** (blastospores) and rare pseudohyphae **(1pt.)** admixed with viable and degenerate neutrophils **(1pt.)**, rare macrophages, and sloughed epithelial cells and abundant cellular debris **(1pt.)**. Yeasts are occasionally phagocytized by neutrophils **(1pt.)**, and some tubules and rare glomeruli contain large numbers without associated inflammation. **(1pt.)** Occasionally, tubules are ruptured with extension of the inflammatory process into the adjacent interstitium **(1pt.)**, where they may elevate the renal capsule. There is multifocal degeneration **(1pt.)** (swelling and vacuolation) of epithelium which lines yeast-filled tubules, as well as marked epithelial attenuation. Occasionally tubules are lined by epithelium which is cuboidal, possesses basophilic cytoplasm, and prominent nuclei (regeneration) **(1pt.)**. Multifocally, in areas of tubular inflammation, the interstitium is expanded by small to moderate amounts of fibrous connective tissue **(1pt.)**, and within these areas, tubules with decreased diameters and no visible lumina are present (atrophy). **(1pt.)**

Liver: Scattered hepatocytes are markedly karyomegalic (incidental finding).

MORPHOLOGIC DIAGNOSIS: Kidney: Nephritis, tubulointerstitial **(1pt.)**, chronic and suppurative **(1pt.)**, multifocal, marked with numerous yeasts **(1pt.)** and rare pseudohyphae.

CAUSE: *Candida albicans* **(2pt.)**

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

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Case 3. Tissue from a rat.

MICROSCOPIC DESCRIPTION: Thymus **(2pt)**: Approximately 80% of the thymus is effaced by an infiltrative, unencapsulated, well-demarcated, moderately cellular neoplasm. **(2pt)** The neoplasm is composed of sheets **(1pt)** of round cells **(2pt)** on a pre-existent stroma **(1pt)**. Neoplastic cells are round with indistinct cell borders, a moderate amount of finely granular cytoplasm which contains large eosinophilic granules **(2pt)**, and one irregularly round to indented nucleus **(1pt)** with finely clumped chromatin and 1-2 small basophilic nucleoli. **(1pt)** Mitotic figures average 1-2 per 400X field. **(1pt)** Three are multifocal to coalescing extensive areas of necrosis **(1pt)** within the lesion, and moderate numbers of tingible body macrophages **(1pt)** at the interface between the neoplasm and the pre-existent thymus, and Mott cells **(1pt)** within remaining thymus.

MORPHOLOGIC DIAGNOSIS: Thymus: Mast cell tumor. (This is an oddball case – I was thinking histiocytic sarcoma based on the nuclear shape, but I couldn't make the granules fit. You can have full credit for histiocytic sarcoma.) **(3pt)**

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

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CASE 4. Tissue from a mouse. (Not a good descriptive slide – not much going on here. Just look at the answer and drive on…)

MICROSCOPIC DESCRIPTION: Liver: There is diffuse necrosis of centrilobular and midzonal areas with loss of hepatic plate architecture within these areas. Within affected areas, hepatocytes are shrunken and fragmented, with pyknotic and or karyorrhectic nuclei. Necrotic hepatocytes are mixed with abundant hemorrhage and small amounts of cellular debris. Remaining hepatocytes contain small numbers of lipid droplets within their cytoplasm.

MORPHOLOGIC DIAGNOSIS: Liver, centrilobular and midzonal hepatocytes: Necrosis, diffuse.

CAUSE: Cycad toxin (but you can pick one of a million..)