WSC 2012-2013, Conference 2

Case 1. Tissue from a mouse.

Note: There is marked variation in slides depending on the section of skull cut…this represents the best section of all – the one with olfactory lobes of the brain as well as the mandible

MICROSCOPIC DESCRIPTION : Cross section of skull (various levels distributed to participants – precise level is worth a point – "head only" no points) **(1 pt)**: Expanding the dermis and subcutis **(1 pt),** elevating the overlying epidermis, and infiltrating and replacing skeletal muscle and underlying bone of the cranium and maxilla are numerous colonies of **(1 pt)** basophilic cocci **(1 pt)** imbedded in hyalinized, brightly eosinophilic material **(1 pt)** (Splendore-Hoeppli material) **(1 pt)** which measure up to 200um in diameter. Surrounding these bacterial colonies are aggregates of large numbers of neutrophils **(1 pt)** (often degenerate **(1 pt)**) admixed with cellular debris, which are in turn bounded by moderate numbers of foamy macrophages **(1 pt)**, and rare lymphocytes and plasma cells. There is marked fibroplasia **(1 pt)** and neovascularization **(1 pt)** around areas of inflammation. The lamellar cortex of the mandible, and to a lesser extent, the cranial bones are unilaterally distorted and replaced by multinodular proliferations of woven bone **(1 pt)** which surround or abut previously described bacterial colonies and inflammatory products. The woven bone is lined by plump osteoblasts, and occasional osteoclasts in Howship's lacunae; spicules are separated by fibroblasts and loosely arranged collagen fibers **(1 pt)**. There is moderate to severe atrophy of skeletal muscle **(1 pt)** adjacent to the proliferating woven bone. Within marrow spaces of the cranium, there is moderate granulocytic hyperplasia with an approximate M:E ratio of 2:1.

MORPHOLOGIC DIAGNOSIS: Skin and subcutis, maxilla: Cellulitis and osteomyelitis **(1 pt)** , pyogranulomatous **(1 pt)**, multifocal to coalescing, marked, with large colonies of cocci **(1 pt)** and Splendore-Hoeppli **(1 pt)** material, mouse.

Name the agent: *Staphylococcus aureus* **(2 pt)**

Organization and clarity: **(1 pt)**

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Case 2. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Haired skin, eyelid **(1 pt)**: There is moderate hyperplasia **(1 pt)** of the epidermis, with disorganization and lack of normal epidermal stratification **(1 pt)**. At all levels of the epidermis as well as hair follicles, keratinocytes are enlarged **(1 pt)** with blurring of cell borders, a moderate amount of granular basophilic cytoplasm **(1 pt)** and large round to oval nuclei with finely stippled chromatin. Epithelial cells at all levels of the epidermis and within hair follicles are rounded up with hypereosinophilic cytoplasm **(1 pt)** and karyorrhexis (necrosis) **(1 pt)**. Occasional epithelial cells exhibit intracellular edema **(1 pt)** (ballooning degeneration) **(1 pt)** and/or contain a round, 10 um eosinophilic intracytoplasmic inclusion body **(2 pt)** that peripheralizes the nucleus. The superficial dermis is expanded by an accumulation of low to moderate amounts of amphophilic ground substance **(1 pt)** which tracks along adnexa into the deeper dermis. This matrix surrounds low to moderate numbers of plump stellate to spindle cells **(1 pt)** with a moderate amount of eosinophilic granular cytoplasm (myxoma cells). There is mild orthokeratotic hyperkeratosis.

MORPHOLOGIC DIAGNOSIS: Mucocutaneous junction, palpebra: Atypical epithelia and mesenchymal proliferation, epithelial ballooning degeneration and necrosis, intraepithelial eosinophilic cytoplasmic inclusion bodies an mild dermal myxedema. **(4 pt)**

NAME THE DISEASE: Myxomatosis **(2 pt)**

CAUSE: Leporipoxvirus **(2 pt)**

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

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Case 3. Tissue from a mouse.

(There is also considerable slide variation here, with some slides not having a carcinoma, and some being very light on the pneumonia. From my examination of several slides, you got either a lot of neoplasms or a lot of pneumonia, but there is at least some on either slide. The description below is sort of a chimaera of both…)

MICROSCOPIC DESCRIPTION: Lung: Scattered throughout the section are multiple unencapsulated, well- demarcated, expansile and infiltrative, moderately cellular proliferative lesions ranging in size from 2-8mm in diameter **(2pt)**. The neoplasm is composed of cuboidal to columnar cells **(1pt)** exhibiting lepidic growth **(1pt)** along pre-existent alveolar architecture. Neoplastic cells have indistinct cell borders, and a moderate amount of eosinophilic, finely granular cytoplasm **(1pt)**. Nuclei are round to oval, centrally placed, and hyperchromatic **(1pt)**. In some neoplasms, cells exhibit moderate anisocytosis and anisokaryosis, with a higher nuclear/cytoplasmic ratio and finely stippled chromatin (suggestive of malignant transformation) **(1pt)** . Mitotic figures average less than 1/10 hpf. Multifocally throughout the neoplasm(s) and adjacent alveoli, there are low to moderate numbers of foamy macrophages, rare lymphocytes **(1pt)** and neutrophils, scattered clumps of fibrin and occasional single cell necrosis. Throughout the remainder of the section, alveoli are filled and occasionally expanded **(1pt)** by numerous polygonal macrophages **(1pt)** and rarely multinucleated macrophages with abundant foamy eosinophilic cytoplasm **(1pt)** which contains numerous brightly eosinophilic spicules. **(1pt)**. With areas of heavy infiltration, the alveolar walls are mildly to moderately thickened **(1pt)** by small amounts of edema and fibrin, and there are scattered aggregates of lymphocytes and plasma cells **(1pt)**, often in perivascular and subpleural locations. Diffusely, bronchial epithelium contains brightly eosinophilic intracytoplasmic crystalline inclusions (incidental finding).

MORPHOLOGIC DIAGNOSIS: 1. Lung: Bronchioalveolar carcinoma. **(2 pt)** 2. Lung: Bronchioalvolar hyperplasia, multifocal. **(1pt)** 3. Lung: Pneumonia, interstitial, histiocytic, diffuse, moderate, with intracytoplasmic eosinophilic crystals. **(2 pt)**

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

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Case 4. Tissue from a hamster.

(Not a great descriptive slide as there are numerous sections of gut on here.)

MICROSCOPIC DESCRIPTION: There are multiple sections of gastrointestinal tract, including cecum and colon **(1pt)**. In more than one of the sections, there are multifocal to coalescing areas of partial-to full-thickness mucosal necrosis **(2pt)**. Epithelial cells at the apex of the colonic glands are multifocally shrunken and hypereosinophilic **(1pt)**, with pyknotic or karyorrhectic nuclei **(1pt)**, and in some areas there is transmural **(1pt)** necrosis and loss. Within areas of mucosal ulceration, there are moderate numbers of viable and degenerate neutrophils **(1pt)** admixed with cellular debris **(1pt)** which extend into the submucosa **(1pt)**. The adjacent submucosa is expanded by edema and an amphophilic ground substance **(1pt)** throughout which are scattered low numbers of viable neutrophils **(1pt)**. Colonic glands are expanded by numerous flatteded commensal protozoans **(1pt)**. There is multifocal proliferation of mesothelial cells along the serosa in some sections **(1pt)**.

MORPHOLOGIC DIAGNOSIS: 1. Cecum: Typhlitis, necrotizing and ulcerative, multifocal, moderate. 2. Colon: Colitis, necrotizing and ulcerative, multifocal, moderate. **(3pt)**

CAUSE: *Clostridium difficile* or *spiroforme* (antibiotic associated dysbiosis – OK) **(3pt)**

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