

WSC 2012-2013, Conference 16

Case 1. Tissue from a rhesus monkey.

NOTE: THERE IS SIGNIFICANT SLIDE VARIATION. ON ONE SECTION (NOT THE ONE DESCRIBED BELOW) THE PYOGRANULOMA SITS ALONG A LARGE ECTATIC BRONCHIOLE.)

MICROSCOPIC DESCRIPTION: Lung: Replacing approximately 50% of the section, there is a large pyogranuloma (**2 pt**). The center of the pyogranuloma is composed of lytic, eosinophilic granular cellular debris admixed with small amounts of basophilic nuclear debris. Peripheral to this, the cellular debris is admixed with large numbers of degenerate neutrophils (**1 pt**), fibrin, and hemorrhage. At the periphery of the granuloma, there are moderate numbers of epithelioid macrophages (**1 pt**) admixed with large numbers of lymphocytes (**1 pt**), low numbers of multinucleated macrophages of both the foreign-body (**1 pt**) and Langhan's (**1 pt**) types and plasma cells, enmeshed in circumferential lamellations of mature collagen (**1 pt**) and plump fibroblasts. Throughout the granuloma, there are numerous cross sections of pauciseptate (**1 pt**) fungal hyphae (**1 pt**) with non-parallel walls (**1 pt**), non-dichotomous branching, and bulbous terminal swellings. At the edge of the granuloma, alveolar septae are expanded by moderate numbers of perivascular neutrophils, histiocytes, and lymphocytes, small amounts of collagen and plump fibroblasts, and multifocal type II pneumocyte hyperplasia (**1 pt**). Alveoli contain low to moderate numbers of alveolar macrophages admixed with low numbers of neutrophils, fibrin, and cellular debris. Multifocally, in perivascular and subpleural areas, there are nodular aggregates of medium numbers of lymphocytes and fewer plasma cells (**1 pt**).

MOPRHOLOGIC DIAGNOSIS: Lung: Pyogranuloma, focally extensive with fungal hyphae. (**2 pt**)

CAUSE: Any zygomycete fungus would be okay (**3 pt**)

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

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Case 2. Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Cross section of skull at the level of the **(1 pt- give a precise location of your section, please!)**: The bone marrow **(1 pt)**, meninges **(1 pt)**, periosteum of the cranium, retro-orbital brown fat, and the pituitary gland are infiltrated by a poorly demarcated, unencapsulated, moderately cellular neoplasm **(1 pt)**. Neoplastic cells are arranged in sheets **(1 pt)** on a pre-existent stroma. Neoplastic cells are round **(1 pt)** (discounting the fixation which makes them all spiky), with distinct cell borders and a thin rim of lightly basophilic granular cytoplasm **(1 pt)**. Nuclei are hyperchromatic (probably due to fixation or decalcification) **(1 pt)**. Mitotic figures are 2-3 per 400X field **(1 pt)**. Multifocally, the marrow is filled with fibrous connective tissue (myelophthisis).

Haired skin (similar changes are present on the skin of the head, but not all sections have a good piece of skin to look at): There is diffuse marked orthokeratotic hyperkeratosis **(1 pt)** which extends down into hair follicles. Multifocally, and most visibly within follicles, there are aggregates of short bacilli **(1 pt)** measuring 1x2um admixed within the hyperkeratotic flake **(1 pt)** and free within the hair follicle. The epithelium is diffusely hyperplastic **(1 pt)** due to an increase in the stratum spongiosum. There are small numbers of lymphocytes **(1 pt)** infiltrating the superficial dermis.

MORPHOLOGIC DIAGNOSIS: 1. Head at level of the hippocampus; cranial bone marrow, meninges, pituitary gland: Lymphoid leukemia. **(2 pt)**

2. Haired skin: Hyperkeratosis, orthokeratotic, diffuse, moderate, with moderate epidermal hyperplasia and intrakeratin bacilli. **(2 pt)**

CAUSE: *Corynebacterium bovis* **(2 pt)**

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

Case 3. Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Skeletal muscle, limb (some sections have toes): Effacing skeletal muscle; elevating the overlying superficial dermis and epidermis and multifocally infiltrating the panniculus carnosus **(1pt)**, there is a well-demarcated, infiltrative, unencapsulated, densely cellular, nodular neoplasm **(1pt)**. The neoplasm is composed of spindle cells **(1pt)** arranged in long streams and bundles **(1pt)** on a fine, myxomatous matrix **(1pt)**. Neoplastic cells are largely spindle and occasionally polygonal **(1pt)**, with low to moderate amounts of a finely fibrillar basophilic cytoplasm **(1pt)**. Nuclei **(1pt)** are oval to elongate with finely clumped chromatin and 1-3 small basophilic nucleoli; nuclei are occasionally hyperchromatic. There is moderate to marked anisokaryosis **(1pt)**, occasional nuclear pleomorphism, and multinucleated polygonal cells (with occasional nuclear rowing **(2pt)**) are common (strap cells) **(1pt)**. Mitoses average 3-5 per 400X field **(1pt)**, and are occasionally bizarre. There are focally extensive areas of necrosis **(1pt)** scattered along the periphery of the tumor. Remaining entrapped skeletal muscle fibers are shrunken and atrophic. Overlying the mass, there is a focal areas of epidermal ulceration **(1pt)** with large numbers of neutrophils infiltrating the underlying dermis and subcutis. Adjacent epidermis overlying the mass is mildly hyperplastic.

MORPHOLOGIC DIAGNOSIS: Haired skin: Rhabdomyosarcoma **(4pt)**

O/C: (1pt)

Case 4. Tissue from a cat.

MICROSCOPIC DESCRIPTION: Eyelid: There is multifocal to coalescing full-thickness necrosis **(1pt)** of the mucosal and glabrous epithelium **(1pt)** of the eyelid, which is replaced by a serocellular crust **(1pt)** composed of abundant degenerate neutrophils and cellular debris, serum, and necrotic epithelial cells. At the edges of the necrotic areas, epithelial cells are swollen and often disassociated, with increased amounts of a lacy eosinophilic cytoplasm (cytoplasmic swelling) **(1pt)** and nuclei often contain a single, glassy, eosinophilic viral inclusion **(2pt)** which mildly enlarges the nucleus and peripheralizes nuclear chromatin.) Subjacent to areas of ulceration, the submucosa and dermis are infiltrated by large numbers of neutrophils **(1pt)**, which at more superficial levels are degenerate and admixed with abundant cellular debris, hemorrhage, fibrin, and edema and hyalinized collagen. Similar cells infiltrate the subconjunctival lacrimal glands **(1pt)**; the glands themselves are mildly ectatic and lining epithelium is multifocally degenerate and or necrotic. In the haired skin, hair follicles **(1pt)** and sebaceous glands often contain one to multiple cross sections of an elongate, cigar-shaped arthropod parasite with a brown chitinous exoskeleton **(1pt)**, jointed appendages **(1pt)**, striated muscle, and a rudimentary nervous and reproductive system.

MORPHOLOGIC DIAGNOSIS: 1. Eyelid: Blepharoconjunctivitis, ulcerative, focally extensive, severe with epithelial intranuclear viral inclusions. **(3pt)**

2. Eyelid, hair follicles and sebaceous glands: Adult acarid parasites. **(2pt)**

CAUSE: 1. Feline herpesvirus-1 **(2 pt)**

2. *Demodex cati* **(1pt)**

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