

WSC 2013-2014, Conference 12

Case 1. Tissue from a hamster.

**MICROSCOPIC DESCRIPTION:** Haired skin: The superficial dermis is moderately expanded by multifocal to coalescing areas of pyogranulomatous inflammation **(1pt)**. Inflammatory foci are composed of a central area of numerous epithelioid **(1pt)** macrophages **(1pt)**, which have abundant foamy cytoplasm with variably sized clear vacuoles **(1pt)**, and rarely multiple nuclei **(1pt)**. Foci are infiltrated by low to moderate numbers of neutrophils **(1pt)**, and peripherally there are low to moderate numbers of lymphocytes and plasma cells. The subjacent dermis and panniculus is mildly edematous**(1pt)**, separating collagen fibers and infiltrated by moderate numbers of lymphocytes **(1pt)** and fewer plasma cells, histiocytes, and neutrophils, and plasma cells. The epidermis is mildly hyperplastic and infiltrated by low to moderate numbers of transmigrating neutrophils **(1pt)**. Keratinocytes of the basal epithelium and stratum spinosum exhibit moderate cytoplasmic edema **(1pt)** and rare apoptosis. There is multifocal ulceration, mild diffuse orthokeratotic hyperplasia **(1pt)**, and multifocal intracorneal pustules **(1pt)**formation. Within follicles, epidermal pits, and rarely encase within the corneal flake, there are multiple cross sections of 20-30 um arthropod parasites with a chitinous exoskeleton, jointed appendages, skeletal muscle, and a primitive neuraxis **(1pt)**.

**MORPHOLOGIC DIAGNOSIS:** 1. Haired skin, dermis: Dermatitis, pyogranulomatous, multifocal to coalescing, moderate. **(3pt)**

2. Haired skin, dermis: Dermatitis, hyperkeratotic, diffuse, mild with acarid parasites. **(1pt)**

**CAUSE:** *Mycobacterium sp.*, *Demodex aurati* or *criceti* **(2pt)**

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

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Case 2. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Colon **(1pt)**: Diffusely, the colonic mucosa is expanded by marked edema **(1pt)** of the lamina propria, which markedly separates glands. Multifocally and segmentally, surface colonic epithelium, and occasionally crypt epithelium, has a dense basophilic lining **(1pt)** composed of numerous 2-3um bacilli **(1pt)** which are adherent to the apical surface **(1pt)**. Often these cells are rounded up and project into the colonic lumen **(1pt)**, and there is rare small vacuolation of apical cytoplasm **(1pt)** in affected cells. Crypts are occasionally dilated and contain small amounts of cellular debris and occasionally degenerate heterophils (crypt abscesses) **(1pt)**. Mitotic figures **(1pt)** are prominent within at all levels of the epithelium (hyperplasia) **(1pt)**. There are large mats of bacilli within crypts and occasionally covering the surface epithelium. **(1pt)** There are moderately increased numbers of heterophils **(1pt)** within the lamina propria, which occasionally form small aggregates **(1pt)** and rarely transmigrate crypt epithelium.

MORPHOLOGIC DIAGNOSIS: Colon: Colitis, heterophilic and proliferative, diffuse, moderate, with marked edema, and numerous apically located bacilli. **(3pt)**

CAUSE: Attaching and effacing *E. coli* **(3pt)**

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

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Case 3. Tissue from a mouse.

**MICROSCOPIC DESCRIPTION:** Multiple cross sections of head, from rostral nares to level of Harderian gland: Multifocally, the lingual skeletal muscle, in particular centrally, shows a variety of degenerative changes **(2pt)**, including marked variation in fiber size **(2pt)**, hyalinization **(2pt)**, the presence of single to multiple discrete clear cytoplasmic vacuoles **(2pt)**, marked hypertrophy of satellite nuclei **(2pt)**, internalization of nuclei **(1pt)**, and peripheral dissolution of myofibrils **(2pt)** (which imparts a biphasic appearance to the myofibers, with a flat pink periphery and a central area of brightly eosinophilic sarcoplasm). **(1pt)** Multifocally, myofibers are replaced by mature adipocytes, as well as dense collagen. **(2pt)**. There are low numbers of lymphocytes and histiocytes infiltrating the perimysium.

**MORPHOLOGIC DIAGNOSIS:** Tongue, skeletal muscle: Degeneration, multifocal, marked, with fiber hyalinization and replacement by adipocytes. **(3pt)**

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

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Case 4. Tissue from a mouse.

MICROSCOPIC DESCRIPTION: Brainstem and pons: Unilaterally **(1 pt.)** , there is a focally extensive area of rarefaction **(1 pt.)** and necrosis **(2 pt.)** affecting both the gray and white matter **(1 pt.)** . Within this area, the neuropil is loosely arranged, with numerous variably sized clear vacuoles, and microglia are often swollen **(2 pt.)** with cleared cytoplasm (edema) **(2 pt.)**. Neurons in the area are often swollen with lacy pink cytoplasm and peripheralized nuclei (degeneration) **(2 pt.)** , or are shrunken and angular with pyknotic nuclei (necrosis) **(2 pt.)** . Rarely, pyknotic microglia are present **(1 pt.)** . There is mild multifocal hemorrhage **(1 pt.)** .

MORPHOLOGIC DIAGNOSIS: Brainstem: Encephalomalacia, unilateral, focally extensive, with edema and hemorrhage. **(4 pt.)**

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