

WSC 2016-2017, Conference 4

Case 1. Tissue from a sheep.

**MICROSCOPIC DESCRIPTION::** Small intestine: Diffusely and markedly expanding the mucosa **(1pt)**, in particular the lamina propria, and replacing and widely separating crypts **(1pt)**, are numerous epithelioid macrophages **(1pt)** arranged in dense sheets which are admixed with moderate numbers of lymphocytes, and fewer neutrophils and plasma cells. **(1pt)**. Macrophages have abundant, finely-granular eosinophilic cytoplasm **(1pt)** and an eccentric round to oval nucleus and are occasionally multinucleated **(1pt)**. These cells often contain one or more variably discrete cytoplasmic vacuoles containing numerous poorly staining bacilli **(1pt)**. Villi are blunted and fused **(1pt)**. There is marked crypt loss **(1pt)**, and remaining crypts contain increased mitotic figures (regeneration) **(1pt)**. This submucosa is moderately edematous with dilated lymphatics. **(1pt)** Diffusely, within the submucosa and serosa, there is increased clear space and mildly ectatic lymphatics (edema) **(1pt)**. There are low numbers of lymphocytes and plasma cells within perivascular areas within the muscularis. Serosal lymphatics are multifocally and markedly expanded by luminal and smaller perivascular aggregates of macrophages **(1pt)**, lymphocytes and plasma cells, and fewer similar cells extend into the serosa, multifocally forming aggregates **(1pt)**.

**MORPHOLOGIC DIAGNOSIS:** Small intestine: Enteritis, granulomatous **(1pt.)**, diffuse, severe, with villar blunting **(1pt.)** crypt loss **(1pt.)**, and moderate serosal granulomatous lymphangitis.

**CAUSE:** *Mycobacterium avium* var. paratuberculosis. **(2pt.)**

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

(Note: Some sections have coccidial gamonts or oocysts, but not all, so they were not awarded points.)

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Case 2. Tissue from a dog.

**MICROSCOPIC DESCRIPTION:**

Lung: Multifocally effacing 66% of the lung parenchyma within this section are multifocal to coalescing nodular **(1 pt.)** masses of neoplastic **(1 pt.)** skeletal muscle **(2 pt.)**, with are well-demarcated, unencapsulated, infiltrative, and moderately cellular. **(1 pt.)** Neoplastic cells form short interlacing streams and bundles **(1 pt.)** on a moderate myxomatous matrix **(1 pt.)** with moderate to abundant eosinophilic, cross-striated **(1 pt.)** cytoplasm and distinct cell borders. **(1 pt.)** Nuclei are elongate to cigar-shaped with coarsely stippled chromatin with 1-2 large eosinophilic nucleoli, **(1 pt.)** and are often located at the periphery of the cells **(1 pt.)**. There are numerous multinucleated cells, often with nuclei lined up in the center of the cell (strap cells). **(1 pt.)** Mitotic figures are rare **(1 pt.)**. Adjacent alveolar spaces contain variable combinations and concentrations of foamy macrophages **(1 pt.)**, lymphocytes, with fewer neutrophils, admixed with hemorrhage and edema. **(1 pt.)**

**MORPHOLOGIC DIAGNOSIS:** Lung: Rhabdomyosarcoma, metastatic. **(4 pt.)**

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

Case 3. Tissue from a cat.

**MICROSCOPIC DESCRIPTION:** Haired skin and subcutis: Expanding the deep dermis and subcutis, extending to the deep border, surrounding but not infiltrating follicles and elevating the overlying epidermis **(1 pt.)** are innumerable epithelioid macrophages **(1 pt.)** and eosinophils **(1 pt.)**, admixed with fewer lymphocytes, plasma cells, occasional multinucleated giant cells, which are centered on multifocal areas of brightly eosinophilic necrotic debris **(1 pt.)** which often surrounds degenerating vessels **(2 pt.)**. Vessel walls are hyalinized and often contain infiltrating eosinophils and cellular debris, as well as extravasated erythrocytes, and often contain fibrin thrombi (vasculitis) **(1 pt.)**. The debris contains and outlines numerous cross and tangential sections of fungal hyphae **(1 pt.)** ranging from 8-15 which are branching, non-septate, lack parallel walls and dichotomous branching **(1 pt.)**. The inflammation is supported within a bed of granulation tissue **(1 pt.)** which at its deep and lateral margins contains aggregates of moderate numbers of lymphocytes **(1 pt.)** and fewer plasma cells. There is a focal full-thickness ulcer **(1 pt.)** within the epidermis which extends into the superficial dermis. The ulcer is covered by a serocellular crust containing abundant cellular debris admixed with hemorrhage, fibrin, and keratin debris.

**MORPHOLOGIC DIAGNOSIS:** Haired skin: Dermatitis and panniculitis, necrotizing **(1 pt.)**, granulomatous **(1 pt.)**, and eosinophilic, chronic-active, focally extensive, severe, with necrotizing vasculitis **(1 pt.)** and numerous fungal hyphae **(1 pt.)**.

**CAUSE:** *Zygomycetes* sp., *Lagenidium* sp., *Pythium* sp. all acceptable **(3 pt.)**

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

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CASE 4. Tissue from an alpaca.

MICROSCOPIC DESCRIPTION: Cerebrum. Approximately 75% of the section is effaced by a large area of granulomatous **(1pt.)** inflammation throughout which are scattered large coalescing geographic areas of lytic necrosis **(2pt.)** . The areas of necrosis are composed of abundant eosinophilic and basophilic debris centrally and numerous largely degenerate neutrophils **(1pt.)** which form a dense band at the edge of the lesion. These areas of necrosis often contain or are bordered by low numbers of yeasts **(2pt.)** which range from 20-60um in diameter **(1pt.)** with a 5um hyaline wall **(1pt.)** and numerous internal spores **(1pt.)** , which are occasionally contained within multinucleated giant cell macrophages. Foci of necrosis are surrounded by innumerable spindled epithelioid macrophages **(1pt.)** (which comprise the majority of the inflammatory nodule) throughout which are scattered large numbers of lymphocytes, plasma cells, and fewer neutrophils and rare multinucleated giant cell macrophages. The interface of the granuloma with the adjacent neuropil is outlined by bright red edema fluid **(1pt.)** and a band of low to moderate number of plasma cells and fewer neutrophils. At one edge of the section, there is a large area of cavitory necrosis **(1pt.)** within the adjacent gray matter which contains large numbers of Gitter cells admixed with edema, increased numbers of glial cells , and low to moderate numbers of lymphocytes and plasma cells, often in perivascular locations **(1pt.)**, on a background of cellular debris. The adjacent intact neuropil also contains moderate numbers of Gitter cells, increased numbers of astrocytes and micoglia **(1pt.)** , as well as perivascular aggregates of lymphocytes and plasma cells.

MORPHOLOGIC DIAGNOSIS: Cerebrum: Encephalitis, granulomatous **(1pt.)** , focally extensive, severe, with intra-and extracellular endosporulating yeasts **(1pt.)** .

2. Cerebrum: Necrosis, focal. **(1 pt.)**

CAUSE: *Coccidioides immitis* **(2pt.)**

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