

WSC 2021-2022 Conference 3

Case 1 – Tissue from an ox.

MICROSCOPIC DESCRIPTION: Spinal cord and meninges: Replacing extradural fat **(1pt)**, and extending into and expanding the dura **(1pt)**, there are numerous, often coalescing well-defined pyogranulomas **(1pt)** embedded in a dense bed of fibrous connective tissue. The pyogranulomas often center on a round clear vacuole **(1pt)**, which is surrounded centrifugally by abundant cellular debris **(1pt)**, large numbers of viable and degenerate neutrophils **(1pt)**, and in turn by large numbers of epithelioid macrophages **(1pt)** and fewer lymphocytes **(1pt)** which are enmeshed in lamellations of wispy collagen which progressively become more compact at the periphery **(1pt)**. Additional, smaller clear vacuoles are scattered in low numbers randomly throughout the pyogranuloma, and rarely, pyogranulomas contain small aggregates of crystalline mineral **(1pt)**. The pyogranulomas are separated by dense bands of mature fibrous connective tissue **(1pt)** which often contain aggregates of low to moderate numbers of lymphocytes, and fewer histiocytes and plasma cells in perivascular locations **(1pt)**. A similar but less cellular infiltrate is dispersed evenly throughout this fibrous connective tissue. Throughout all funiculi, **(1pt)** asymmetrically and randomly scattered axon sheaths are dilated and occasionally contain Gitter cells (axonal necrosis). **(1pt)**

MICROSCOPIC DIAGNOSIS: Spinal cord, epidural space: Pyogranulomas, **(1pt)**, multiple **(1pt)**, diffuse, severe, with numerous clear vacuoles **(1pt)** (consistent with adjuvant droplets) and marked fibrosis.

CAUSE: Water-in-oil vaccine. **(2pt)**

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

**MICROSCOPIC DESCRIPTION:** Liver: Affecting approximately 33% **(1pt)** of the section is a well-defined area of hepatic parenchyma that has lost cellular architecture and differential staining capability **(1pt)** (lytic necrosis) **(1pt)**. The area of necrosis contains few inflammatory cells, primarily neutrophils. **(1pt)** The area of necrosis is bordered a band of shrunken hepatocytes which exhibit individualization, and are swollen and vacuolated (degeneration) **(1pt)** or shrunken with a scant amount of hypereosinophilic cytoplasm and a pyknotic nucleus (necrosis). **(1pt)** This area is infiltrated by moderate numbers of viable and degenerate neutrophils **(1pt)** and macrophages **(1pt)**, with fewer lymphocytes which are admixed with moderate amounts of cellular debris. In less affected areas, there are multifocal areas of neutrophil aggregation and around small clusters of necrotic hepatocytes. **(1pt)** Throughout the section, sinusoids are expanded by increased numbers of circulating neutrophils **(1pt)** and hypertrophic Kupffer cells. Throughout the section, there is multifocal individualization and apoptosis of individual hepatocytes. **(1pt)** Portal areas are expanded by mild fibrosis which incompletely bridges to adjacent portal areas, and are expanding by low to moderate numbers of lymphocytes with fewer macrophages and neutrophils.

**Marrow fat:** There is diffuse loss of adipocytes within the marrow fat which has degenerated to a light blue granular material (serous atrophy of fat.) **(1pt)** Individualized adipocytes are entrapped by this material, and marrow elements are markedly decreased in this section. **(1pt)**

**MICROSCOPIC DIAGNOSIS:** 1. Liver: Hepatitis, necrotizing **(1pt)**, focally extensive, severe.  
2. Liver: Hepatitis, portal, lymphohistiocytic, subacute, mild to moderate with fibrosis.  
3. Bone marrow: Serous atrophy of fat. **(1pt)**

**CAUSE:** *Fusobacterium necrophorum* **(3pt)**

**NAME THE CONDITION:** Necrobacillosis **(1pt)**

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

MICROSCOPIC DESCRIPTION: Liver: Diffusely, there is necrosis (**1 pt**) of hepatocytes within all areas of the lobule (**1 pt**) (massive necrosis) (**2 pt**). There is also centrilobular hemorrhage (**1 pt**) as well as hypertrophic Kupffer cells and moderate amounts of cellular debris throughout the entirety of the lobule (**1 pt**). Remaining hepatocytes, primarily in the immediate portal areas (**1 pt**) are individualized and swollen (**1 pt**) with granular eosinophilic cytoplasm containing one to numerous lipid droplets (**1 pt**) (degeneration) There is moderate portal fibrosis and incomplete bridging between portal areas (**1 pt**). Within portal areas, there is moderate biliary hyperplasia (**1 pt**) and bile ducts are lined by markedly hypertrophic epithelium (**1 pt**). There are moderate numbers of lymphocytes and plasma cells within portal areas as well. (**1 pt**)

MORPHOLOGIC DIAGNOSIS: Liver: Necrosis (**1 pt**), massive (**1 pt**), diffuse, with mild portal fibrosis, (**1 pt**) biliary hyperplasia and biliary epithelial hypertrophy.

CAUSE: Sawfly larvae toxicosis (other acceptable possibilities – Microcystin toxicosis, *Amanita*, cocklebur, cycad, or iron toxicosis (**3 pt**))

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

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Case 4 – Tissue from a dog.

**MICROSCOPIC DESCRIPTION:** Rectum, anus, and perianal tissue: **(1pt.)** Expanding in a linear fashion, the rectal submucosa and extending deep into the dermis of the perianal tissue (as well as to the ulcerated perianal epidermis **(1pt.)** and effacing normal tissue architecture, there is diffuse granulomatous **(1pt.)** inflammation composed of intermingled innumerable epithelioid macrophages **(1pt.)**, multinucleated giant cell macrophages **(1pt.)**, lymphocytes **(1pt.)**, plasma cells **(1pt.)**, neutrophils and rare eosinophils separated by thin randomly oriented bands of fibrous connective tissue and fibroblasts. There are variably-sized areas of lytic necrosis **(1pt.)** containing large numbers of viable and degenerate neutrophils **(1pt.)** admixed with cellular debris scattered randomly throughout the section. Scattered throughout the section and present in negative relief are numerous cross sections of fungal hyphae **(1pt.)** ranging up to 8µm **(1pt.)** in diameter with non-parallel walls **(1pt.)**, variably non-dichotomous branching, and no visible septation **(1pt.)**. There is mild edema of the rectal wall, and the inflammatory infiltrate extends into perianal glands and adnexa.

**MORPHOLOGIC DIAGNOSIS:** Rectal, anus, perianal tissue: Proctitis and perianal dermatitis, granulomatous **(2pt.)**, focally extensive, chronic, severe, with numerous intra- and extracellular hyphae **(1pt.)** (fungal OK, or oomycetes).

**CAUSE:** Lagenidium sp. **(3pt.)** (that's what this one is, but if you said Zygomycetes sp. or Pythium, you are A-OK with me!)

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