WSC 2019-2020 Conference 4.

Case 1. Tissue from a little red flying fox.

(This is not a descriptive slide. The best lesions are on the scanned slide at AskJPC.org – many of the glass sides had only inclusions and little else to describe.)

MICROSCOPIC DESCRIPTION: Brain: Rarely, cerebrum and brainstem vessels are cuffed by low numbers of lymphocytes and plasma cells, and within the adjacent parenchyma, there is mild gliosis with increased numbers of glial cells and astrocytes. Rarely in these areas, neurons are shrunken and fragmented (necrosis) and/or surrounded by astrocytes and glial cells (satellitosis). There are rare pyknotic cells scattered within the parenchyma. (NOTE: These changes are very mild and they are only in areas with meningitis.) The cytoplasm of neutrons in a wide variety of regions (cerebrum, midbrain, cerebellum) contain one or multiple 2-3um round pink cytoplasmic viral inclusions – neurons of the brainstem and paraventricular nuclei, cerebral white matter, cerebellar Purkinje cells, deep cerebellar nuclei, etc.

MORPHOLOGIC DIAGNOSIS: Brain: Meningoencephalitis, lymphoplasmacytic, diffuse, mild with rare neuronal necrosis with numerous neuronal intracytoplasmic viral inclusions

Cause: Bat lyssavirus

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Case 2. Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Liver: The hepatic parenchyma has a diffuse nodular pattern and normal sinusoidal architecture is not discernable. **(1pt)** Diffuse, portal triads are expanded by increased profiles of bile ductules (biliary hyperplasia), **(1pt.)** infiltrated by low numbers of macrophages **(1pt.)** with rare lymphocytes and neutrophils, and small amounts of fibrous connective tissue **(1pt.)** giving the liver a nodular appearance. Often, within bile ducts, there are fan-like arrays of fractured birefringent clear crystals **(2pt)** and adjacent biliary epithelium is degenerate or necrotic. In some portal areas, multinucleated giant cells **(1pt.)** are also present surrounding crystal sheaves. Rarely, crystals are surrounded by macrophages or foreign body type giant cells within the hepatic sinusoids. **(1pt.)** Hepatocytes are diffusely swollen by accumulation of poorly defined cytoplasmic vacuoles to the point that normal lobular architecture is obscured and sinusoids are compressed **(1pt.) .** Rare apoptotic hepatocytes **(1pt.)** are scattered throughout the section. Portal and sublobular lymphatics are diffusely distended (edema). **(1pt.)** In a focally extensive area, subcapsular hepatocytes area lost and replaced by an extensive area of fibrosis, proliferating bile ducts, tortuous arterioles, and low numbers of lymphocytes and histiocytes. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: Liver: Cholangiohepatitis **(1pt.)**, necrotizing and histiocytic **(1pt.)**, multifocal, mild, with marked hepatic vacuolation, biliary hyperplasia, and intrahistiocytic and intraductal crystal formation. **(1pt.)**

CAUSE: *Panicum sp. (Tribulus terrestris, Narthecium, Barchiaria, Phytolacca sp. OK) (***2pt.)**

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

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Case 3. Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Nasal mucosa: The nasal mucosa is markedly expanded up to ten times normal **(1pt)** and thrown into thick villar **(1pt) f**olds which are often fused. The lamina propria is expanded **(1pt)** and nasal glands are surrounded and separated by an infiltrate of large numbers of plasma cells **(1pt)**, with fewer lymphocytes **(1pt)**, macrophages, neutrophils and eosinophils. as well as small aggregates of siderophages **(1pt)**. The nasal epithelium is hyperplastic, columnar and pseudostratified, with decreased numbers of goblet cells **(1pt)**, and multifocally infiltrated by individual and small clusters of neutrophils **(1pt)** and in some areas eosinophils, and there are occasional small foci of lytic necrosis **(1pt)**, scattered throughout. Glands are often ectatic and tortuous, with markedly decreased numbers of goblet cells, and are similarly infiltrated by individualized and clustered neutrophils and eosinophils. In areas of profound inflammation, the glandular epithelium is often degenerated and sloughed into the lumen where it is admixed with mucin, cellular debris, and rare inflammatory cells. **(1pt)** Approximately 50% of epithelium cells within the surface epithelium and glands contain numerous faintly eosinophilic 2-3um bacilli within their cytoplasm; similar bacilli are seen within macrophages in the lamina propria. **(1pt)** There are large lymphoid follicles **(1pt)** scattered along the superficial submucosa in areas of inflammation and mucosal proliferation. The submucosa is multifocally and variably expanded **(1pt)** by combinations of inflammatory cells as previously mentioned, edema, granulation tissue and collagen.

MORPHOLOGIC DIAGNOSIS: Nasal mucosa: Rhinitis, proliferative **(1pt)** and lymphoplasmacytic **(1pt)**, , chronic **(1pt)**, severe, with multifocal mucosal erosion, and numerous intracytoplasmic bacilli. **(1pt)**

CAUSE: *Salmonella enterica v. arizonae* **(2pt)**

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

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Case 4. Tissue from an ox.

MICROSCOPIC DESCRIPTION:

Omasum: Multifocally, within the omasal epithelium, there multifocal to coalescing pustules **(1pt.)** within the stratum lucidum and granulosum **(2pt.)** composed of large numbers of degenerate neutrophils **(1pt.)** admixed with granular eosinophilic cellular debris and small amounts of hemorrhage and fibrin. **(1pt.)** In many areas the mucosa is lifted off of the underlying submucosa. **(2pt.)** Underneath pustules, basal epithelium is individualized and occasionally swollen due to intracellular edema, and occasionally contains granular eosinophilic cytoplasm (degeneration). **(2pt.)** There is often congestion of the submucosal vessels, and edema of underlying submucosa. Plant debris and numerous mixed colonies of bacilli are present along the overlying minimally hyperkeratotic **(1pt.)** mucosa.

Reticulum **(1pt.)**: Similar changes are present within the mucosal epithelium of the reticulum. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Omasum: Omasitis, necrotizing **(1pt.)**, multifocal to coalescing, with numerous intracorneal pustules. **(1pt.)**

2. Reticulum: Reticulitis, necrotizing **(1pt.)**, multifocal to coalescing, with numerous intracorneal pustules. **(2pt.)**

CAUSE: *Kikuyu sp.* ingestion (arsenic, *Baccharis sp. OK as well.)*