WSC 2012-2013, Conference 7

Case 1. Tissue from a rabbit.

MICROSCOPIC DESCRIPTION: Lung (multiple sections): Multifocally, the lumina of numerous arterioles are expanded by large fibrinocellular thrombi **(2 pt for description)** composed of degenerate neutrophils and histiocytes admixed with abundant cellular debris enmeshed in abundant polymerized fibrin. Some thrombi contain large colonies of basophilic cocci **(1 pt)** which are often surrounded by brightly eosinophilic protein. The adjacent vascular wall is necrotic and contains **(2 pt for description)** is infiltrated by large numbers of neutrophils admixed with cellular debris, hemorrhage and fibrin (fibrinoid necrosis) **(1 pt)**. The necrotizing process occasionally extends into the surrounding connective tissue and alveoli. Alveolar walls are multifocally expanded **(1 pt)** by increased numbers of neutrophils, congestion, edema and cellular debris, as well as occasionally circulating megakaryocytes **(1 pt)**. Alveoli **(2 pt)** contain combinations and concentrations of edema fluid **(1 pt)**, hemorrhage, polymerized fibrin, foamy alveolar macrophages, neutrophils, and cellular debris, which often fills adjacent airways. In one section, there is a large area of lytic necrosis **(1 pt)**, with necrosis of alveolar septa, abundant alveolar edema, hemorrhage, and infiltration by large numbers of degenerate neutrophils admixed with cellular debris and colonies of cocci **(2 pt for description)** . Bacterial colonies are scattered throughout the lung in alveolar spaces, airways, blood vessels, and rarely within septal vessels **(2 pt)**.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, interstitial, necrosuppurative, multifocal, moderate, with thrombosis, arteriolar fibrinoid necrosis, pulmonary edema, and numerous colonies of cocci. **(3 pt)**

O/C: (1 pt)

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Case 2. Tissue from a naked mole rat.

MICROSCOPIC DESCRIPTION: Skin: The deep dermis and subcutis **(1pt)** is expanded by numerous granulomas, the largest of which measures 1 x 0.4 cm. The granulomas are centered on aggregates of deeply basophilic granular to crystalline mineral **(2pt)**, which are surrounded by moderate numbers of polygonal epithelioid macrophages **(1pt)** throughout which are scattered low numbers of multinucleated foreign body and Langhans-type macrophages **(1pt)** and rare neutrophils. These cells are in turn surrounded by low to moderate amounts of lamellated fibrous connective tissue **(1pt)**, plump fibroblasts, and low to moderate numbers of lymphocytes and plasma cells **(1pt)**. Aggregates of polygonal epithelioid macrophages also surround granulomas and extend into the surrounding, mildly edematous dermis **(1pt)**. The superficial dermis is multifocally expanded by a band of pyogranulomatous inflammation **(1pt)** consisting of low to moderate numbers of viable and degenerate neutrophils **(1pt)**, histiocytes, foreign body macrophages, admixed with abundant cellular debris and abundant mineral which often outlines individual collagen fibers. Some macrophages contain abundant granular brown pigment and rare ingested neutrophils. Moderate numbers of neutrophils multifocally infiltrate the overlying hyperplasic and mildly hyperkeratotic epidermis **(2pt)**, occasionally forming intracorneal pustules **(1pt)**. In one section, there is mineral within the overlying epidermis. In one section, the epidermis is markedly expanded by a serocellular crust **(1pt)** containing abundant serum, degenerate neutrophils, cellular debris, colonies of cocci, fibrin, keratin, hemorrhage, and rare yeasts, and in some areas, moderate amounts of granular mineral.

MORPHOLOGIC DIAGNOSIS: Skin: Granulomas, mineralized (or calcareous), multiple and coalescing, focally extensive, multifocal pyogranulomatous dermatitis with mineralization. **(3pt)**

NAME THE CONDITION: Calcinosis circumscripta **(2pt)**

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

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Case 3. Tissue from a red ox.

MICROSCOPIC DESCRIPTION: Eye, cornea **(1pt)**. The cornea is diffusely thickened up to 1cm **(1pt)**. The anterior edge is largely ulcerated **(1pt)**, with necrosis of the corneal epithelium, and replacement by a serocellular crust **(1pt)** composed of massive numbers of viable and degenerate neutrophils **(2pt)** admixed with abundant cellular debris **(1pt)**, fibrin and edema fluid. There is a 1um thick band of polymerized fibrin **(1pt)** deep to the ulcer, which covers, in turn, a 0.5 cm thick layer of vascular granulation tissue **(2pt)**, throughout which are scattered low to moderate numbers of neutrophils, lesser histiocytes, plump fibroblasts, and cellular debris. There is marked edema **(1pt)** of the inner half of the granulation tissue, which incorporates the edematous uveal tract **(1pt)** and ciliary body **(1pt)** (anterior synechia) **(1pt)**. Scattered throughout the edematous granulation tissue are low to moderate numbers of histiocytes with intracytoplasmic brown granular pigment (melanin). There is moderate neovascularization **(1pt)** of the peripheral cornea with mild hemorrhage and small numbers of perivascular neutrophils, histiocytes, and lymphocytes and moderate edema.

MORPHOLOGIC DIAGNOSIS: Eye, cornea: Keratitis, suppurative and ulcerative, focally extensive, chronic, with staphyloma. **(4pt)**

O/C: (1pt)

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Case 4. Tissue from a cynomolgus monkey.

MICROSCOPIC DESCRIPTION: Pancreas: Multifocally, there are poorly demarcated foci of necrosis **(2pt)** scattered randomly throughout the pancreas. Within necrotic areas, acinar cells have brightly eosinophilic often fragmented granular cytoplasm, are occasionally rounded up and shrunken, and have lytic nucleoli **(2pt)**. Other nuclei are markedly swollen by a large smudgy amphophilic viral inclusion which peripheralizes the chromatin **(1pt)**. Small numbers of neutrophils multifocally infiltrate necrotic areas. Just outside areas of necrosis, acinar cells occasionally contain a single 2-3um brightly eosinophilic viral intranuclear inclusion surrounded by a clear ring **(2pt)**. The adjacent parenchyma is disorganized with multifocal degeneration and atrophy of pancreatic exocrine tissue resulting in loss of zymogen granules, cellular atrophy, expansion of central lumens within acini, and often acinar cells assume a spindled morphology **(2pt)**. The mildly edematous **(1pt)** pancreatic interstitium is multifocally infiltrated by low to moderate numbers of neutrophils, histiocytes, eosinophils, lymphocytes, and plasma cells **(1pt)**. Diffusely, there is a decreased amount of zymogen granules within acinar cells **(1pt)** (suggestive of prolonged inanition). There is mild multifocal fat necrosis **(1pt)** in the adjacent peripancreatic adipose tissue.

MORPHOLOGIC DIAGNOSIS: Pancreas: Pancreatitis, necrotizing, multifocal, moderate, with intranuclear viral inclusion bodies. **(3pt)**

CAUSE: Macacine herpesvirus-1 (B virus, cercopithecine herpesvirus-1, Herpesvirus simiae) **(3pt)**

O/C: (1pt)