

WSC 2015-2016, Conference 24

Case 1. Tissue from an ox.

MICROSCOPIC DESCRIPTION: Heart: There are focally extensive areas of coagulative necrosis **(1pt.)** throughout the section of myocardium, in which cardiomyocytes have lost differential staining, cross striations, and central nuclei. **(1pt.)** At the edges of these areas and often outlining areas of coagulative necrosis, cardiomyocytes are hypereosinophilic, lack cross striations, are shrunken, fragmented **(1pt.)**, and infiltrated by low numbers of degenerate neutrophils **(1pt.)**, and are admixed with low numbers of cellular debris **(1pt.)** (lytic necrosis) In some areas, cellular debris forms linear bands. Scattered throughout the affected heart muscle, there are low numbers of 2x4 bacterial rods **(1pt.)**. Within these areas, myofibers are separated by abundant hemorrhage and edema **(1pt.)**. Multifocally, vessels walls are infiltrated by moderate numbers of viable and degenerate neutrophils admixed with cellular debris (vasculitis) **(2pt.)** and contain large fibrin thrombi **(1pt.)**. The epicardium is covered with a thick mat of fibrin **(1pt.)** which contain numerous degenerate neutrophils admixed with cellular debris. Large numbers of neutrophils infiltrate the subjacent epicardial fat **(1pt.)**, and subepicardial myofibers **(1pt.)**, and there is fat and muscle necrosis in both areas. Scattered throughout the myocardium, individual myocytes are scattered up to three times normal by numerous intracytoplasmic 2x3 elliptical basophilic zoites.

MORPHOLOGIC DIAGNOSIS: 1. Heart: Myocarditis, necrohemorrhagic, multifocal to coalescing, severe, with fibrinous epicarditis and necrotizing epicardial steatitis. **(4 pt.)**

2. Heart, cardiomyocytes: Multiple sarcocysts.

CAUSE *Clostridium chauvoei* **(2pt.)**

O/C: (1 pt.)

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Case 2. Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, alveolar spaces are filled with large numbers of viable and fewer degenerate neutrophils **(1pt.)**, admixed with macrophages (which often contain phagocytized debris) **(1pt.)**, low numbers of multinucleated giant cells **(1pt.)**, massive amounts of fibrin **(1pt.)**, hemorrhage, and edema, and small amounts of cellular debris. Intervening alveolar walls are markedly expanded by hemorrhage and edema well as patchy type II pneumocyte hyperplasia **(1pt.)**, and in severely inflamed areas, low numbers of fibroblasts and collagen **(1pt.)**. There are patchy areas of lytic necrosis scattered throughout the section **(1pt.)**. Airways are filled **(1pt.)** by large numbers of viable and degenerate neutrophils **(1pt.)** admixed with fibrin and abundant cellular debris, and often contains colonies of numerous 2um bacterial rods **(1pt.)**. Neutrophils infiltrate the adjacent fragmented and pyknotic airway epithelium (necrosis) **(1pt.)**. Multifocally, both airways and vessels throughout the sections are surrounded by moderate to large numbers of lymphocytes and plasma cells **(1pt.)**. The pleura is markedly congested and expanded by edema, increased numbers of fibroblasts, and covered by a thick mat of polymerized fibrin containing moderate numbers of degenerate neutrophils, hemorrhage, and cellular debris. **(1pt)**

An adjacent section of myocardium has no significant lesions.

MORPHOLOGIC DIAGNOSIS: Lung: Bronchopneumonia, fibrinosuppurative, diffuse, severe, with giant cells and perivascular and peribronchiolar lymphocyte hyperplasia. **(4pt.)**

CAUSE: *Mannheimia haemolytica* (*Biebersteinia trehalosi*, *Mycoplasma bovis* OK) **(2pt)**

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

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Case 3. Tissue from an ox.

MICROSCOPIC DESCRIPTION: (This section is over-decalcified). Bone: There is diffuse loss of lamellar bone **(1pt)**, with several areas of radiating woven periosteal new bone **(1pt)** scattered through the section. Spicules of bone are lined by plump osteoblasts and rare osteoclasts, **(1pt)** but at their edges, the lack of these cells heralds resorption. Remaining bone is surrounded by abundant dense fibrous connective tissue **(1pt)** populated by numerous fibroblasts. Scattered through the section are numerous poorly formed pyogranulomas **(1pt)**, composed of a central area of numerous viable and degenerate neutrophils **(1pt)** admixed with moderate amounts of cellular debris which are surrounded by several layers of round macrophages **(1pt)** ranging up to 15 microns in diameter, often containing phagocytized debris. **(1pt)** These pyogranulomas are centered on numerous colonies of bacterial rods **(2pt)** which are encased in abundant brightly eosinophilic radiating protein **(1pt)** (Splendore-Hoeppli material) **(1pt)**. Macrophages and fewer neutrophils extend into the surrounding dense fibrous connective tissue. At the edge of the section, skeletal muscle fibers are shrunken, brightly eosinophilic, and lack cross striations (atrophy) **(1pt)** and surrounded by fibrous connective tissue.

MORPHOLOGIC DIAGNOSIS: Bone: Osteomyelitis, pyogranulomatous, chronic, diffuse, severe, with bone resorption, Splendore-Hoeppli material, and numerous bacterial colonies **(3 pt)**

CAUSE: *Actinomyces bovis* **(2 pt)**

NAME THE CONDITION: Lumpy jaw **(1 pt)**

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

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CASE 4. Tissue from a foal.

MICROSCOPIC DESCRIPTION: Kidney: Scattered through the cortex, there are numerous variably sized aggregates of viable and degenerate neutrophils **(1pt.)** (microabscesses) **(1pt.)** admixed with abundant cellular debris which range up to 1mm in diameter and are often centered on glomeruli **(1pt.)**. These microabscesses often have a central area of acute hemorrhage. Affected glomeruli exhibit one or more of the following changes: hemorrhage or aggregates of neutrophils within Bowman's space **(1pt.)**, occlusion of capillaries by large colonies of 2um rods **(1pt.)**, capillary thrombosis **(1pt.)**, and pyknotic capillary and mesangial nuclei. Large bacterial colonies are also present within veins and free within the interstitium in areas of abscessation. **(1pt.)** Tubules exhibit one or more of the following changes: swelling of epithelium with granular cytoplasm (degeneration) **(1pt.)**, pyknosis with detachment from the basement membrane (necrosis) **(1pt.)**, ectasia, abundant granular protein within the lumen, numerous neutrophils within tubules **(1pt.)**, tubulorrhexis **(1pt.)**, intratubular hemorrhage. In areas of inflammation, the interstitium is expanded by infiltrating neutrophils, small amounts of cellular debris, edema **(1pt.)**, congestion, and hemorrhage. **(1pt.)** There is marked congestion of medullary vessels.

MORPHOLOGIC DIAGNOSIS: Kidney: Nephritis, suppurative, multifocal to coalescing, with intravascular bacterial emboli. **(3pt.)**

CAUSE: *Actinobacillus equuli* **(3pt.)**

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