

WSC 2025-2026
Conference 22, Case 1
Tissue from an ox.

MICROSCOPIC DESCRIPTION: Mammary gland **(1pt)**: Two sections of mammary gland are submitted for examination and both are similar. In these sections up to 40% of the mammary gland has undergone coagulative necrosis **(1pt)** (infarct) in a geographic pattern. Within these areas, alveolar tissue and ducts have lost staining affinity, however, cytoarchitecture is preserved. Within these areas, vessels contain polymerized fibrin (and often, occlusive fibrin thrombi.) **(1pt)** Scattered throughout the infarcted areas, there are innumerable 2-3um bacilli **(1pt)** which are separated from each other by a clear capsule **(1pt)**. Within these areas, interlobular septa are markedly expanded by edema and fibrin.) There is multifocal mineral scattered through infected tissue. These areas of infarction are bounded by a dense band of necrotic and fewer viable neutrophils **(1pt)** and macrophages admixed with abundant cellular debris. In the viable secretory alveoli adjacent to infarcts, alveoli are filled and distended by secretory material contain numerous infiltrating necrotic and viable neutrophils, foamy macrophages **(1pt)**, cellular debris, colonies of bacilli, fibrin and hemorrhage, and alveolar septae are often discontinuous. Capillaries within the septa between acini are filled with increased numbers of neutrophils and often fibrin thrombi. **(1pt)** More peripherally, alveolar architecture is largely effaced by maturing granulation tissue **(1pt)** and dense bands of fibrous connective tissue **(1pt)** which is populated by large numbers of macrophages, individualized and aggregated lymphocytes and plasma cells **(1pt)**, and fewer neutrophils and fibroblasts. Epithelial cells lining affected ducts, and occasionally within adjacent glands, are either attenuated, degenerate (swollen with vacuolated cytoplasm), or necrotic (shrunken cells with hypereosinophilic cytoplasm and nuclear pyknosis). **(1pt)** The few remnant alveoli are variably ectatic or shrunken and contain variable combinations and concentrations of neutrophils, cellular debris, corpora amylacea **(1pt)**, mineral and spicular cholesterol clefts **(1pt)**. Clear fat droplets **(1pt)** are scattered throughout the section, primarily within remnant alveoli but also scattered throughout the effaced parenchyma.

MORPHOLOGIC DIAGNOSIS: Mammary gland: Mastitis, necrosuppurative **(1pt)**, chronic **(1pt)**, multifocal to coalescing, severe, with infarction **(1pt)** and large numbers of bacilli

CAUSE: *Klebsiella pneumoniae* **(2pt)**

WSC 2025-2026
Conference 22, Case 2
Tissue from an ox.

MICROSCOPIC DESCRIPTION: Heart valve **(1pt.)**: The valve is markedly expanded and deformed in this section by a combination of abundant vascular fibrous connective tissue **(1pt.)** that surrounds and separates bundles of myofibers at the valve root, and extends into the stroma of the valve itself. The valve leaflets are further expanded by abundant myxomatous ground substance **(1pt.)** and numerous viable and degenerate neutrophils **(1pt.)**, macrophages and cellular debris, as well as edema and granulation tissue **(1pt.)**, and there is segmental loss of lining endothelium. Adjacent to the valve surface and extending downward along the valve root and endocardium, there is a large fibrin thrombus **(1pt.)**, which contains entrapped neutrophils, peripheral hemorrhage, cellular debris, and numerous colonies of 1-2µm cocci **(1pt.)**. A clear delineation between the thrombus and the granulation tissue lining the markedly remodeled valve leaflet is not apparent.

Lung: The entire section of lung is effaced by a marked inflammatory change. Alveoli are filled with variable combinations and concentrations of edema **(1pt.)**, hemorrhage, polymerized fibrin **(1pt.)**, foamy alveolar macrophages, with fewer neutrophils and cellular debris. Alveolar septa are markedly congested and further expanded by edema, increased numbers of circulating neutrophils, macrophagic intraseptal macrophages, and cellular debris, as well as scattered type II pneumocyte hyperplasia. **(1pt.)** Bronchioles are filled with refluxed edema, hemorrhage, and few inflammatory cells similar to those seen in the alveoli. **(1pt.)** The interlobular septa are markedly expanded by edema **(1pt.)** and lymphatics are often expanded by edema and polymerized fibrin. **(1pt.)** Pulmonary arterioles contain non-occlusive fibrocellular thrombi and rare colonies of 1 to 2 µm cocci. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Pulmonary valve: Valvulitis **(1pt.)**, fibrinosuppurative **(1pt.)**, focally extensive, severe with valvular remodeling **(1pt.)** and numerous colonies of cocci **(1pt.)**
2. Lung: Pneumonia, interstitial, fibrinosuppurative, subacute, diffuse, severe with marked edema. **(1pt.)**

CAUSE: *Helcococcus ovis* (any gram-positive coccus will do) **(1pt.)**

WSC 2025-2026
Conference 22, Case 3.
Tissue from an ox.

MICROSCOPIC DESCRIPTION: Lung: Diffusely, alveolar septa demonstrate one or more of the following changes: necrosis or loss of type 1 pneumocytes **(1pt.)**, discontinuity with hemorrhage into the adjacent alveoli (septal necrosis) **(1pt.)**, marked congestion and edema **(1pt.)**, and extensive type II pneumocyte hyperplasia. **(1pt.)** Alveolar lumina contain variable combinations and concentrations of pink proteinaceous edema **(1pt.)**, and lesser amounts of hemorrhage and polymerized fibrin **(1pt.)** and occasionally deeply eosinophilic compacted lamellations of polymerized fibrin and necrotic cellular debris closely adjacent to the septa **(1pt.)** (hyaline membranes) **(1pt.)** Airways multifocally contain refluxed alveolar contents **(1pt.)** (to include hyaline membranes), with segmental necrosis and loss of lining epithelium. **(1pt.)** Interlobular septa and the overlying pleura are markedly expanded by clear space (emphysema) **(1pt.)**, and lymphatics within the interlobular septa are markedly expanded by edema **(1pt.)** and to a lesser extent clear space.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, interstitial **(1pt.)**, necrotizing **(1pt.)**, diffuse, severe, with hyaline membranes **(1pt.)**, type II pneumocyte hyperplasia, **(1pt.)** and interlobular septal and pleural edema and emphysema.

CAUSE: 3-methylindole intoxication (perilla mint, 4-ipomeanol, stinkwood, rapeseed all OK) **(1pt.)**

CONDITION: Acute bovine pulmonary edema and emphysema (ABPEE) or atypical interstitial pneumonia **(1pt.)**

O/C: (1pt.)

WSC 2025-2026

Conference 22, Case 4.

Tissue from a sheep.

MICRSCOPIC DESCRIPTION: CerebrumL The lateral ventricle is moderately expanded by gyri are flattened. Diffusely, there is extensive rarefaction composed of extensive spongiosis **(1pt.)** with numerous foci of lytic and liquefactive necrosis. **(1pt.)** White matter tracts are infiltrated and largely replaced by numerous gitter cells **(1pt.)** (occasionally multinucleated), astrocytes **(1pt.)**, proliferating oligodendroglia, few lymphocytes, rare plasma cells, and edema **(1pt.)**. Similar inflammatory cells infiltrate and multifocally efface remnant ependyma. **(1pt.)** There are numerous dilated myelin sheaths which are empty **(1pt.)**, in which axons are lost and replaced by gitter cells **(1pt.)** (demyelination) **(1pt.)**, or rarely still contain swollen axons with hyper eosinophilic axoplasm (spheroids). Vessels at the junction with adjacent gray matter are cuffed **(1pt.)** by large numbers of gitter cells **(1pt.)**, macrophages, lymphocytes **(1pt.)** and plasma cells **(1pt.)**. Adjacent gray matter contains mildly increased numbers of astrocytes and microglial cells (reactive gliosis). **(1pt.)** Multifocally within the gray matter and there are few glial nodules that occasionally surround swollen or vacuolated (degenerate) neurons (satellitosis). Cerebral gyri are multifocally flattened.

MORPHOLOGIC DIAGNOSIS: Cerebrum, periventricular white matter: Demyelination **(1pt.)** and liquefactive necrosis **(1pt.)**, diffuse, severe, with gliosis and hydrocephalus *ex vacuo*.

CAUSE: Small ruminant lentivirus **(2pt.)**

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