WSC 2025-2026
Conference 4, Case 1
Tissue from a prairie dog.

MICROSCOPIC DESCRIPTION: Lung: Four sections of lung are submitted for examination, which vary in the level of inflammatory change. Within 2 of four sections, there is a loss of normal pulmonary architecture affecting up to 75% of the section. **(1pt)** Alveolar septa **(1pt)** are expanded by large numbers of foamy macrophages **(1pt)** and fewer neutrophils **(1pt)**, congestion **(1pt)**, edema, and occasionally lined by Type 2 pneumocytes **(1pt)**. Alveolar spaces **(1pt)** are markedly expanded by a similar population of foamy alveolar macrophages **(1pt)**, fewer neutrophils, and small amounts of cellular debris and edema fluid **(1pt)**, and throughout the alveoli, there are scattered multinucleated giant cells **(1pt)** measuring up to 150um **(1pt)** in dimeter with up to 40 nucleoli. **(1pt)** Airways **(1pt)** are filled and expanded with a similar inflammatory exudate with a more prominent neutrophilic component **(1pt)** and occasionally multinucleated cells as previously described. Airway epithelium is segmentally necrotic, **(1pt)** attenuated, or lost. There is marked multifocal hyperplasia of broncholar-associated lymphoid tissue **(1pt)**, and often lymphoid tissue surrounds vessels.

MORPHOLOGIC DIAGNOSIS: Lung: Pneumonia, bronchointerstitial **(1pt)**, histiocytic and neutrophilic, **(1pt)** multifocal to coalescing, severe, with numerous multinucleated giant cells. **(1pt)**

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

WSC 2025-2026
Conference 4, Case 2
Tissue from a goat.

MICROSCOPIC DESCRIPTION: Thymus **(1pt)**: One section of a thymic neoplasm is submitted for examination. The submitted tissue is composed of an encapsulated, infiltrative, moderately cellular poorly demarcated neoplasm. **(2pt)** Neoplastic epithelial **(1pt)** cells are arranged in trabeculae **(1pt)** on a fine fibrovascular stroma. **(1pt)** Dense bands of fibrous connective tissue traverse the neoplasm. **(1pt)** Neoplastic cells are spindled **(2pt)** and have indistinct cell borders with a moderate amount of finely granular eosinophilic cytoplasm. **(1pt)** Nuclei are elliptical with finely stippled chromatin and 2-4 small basophilic nucleoli**. (1pt)** Mitoses are rare. **(1pt)** There are numerous variably sized congested vessels and areas of hemorrhage **(1pt)** and polymerized fibrin (1pt) within the neoplasm. There are multifocal areas of crystalline mineral scattered throughout the neoplasm. **(1pt)** There are multifocal areas of capsular invasion by neoplastic epithelial cells. **(1pt)** Moderate to large numbers of lymphocytes are present within the mass. **(1pt)** There are scattered Hassall's corpuscles within the neoplasm. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Mediastinal mass: Thymoma **(3pt.).**

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

WSC 2025-2026
Conference 4, Case 3.
Tissue from a sheep.

MICROSCOPIC DESCRIPTION: Cerebrum: Within both the gray and white matter, there is a focally extensive area of coagulative necrosis and at its periphery at the advancing edge of the inflammatory nodule of pyogranulomatous **(1 pt.)** inflammation. Within the area of coagulative necrosis, neuroparenchymal architecture and that of the inflammatory infiltrate is preserved, but lacks differential staining. There are scattered areas of mineralization within the necrotic neuroparenchyma. Vessels within the necrotic area often contain occlusive fibrin thrombi and the walls of affected vessels are hyalinized and fragmented with extrusion of protein into the wall, where it is admixed with varying combinations and concentrations of neutrophils, macrophages, edema, hemorrhage, and cellular debris (vasculitis). **(1 pt.)** Occasionally within these vessels, and scattered within more peripheral aggregates of macrophages, neutrophils, and often within the cytoplasm of foreign body multinucleated cells at the periphery of the necrotic region, there are numerous, brightly eosinophilic 6-8um wide **(1 pt.)** non-septate, non-dichotomously branching fungal hyphae which lack parallel walls **(1 pt.)** and have bulbous swellings **(1 pt.)** ranging up to 15um in diameter, which are most commonly seen in negative relief. Throughout the section, vessels are cuffed by varying combinations and concentrations of neutrophils, lymphocytes, and macrophages enmeshed in lamellae of loosely arranged collagen (in proximity to the meninges) and similar cells extend into and expand the meninges, often in perivascular areas **(1 pt.)**. Within the inflamed grey matter, in addition to the inflammatory infiltrate listed above, there is a diffuse astrogliosis containing numerous gemistocytic and spindled astrocytes, as well as increased numbers of activated microglia. The capsule is undulant.

Lung: Approximately 33% of the section are replaced by a large area of consolidation which effaces normal parenchymal architecture. Alveolar septa are markedly expanded by variable combinations and concentrations of macrophages, neutrophils, and lymphocytes, edema, congestion, hemorrhage and plump fibroblasts and mature collagen **(1 pt)** and are multifocally ruptured . There is multifocal Type II pneumocyte hyperplasia. Alveolar spaces are filled by similar inflammatory cells as well as fibrin, hemorrhage, cellular debris and edema and aggregates of a brightly eosinophilic material (Splendore-Hoeppli). Throughout this area, clusters of eosinophilic 6-8um wide **(1 pt.)** non-septate, non-dichotomously branching fungal hyphae are seen in negative relief and are most commonly seen within the cytoplasm of foreign body type multinucleated macrophages. Airways contain refluxed inflammatory cells as previously described. There is moderate hyperplasia of BALT and there is multifocal lymphoid hyperplasia in perivascular areas as well. **(1 pt.)** There are scattered areas of mineral within the inflamed areas of lung.

MORPHOLOGIC DIAGNOSIS: 1. Cerebrum: Encephalitis, pyogranulomatous and necrotizing **(1pt.)**, chronic focally extensive, severe, with vasculitis **(1pt.)**, thrombosis, and numerous intravascular and intrahistiocytic fungal hyphae. **(1pt.)**
2. Lung: Pneumonia, pyogranulomatous **(1pt.)**, interstitial **(1pt.)**, chronic, focally extensive, severe, intrahistiocytic fungal hyphae **(1pt.)**.

CAUSE: Any fungus within the phylum Zygomycota (*Mucor, Zygomyces, Rhizopus*, etc.) **(2pt.)**

WSC 2025-2026
Conference 4, Case 4.
Tissue from a goat.

MICROSCOPIC DESCRIPTION: Kidney: Diffusely, there are changes at all levels of the nephron. Glomeruli are most severely affected and exhibit one or more of the following changes: global enlargement, (1pt), moderate increase in a granular mesangial matrix, markedly increased mesangial cellularity(1pt) composed primarily of mesangial cells, **(1pt)** neutrophils (1pt), and edema. Mesangial cells are often hyperchromatic and occasionally karyolytic. Capillary loops are expanded by a thickened or laminated irregular basement membrane and often edema. (1pt) Multifocally, glomeruli are adhered to the Bowmans capsule with lamellae of fibrosis (synechiae). Within rare glomeruli, capillary loops are occluded by fibrin thrombi or effaced with aggregates of prolymerized fibrin, granular eisonophilic debris and extravasated erythrocytes. There is both segmental and global glomerulosclerosis in this section in which adherent capillary loops or the entire glomerulus are loops hypocellular and hyalinized. (1pt) Tubules exhibit one or more of the following changes: tubular epithelial swelling with abundant vacuolated cytoplasm or numerous intracytoplasmic eosinophilic granules (degeneration) (1pt); individualized to segmental epithelial pyknosis, and sloughing (necrosis) (1pt); luminal proteinosis (1pt), hyaline casts (1pt), and small numbers of intraluminal neutrophils (1pt). Similar changes are seen in the medulla with increased interstitial fibrosis, decreased inflammation, and scattered hemoglobin as well as protein casts. . (1pt) The interstitium is multifocally expanded by edema, loosely arranged collagen and fibroblasts, and and moderate numbers of individualized and aggregated lymphocytes and plasma cells. The walls of arcuate arteries at the corticomedullary jjunction are expanded by asymmetric hyperplasia of smooth muscles and fibroblasts within the wall, small amounts of lymphocytes and plasma cells in the adventitia and numerous adventitial lamellations of loosely arranged collagen.

MORPHOLOGIC DIAGNOSIS: Kidney: Glomerulonephritis, membranoproliferative, (1pt), diffuse, chronic, marked, with segmental and global glomerulosclerosis, tubular degeneration, necrosis and regeneration, mild lymphoplasmacytic intestitial nephritis, and arteriolar fibrointimal hyperplasia and sclerosis. (1pt)

O/C: (1pt)