

.WSC 2024-2025  
Conference 11, Case 1  
Tissue from a dog

**MICROSCOPIC DESCRIPTION:** Heart: Multiple section of myocardium are submitted for examination and all are similar. Scattered throughout the sections are small to medium-sized aggregates of macrophages **(1pt)**, lymphocytes **(1pt)**, and plasma cells **(1pt)**. Within some inflammatory foci, macrophages contain a single intracytoplasmic spherical 3-4um merozoite **(1pt)**. In other inflammatory foci, cardiac myocytes are variably shrunken and pale (atrophy) **(1pt)**. Lymphocytes and plasma cells are also scattered diffusely in small aggregates through mildly edematous areas of the myocardial interstitium, as well as in perivascular areas. **(1pt)** Scattered throughout the sections are multilamellar mucopolysaccharide cysts ("onion skin cysts") **(1pt)** composed of concentric lamellations **(1pt)** of amphophilic, mucinous material ranging up to 200 um in diameter. Occasionally, within the center of these cysts is a host cell with abundant granular cytoplasm **(1pt)** and a single nucleus with a prominent nucleus. **(1pt)**. The cysts rarely include atrophic myocytes within their cytoplasm, and are surrounded by 1-3 layers of spindle cells **(1pt)**. There is an artery within one section whose wall is asymmetrically enlarged by amorphous homogenous material arterial hyalinosis).

Two sections of lymph nodes demonstrate mild reactive hyperplasia with paracortical hyperplasia. There are aggregates of macrophages laden with carcon and silicates. **(1pt)**

**MORPHOLOGIC DIAGNOSIS:** 1. Heart: Myocarditis **(1pt)**, histiocytic and lymphoplasmacytic, **(1pt)** multifocal, moderate with intracellular of apicomplexan merozoites **(1pt)** and cysts. **(1pt)**  
2. Lymph node: Reactive hyperplasia, diffuse, mild, with rare apicomplexan merozoites and cysts **(1pt)**

**CAUSE:** *Hepatozoon americanum* **(2pt)**

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

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Conference 11, Case 2  
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**MICROSCOPIC DESCRIPTION: Esophagus (1pt):** Two sections of esophagus are submitted for examination. Markedly expanding the esophageal wall, and infiltrating the submucosa and underlying muscular layers **(1pt)** are numerous coalescing poorly defined foci of pyogranulomatous inflammation. **(1pt)** These foci are composed of large numbers of necrotic and fewer viable neutrophils **(1pt)**, admixed with large numbers of epithelioid **(1pt)** and fewer foreign body type macrophages **(1pt)** admixed with few eosinophils, lymphocytes, and plasma cells, and abundant cellular debris **(1pt)** and hemorrhage, and enmeshed in varying amounts of fibrous connective tissue **(1pt)** populated by large numbers of plump fibroblasts. There is infarction in the center of some of the pyogranulomas with thrombosed vessels. Scattered among the cellular debris and contained within macrophages are poorly discernible hyphae **(1pt)** which are 4-8um in diameter **(1pt)** with pauciseptate non-parallel walls. **(1pt)** In area of infiltration of the mural smooth muscle, there is multifocal effacement of skeletal muscle by granulomatous inflammation, and smooth muscle cells exhibit a range of degenerative **(1pt)** (hypereosinophilia, shrinkage, hyalinization) and necrotic **(1pt)** (fragmentation, pyknosis) changes. Vessels within areas of necrosis exhibit mural necrosis, adventitial fibrosis, thrombosis, alone or in complex with each other.

**MORPHOLOGIC DIAGNOSIS :** Esophagus: Esophagitis, necrotizing **(1pt)** and pyogranulomatous **(1pt)**, chronic-active **(1pt)**, multifocal to coalescing, severe, with numerous intrahistiocytic and extracellular hyphae **(1pt)**.

**CAUSE:** *Pythium insidiosum* (*Lagenidium* or *Zygomycetes* sp. OK) **(2pt)**

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

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Conference 11, Case 3.  
Tissue from a mouse.

**MICROSCOPIC DESCRIPTION:** Lung: Four sections of lung, one section of heart and a section containing trachea and esophagus are presented for examination. Affecting approximately 25% of lung fields across the four sections, alveoli are filled with variable combinations and concentrations of viable and necrotic neutrophils **(1pt.)**, alveolar macrophages**(1pt.)**, fewer lymphocytes, hemorrhage, polymerized fibrin **(1pt.)**, and small amounts of cellular debris which occasionally contain cholesterol crystals. Scattered throughout alveolar septa in these areas are moderately expanded by congestion, edema **(1pt.)**, fibrin, increased numbers of circulating neutrophils **(1pt.)**, and there is occasional type II pneumocyte hyperplasia. In areas of marked inflammation, there is septal necrosis. **(1pt.)** The cytoplasm of alveolar macrophages **(1pt.)** and degenerating alveolar lining cells **(1pt.)** is occasionally distended by numerous prominent 1-2um coccobacilli **(1pt.)** (chlamydia inclusions). Airways are affected but to a much diminished extent. **(1pt.)** There are similar inflammatory cells which are refluxed into the lumen of airways. There is hyperplasia and occasionally necrosis **(1pt.)** of lining epithelium and rare epithelial cells contain coccobacilli in their cytoplasm as well. **(1pt.)** In less affected areas, large foamy macrophages up to 50um are seen within alveoli. **(1pt.)**

Heart, pericardium: the pericardium is focally expanded by moderate number of histiocytes with fewer lymphocytes and mast cells.

**Morphologic Diagnosis:** Lung: Pneumonia, bronchointerstitial **(1pt.)**, necrotizing **(1pt.)**, neutrophilic and histiocytic, **(1pt.)**, multifocal to coalescing, marked, with numerous intraepithelial and intrahistiocytic coccobacilli. **(1pt.)**

**CAUSE:** *Chlamydia muridarum* **(2pt.)**

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

WSC 2024-2025  
Conference 11, Case 4.  
Tissue from a dog

MICROSCOPIC DESCRIPTION: Rostral myelencephalon: Within the brainstem **(1pt.)** and extending into the cerebellar white matter **(1pt.)** and ultimately the cortex, approximately 40% of the section is replaced by a large inflammatory nodule. The nodule is composed of variably defined granulomas **(1pt.)** which are centered on necrotic eosinophilic debris **(1pt.)** and often contain one or more yeast **(2pt.)** which range from 20-60um in diameter**(1pt.)** with a 5um hyaline wall **(1pt.)** and numerous internal spores **(1pt.)** Central areas of necrosis are surrounded by innumerable spindled and less commonly epithelioid macrophages **(1pt.)** which are in turn surrounded by low numbers of lymphocytes and plasma cells **(1pt.)** enmeshed in lamella of fibrous connective tissue **(1pt.)** (presumably from meningeal extension). Loosely arranged fibrous connective tissue surrounds and separates granulomas and contains large number of macrophages throughout, lymphocytes, plasma cells, and fewer neutrophils and rare multinucleated giant cell macrophages. **(1pt.)** There is marked edema of the meninges and an infiltrate of low numbers of lymphocytes and plasma cells,, primarily in perivascular areas, **(1pt.)** and which extend along Virchow Robins spaces **(1pt.)** into the cerebellar cortex and periventricular brainstem. Throughout the section, the walls of small arterioles are expanded and most vessels are surrounded by multiple lamellations of fibrous connective tissue. . AT the advancing edge of the inflammatory nodule, the neuroparenchyma is edematous and contains a slightly increased number of microgila, occasionally gemistocytic astrocytes, and low number of macrophages, lymphocytes and plasma cells. **(1pt.)** There is multifocal artifactual swelling of axon sheaths throughout the brainstem, most prominent in the trapezoid body (dilated axon sheaths lack spheroids or Gitter cells.)

MORPHOLOGIC DIAGNOSIS: Cerebellum, brainstem: Meningocephalitis, granulomatous **(1pt.)** , focally extensive, severe, with intra-and extracellular fungal spherules **(1pt.)**

CAUSE: *Coccidioides* sp. **(2pt.)**