

WSC 2024-2025

Conference 5, Case 1

Tissue from a woolly monkey.

MICROSCOPIC DESCRIPTION: Colon : The colonic submucosa is markedly expanded by several tortuous, thick-walled and inflamed small-caliber arterioles. **(1pt.)** Endothelial cells are segmentally necrotic and lost. **(1pt.)** The tunica media **(1pt.)** is markedly thickened and the architecture is effaced **(1pt.)** by abundant brightly eosinophilic material (fibrin and protein) **(1pt.)** which is admixed with low to moderate numbers of neutrophils **(1pt.)**, extravasated erythrocytes, edema, and cellular debris (fibrinoid necrosis) **(1pt.)** There is necrosis of smooth muscle cells, with remaining smooth muscle cells in disarray. **(1pt.)** There is infiltration of fibroblasts within the tunica media and small amounts of collagen deposition. **(1pt.)** The adventitia is markedly expanded by plump fibroblasts and moderate amounts of fibrous connective tissue **(1pt.)**, proliferating small vessels, and moderate numbers of neutrophils, macrophages, lymphocytes, and rare plasma cells. **(1pt.)** There are moderate numbers of siderophages **(1pt.)** with the submucosa adjacent to some of the affected vessels. Similar but less extensive changes are present in other arterioles, and rare small arterioles are thrombosed. The serosa is expanded by moderate amounts of collagen and there is mild hypertrophy of the mesothelium. The serosa is covered by a dense fibrin mat covering the serosa, with moderate number of scattered neutrophils, lymphocytes, and plasma cells.

Testis: Similar arterial changes are present within the testis. **(1pt.)** Seminiferous tubules are largely devoid of spermatogonia **(1pt.)** and are often lined by a single layer of vacuolated sustentacular cells. The testicular interstitium is multifocally expanded by low to moderate numbers of lymphocytes with fewer plasma cells and rare macrophages. **(1pt.)** Epididymal tubules are devoid of sperm.

MORPHOLOGIC DIAGNOSIS: Colon and testis: Arteritis, proliferative and necrotizing **(1pt.)**, chronic, multifocal, severe with fibrinoid necrosis. **(1pt.)**,

2. Colon, serosa: Peritonitis, fibrinous, multifocal, mild to moderate.

2. Testis: Atrophy **(1pt.)** and aspermatogenesis, diffuse, marked with lymphoplasmacytic orchitis. **(1pt.)**

NAME THE CONDITION: Polyarteritis nodosa **(1pt.)**

O/C - (1pt.)

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Conference 5 Case 2

Tissue from a common marmoset..

MICROSCOPIC DESCRIPTION: Kidney: Approximately 90% of the kidney is effaced by an unencapsulated, well demarcated, largely necrotic densely cellular infiltrative neoplasm. **(1pt)** The neoplasm has three distinct morphologies to the neoplastic cells – blastemal **(1pt)**, mesenchymal **(1pt)**, and epithelial **(1pt)**. The majority of the neoplastic cells are blastemal, and are arranged in short bundles **(1pt)** of densely packed spindle cells **(1pt)** Blastemal cells have indistinct cell borders and a small to moderate amount of granular eosinophilic cytoplasm. **(1pt)** Nuclei are irregularly round to oval with abundant finely stippled chromatin and 1-3 basophilic nucleoli. **(1pt)** There is minimal anisokaryosis, and the mitotic rate in this population is 21 per 2.37mm² field. **(1pt)** There are numerous apoptotic blastemal cells. **(1pt)** Multifocally within the blastema, there are bands of elongated cells with increased cytoplasm which is more brightly eosinophilic and cytoplasm is increased in area as well as eosinophilia. (mesenchymal cells) **(1pt)**; the mitotic rate in this population is approximately 8 per 2.37mm² field. **(1pt)** Occasionally, cells palisade around a lumen, resembling tubules which often contain abundant brightly eosinophilic protein in the lumen **(1pt)** (epithelial) – mitoses are rare in these differentiated cells. In some tubules, cells recapitulate a well-formed glomerular tuft. Within the neoplasm and at the periphery, there are thick bands of heterologous smooth muscle which contains multiple nuclei aligned within the center of the cell. **(1pt)** Up to 20% of the tumor has undergone coagulative necrosis. **(1pt)** There is interstitial fibrosis **(1pt)** at the infiltrating edge of the neoplasm, with atrophy and loss and compression of tubules and glomeruli and multifocal hemorrhage. Within this area, tubules and glomeruli are variably and occasionally markedly ectatic and tubules occasionally contain bright pink protein and few sloughed and necrotic epithelium. There are moderate numbers of lymphocytes and plasma cells scattered throughout the interstitium.

MORPHOLOGIC DIAGNOSIS: Kidney: Nephroblastoma. **(3pt.)**

NAME AN APPROPRIATE IMMUNOHISTOCHEMICAL STAIN: WTF-1 **(1pt)**

O/C: (1pt.)

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Conference 5, Case 3.
Tissue from a calf.

MICROSCOPIC DESCRIPTION: Skeletal muscle: Both longitudinal and cross-sections of skeletal muscle are present. In both sections, scattered myofibers are degenerate **(1pt.)** and/or necrotic **(1pt.)** and exhibit one or more of the following changes: hyalinization and an increase in eosinophilia **(1pt.)**, loss of cross-striations **(1pt.)**, variation in fiber size **(1pt.)**, cytoplasmic flocculent densities (myofibrillolysis) **(2pt.)**, contraction band formation **(2pt.)**, and fragmentation **(1pt.)**. Satellite cell nuclei of affected fibers are often hypertrophic **(1pt.)**, with moderate amounts of basophilic cytoplasm and nuclei with prominent nucleoli. Occasionally, the cytoplasm of fragmented, necrotic myofibers are infiltrated by macrophages **(1pt.)** and rarely, mineralized **(1pt.)**. There is moderate perimysial edema.

MORPHOLOGIC DIAGNOSIS: Skeletal muscle, myofibers: Necrosis **(2pt.)**, monophasic **(2pt.)**, multifocal, random.

CAUSE: Ionophores (appropriate toxic plants like coffee senna OK). **(2pt.)**

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

WSC 2020-2021

Conference 5 Case 4.

Tissue from a rhesus macaque.

MICROSCOPIC DESCRIPTION: Cerebrum at the level of the lateral ventricle: Within the white matter tracts **(1pt)**, there are coalescing areas of cavitation **(1pt)** in which there is extensive axonal loss **(1pt)**, numerous Gitter cells **(1pt)**, and numerous astrocytic processes forming a fine mesh-like framework **(1pt)**. At the periphery of areas of malacia, there are increased numbers of hypertrophic gemistocytic astrocytes **(1pt)**, activated microglia **(1pt)**, Gitter cells, and vascular endothelium lining markedly hypertrophic blood vessels **(1pt)** and vessels are cuffed by 1-2 layers of lymphocytes and plasma cells. There are occasional dilation of myelin sheaths **(1pt)** of remnant axons and often axonal dilation (spheroids) **(1pt)**. Multifocally, occasional oligodendroglia have enlarged nuclei which contain basophilic viral inclusion **(2pt)**. Similar, but less severe changes are seen in the overlying cortical gray matter **(1pt)**. **(1pt)** Meninges overlying inflamed areas of the cerebrum are expanded by low to moderate numbers of macrophages, lymphocytes and plasma cells. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Cerebrum, subcortical white matter: Leukoencephalomalacia **(1pt)**, multifocal to coalescing, with marked gliosis **(1pt)**, gemistocytic astrocytes **(1pt)**, vascular proliferation **(1pt)**, and glial intranuclear viral inclusions. **(1pt)**

CAUSE: Simian polyomavirus (SV-40) virus **(2pt)**

Name the condition: Progressive leukoencephalomyelitis **(1pt)**

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