

WSC 2018-2019 Conference 1.

Case 1. Tissue from an African green monkey

MICROSCOPIC DESCRIPTION: Liver: Multifocally and randomly scattered through both sections of liver are occasionally coalescing **(1pt)** areas of lytic **(1pt)** necrosis **(1pt)**. Centrally, these areas of necrosis are composed of abundant eosinophilic and basophilic cellular and nuclear debris **(1pt)** throughout which are scattered large colonies **(1pt)** of 1-2 μ coccobacilli **(1pt)**. The periphery of these areas of necrosis contain hepatocytes which are swollen and vacuolated (degenerate) with pyknotic nuclei (necrotic) **(1pt)** admixed with large numbers of infiltrating viable and degenerate neutrophils **(1pt)**, cellular debris, and intact proliferating bile ducts **(1pt)** from effaced portal areas. Hepatic cords at the periphery of large areas of necrosis are often compressed and sinusoids are multifocally congested. **(1pt)** In the adjacent hepatic parenchyma, Kupffer cells often contain abundant brown granular pigment (hemosiderin) **(1pt)**. Portal areas at the periphery of areas of necrosis are often expanded by moderate to large numbers of lymphocytes with fewer macrophages and plasma cells as well as edema. **(1pt)** Both portal venules and hepatic arterioles in proximity to necrotic lesions often are partially to completely occluded by polymerized fibrin thrombi **(2pt)**.

MORPHOLOGIC DIAGNOSIS: Liver: Hepatitis, necrotizing **(1pt)**, multifocal to coalescing, marked, with numerous large colonies of bacilli **(1pt)**

CAUSE: *Yersinia enterocolitica* or pseudotuberculosis (you can't tell them apart histologically) **(3pt.)**

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

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Case 2. Tissue from a rat.

MICROSCOPIC DESCRIPTION: Section of jejunum and attached mesentery. There is a cross section through a tortuous **(1pt)** mesenteric artery **(1pt)** which demonstrates an increase in mural thickness up to 5 times normal. **(1pt)** Multifocally and segmentally, there is discontinuity and loss of the endothelium **(1pt)** and in these areas, the subjacent tunica intima and superficial media is markedly expanded by brightly eosinophilic protein and polymerized fibrin **(2pt)**, small numbers of infiltrating viable and degenerate neutrophils **(1pt)** and small amounts of cellular debris **(1pt)** fibrinoid necrosis) **(2pt)**. There is marked and disordered proliferation of smooth muscle cells and fibrocytes within the underlying tunica media **(1pt)** which are often separated by mature collagen (fibrosis) **(1pt)**. The tunica adventitia is likewise expanded by numerous fibrocytes, collagen, low numbers of neutrophils, macrophages (often hemosiderin laden), lymphocytes and cellular debris. **(1pt)** The attached mesentery exhibits diffuse marked atrophy of fat **(1pt)**, with infiltration of low numbers of macro phthisis and lymphocytes. There is mild mesothelial proliferation along the mesenteric edge.

MORPHOLOGIC DIAGNOSIS: Mesenteric artery: Arteritis, necrotizing **(1pt)** and proliferative **(1pt)**, multifocal, chronic-active, marked, with fibrinoid necrosis, mural smooth muscle hyperplasia and marked medial and adventitial fibrosis.

NAME THE CONDITION: Polyarteritis nodosa **(3pt.)**

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

Case 3. Tissue from a mouse.

(NOTE: The cross section of kidney may or may not include renal pelvis or adrenal gland due to the number of recuts needed and the small size of a normal mouse kidney.)

MICROSCOPIC DESCRIPTION: Kidney: Throughout all levels of the cortex **(1pt)**, there are multifocal to coalescing areas of mild tubular loss **(1pt)** and tubular basophilia **(1pt)**. Within these areas, tubular epithelial cells are often swollen **(1pt)** with abundant granular lightly eosinophilic cytoplasm. The nuclei of the cells are karyomegalic **(1pt)**; and the nuclear chromatin is peripheralized **(1pt)** by a single homogenous polygonal lightly eosinophilic granular intranuclear inclusion **(2pt)**. Intranuclear inclusions may or may not filled the nucleus, and are often surrounded by an excentric halo **(1pt)**. There is a mild increase in fibrous connective tissue as well as low number of fibroblasts separating tubules within affected areas. **(1pt)** Additionally, within these areas, there are tubules which are shrunken, have a convoluted basement membrane, and epithelial cells contain a brown granular pigment (lipofuscin) **(1pt)**, interpreted as atrophy **(1pt)**. Tubular lumina of distal convoluted tubules and collecting ducts are often ectatic **(1pt)** and lined by attenuated epithelium. Approximately 50% of these tubules contain varying combinations and concentrations of sloughed epithelial cells **(1pt)**, protein, and eosinophilic granular cellular debris. **(1pt)**

MORPHOLOGIC DIAGNOSIS: 1. Kidney, tubular epithelium: Karyomegaly **(1pt)**, with numerous eosinophilic intranuclear inclusions. **(1pt)**

2. Kidney: Nephritis, interstitial, subacute to chronic, with mild interstitial fibrosis and tubular atrophy. **(2pt)**

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

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Case 4. Tissue from a horse.

(Several sections were submitted by the contributor, containing trigeminal ganglion and/or trigeminal nerve.)

MICROSCOPIC DESCRIPTION: Ganglion and associated cranial nerve **(1 pt)**: Effacing the ganglion and associated cranial nerve, there is an unencapsulated, infiltrative, moderately cellular, well demarcated, multilobular and occasionally cystic neoplasm **(2 pt)**. The neoplasm is composed of nests and packets **(1 pt)** of polygonal cells on a fine fibrovascular stroma **(1 pt)** which occasionally form tubule-like structures. Within the more cystic areas, neoplastic cells form papillary and micropapillary projections. Neoplastic cells are polygonal **(1 pt)**, with variably distinct cell borders and a moderate to large amount of finely granular eosinophilic cytoplasm. **(1 pt)** Neoplastic cells often undergo keratinization **(1 pt)** and occasionally grouped clear vacuoles are present immediately adjacent to the nucleus. Nuclei are round to oval, and moderately anisokaryotic with coarsely stippled chromatin and 1-2 basophilic nucleoli. **(1 pt)** Mitotic figures average 25 per 10 400X fields (2.37 mm²).**(1 pt)** In some areas, less well differentiated cells with smaller, round nuclei and a N:C ratio of approximately 1:1 are presented in groups. **(1ptl.)** Occasionally within tubular structures, there are fully keratinized cells with pyknotic nuclei. A layer of neoplastic cells line the nerve sheath and grow along it in a lepidic fashion, occasionally piling up to to 3 cell layers deep. At the periphery of the neoplasm adjacent to the nerve sheath as well as randomly scattered throughout the collagenous stroma, there are moderate numbers of lymphocytes **(1 pt)** and neutrophils. In less affected areas of the nerve and associated ganglion, nests and packets of neoplastic cells grow individually among remaining nerve fibers which occasionally are swollen and have dilated axon sheaths. **(1 pt)** Remaining neurons are often swollen with vacuolated eosinophilic cytoplasm, a loss of Nissl substance, and aggregates of brown granular pigment (lipofuscin). **(1 pt)** There are lamellated masses of crystalline mineral (psammoma bodies) **(1 pt)** throughout the section, most often within connective tissue separating neoplastic lobules.

MORPHOLOGIC DIAGNOSIS: Ganglion and associated cranial nerve: Craniopharyngioma. **(4 pt.)**

O/C – **(1 pt.)**