

WSC 2019-2020 Conference 18

Case 1. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Liver: There are two sections of liver on the slide, one with gall bladder, and a second with multiple sections through a tortuous thin-walled arterial **(1pt.)** vessel ranging up to 10mm in diameter. **(1pt.)** The tunica intima is intact, and the smooth muscle cells of the tunica media are separated by moderate amounts of pale wispy collagen (fibrosis) **(1pt.)** and edema. There is multifocal marked hemorrhage within the adventitia. **(1pt.)** The adventitia is expanded by abundant collagen (fibrosis) **(1pt.)** which extends into the adjacent hepatocellular parenchyma, in which effaced hepatocytes are replaced by fibrosis which **(1pt)** isolates remaining moderately hyperplastic and tortuous bile ducts **(1pt.)** and dilated lymphatics. More peripherally, islands of remaining atrophic hepatocytes are separated by extreme dilation and congestion of hepatic sinusoids, **(1pt.)** and portal areas are markedly expanded by fibrosis, **(1pt.)** multiple sections of arterioles **(1pt.)** and biliary hyperplasia. Portal and sublobular arterioles are expanded up to 5 times normal by mural thickening due to smooth muscle hyperplasia **(1pt.)**, fibrosis, and rarely intramural eosinophilic protein. Profiles of portal veins are markedly diminished to absent. **(1pt.)** Similar, but less severe changes are seen in the section of liver adjacent to the gallbladder. Hepatocytes are more numerous, and their cytoplasm is often expanded by ill-defined small vacuoles (glycogen). There is marked edema of lymphatics surrounding sublobular veins (“rose window”). **(1pt.)**The gall bladder is markedly dilated. **(1pt).**

MORPHOLOGIC DIAGNOSIS: Liver: Aberrant arterial connection **(1pt.)**, focal, severe, with arterial and venous intimal and medial hyperplasia and fibroelastosis **(1pt.)**, hepatocellular atrophy **(1pt.)**, congestion, and hemorrhage **(1pt.)**,

Name the condition: Hepatic arteriovenous fistula (malformation OK)

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

WSC 2019-2020. Conference 18

Case 2. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Aorta (or other elastic artery): The wall of the artery is diffusely and transmurally thickened by extensive fibrosis **(1pt.)** which extends into and multifocally effaces the adjacent adventitial adipose tissue. The endothelium is multifocally lost and there is loss of the tunica intima and internal elastic lamina **(1pt.)** with subendothelial migration of smooth muscle cells. The tunica media smooth muscle is hyperplastic and in marked disarray, **(1pt.)** with thick bands of mature collagen coursing haphazardly within the wall. **(1pt.)** Within the tunica media, there is a linear dissection in which the arterial wall is wall is multifocally effaced by a basophilic coagulum of abundant cellular debris, large numbers of viable and degenerate neutrophils **(1pt.)**, eosinophils and macrophages, and lesser numbers of lymphocytes and plasma cells, which are admixed with edema, and fibrin and rare multinucleated macrophages of the foreign body type **(1pt.)** These areas are bordered by small to moderate amounts of granulation tissue. Within these areas, there are rare septate fungal hyphae **(1pt.)** measuring up to 4-6 um in diameter, with parallel walls and dichotomous branching **(1pt.)**, The tunica adventitia is expanded by abundant granulation tissue **(1pt.)** with numerous proliferating small vessels, and an interstitial infiltrate of low numbers of macrophages, lymphocytes and plasma cells.

Spleen: Splenic white pulp is diffusely depleted. **(1pt.)** Scattered randomly throughout the section are large aggregates of lymphocytes **(1pt.)** and fewer plasma cells with rare neutrophils, eosinophils, epithelioid macrophages and occasional multinucleated foreign body giant cells. Within the cytoplasm of these giant cells, there are shadows of septate fungal hyphae **(1pt.)** measuring up to 4-6 um in diameter, with parallel walls and dichotomous branching, and rare spherical dilations measuring up to 12um in diameter. **(1pt.)**

MORPHOLOGIC DIAGNOSIS: 1. Aorta: Elastolysis and fibrosis **(1pt.)**, transmural, diffuse, severe, with vascularization and dissection. **(1pt.)**

2. Aorta: Aortitis, pyogranulomatous arteritis, focally extensive, severe, **(1pt.)**, with transmural fibrosis and numerous fungal hyphae. **(1pt.)**

3. Spleen: Splenitis, granulomatous **(1pt.)** diffuse, marked with numerous fungal hyphae and lymphoid depletion.

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

WSC 2019-2020. Conference 18

Case 3. Tissue from a squirrel monkey.

MICROSCOPIC DESCRIPTION: Cerebrum: Multifocally, the walls of numerous meningeal **(1pt.)** and parenchymal **(1pt.)** arterioles and capillaries are expanded segmentally or circumferentially **(1pt.)** by a homogenous, waxy, eosinophilic material **(1pt.)** (amyloid) **(2pt.)**, which occasionally encroaches upon the lumen. Occasionally, walls of affected vessels are fragmented **(1pt.)**, occasionally contain pyknotic smooth muscle nuclei, cellular debris, **(1pt.)** extruded protein and polymerized fibrin, and infiltrating inflammatory cells, including neutrophils and macrophages. **(1pt.)** Many of these vessels are surrounded by low to moderate numbers of lymphocytes **(1pt.)**, with fewer histiocytes and plasma cells, and occasionally ring hemorrhage **(1pt.)**, globules of extruded protein and hemosiderin laden macrophages. **(1pt.)** Remnants of thrombosed vessels marked by aggregates of polymerized fibrin **(1pt.)** are infiltrated and effaced by macrophages and glial cells. **(1pt.)** Rare amyloid plaques are scattered throughout the section.

MORPHOLOGIC DIAGNOSIS: Cerebrum, small and medium-caliber arteries: Amyloidosis **(1pt.)**, multifocal, moderate, with multifocal fibrinoid necrosis **(1pt.)** and minimal perivascular granulomatous inflammation. **(1pt.)**

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

WSC 2019-2020 Conference 18

Case 4. Tissue from a dog.

MICROSCOPIC DESCRIPTION: Elastic artery **(1pt.)**. The wall of the artery is thickened up to 3 times normal **(1pt.)**. The tunica intima **(1pt.)** is multifocally expanded in plaque-like thickenings **(1pt.)** by numerous histiocytes **(1pt.)** whose cytoplasm contains innumerable poorly delineated clear vacuoles **(1pt.)**. Smooth muscle cells **(1pt.)** within the tunica media range in diameter up to 35 um and contain similar vacuoles. Nuclei of both cell types are often peripheralized and bland, and contain finely stippled chromatin and small basophilic nucleoli. **(1pt.)** These cells are separated by a moderate to abundant homogenous amphophilic to basophilic ground substance **(1pt.)**, which occasionally forms acellular lakes within the tunica media. **(1pt.)** Multifocally, vacuolated histiocytes form large bandlike aggregates **(1pt.)** within inner tunica media. There are numerous arteries within the tunica intima (neovascularization). **(1pt.)** Smooth muscle cells of walls of adventitial arteries epicardial fat (in the adjacent section of atrium) are also expanded by numerous clear vacuoles, and vacuolated round cells infiltrate the adventitia, especially in perivascular. **(1pt.)** Perineurial fibrocytes are also mildly expanded by cytoplasmic vacuoles.

MORPHOLOGIC DIAGNOSIS: Aorta: Smooth muscle vacuolation **(1pt.)** diffuse, severe, with multifocal necrosis **(1pt.)**, intimal histiocytic plaque formation **(1pt.)**, medial neovascularization, and fibrosis **(1pt.)**

NAME THE CONDITION: Mucopolysaccharidosis **(2pt.)**

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