

WSC 2019-2020 Conference 24

Case 1. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Muscular artery: Circumferentially effacing the tunica intima and inner elastic lamina is **(1pt)** is a large non-occlusive cellular thrombus **(1pt)** composed of dense polymerized fibrin **(1pt)** admixed with large numbers of extravasated erythrocytes (hemorrhage) **(1pt)** large numbers of degenerate neutrophils and eosinophils **(1pt.)** admixed with abundant cellular debris. Contained within the thrombus are multiple cross and tangential sections of larval nematodes **(1pt)** up to 220 um in diameter **(1pt)** with a smooth 6 um thick cuticle, platymyarian-meromyarian musculature **(1pt)**, prominent lateral cords, pseudocoelom, and a large, central intestine lined by few multinucleated cells with a prominent brush border. **(1pt)** Peripheral to the thrombus, the tunica media is multifocally and transmurally expanded by large numbers of macrophages **(1pt)**, eosinophils **(1pt)**, neutrophils, and fewer lymphocytes and plasma cells admixed with abundant cellular debris and enmeshed in hemorrhage and fibrin on background of variably mature collagen **(1pt)** and plump fibroblasts, which dissects between bands of smooth muscle within the tunica media and assymmetrically expands the arterial wall. **(1pt)** The tunica media is also thickened by hyperplastic smooth muscle cells in haphazard array, as well as by mature collagen in less inflamed areas which separates and surrounds entrapped smooth muscle cells that are variably shrunken (atrophic), degenerate and necrotic. **(1pt)** The inflammatory infiltrate extends into the adjacent tunica adventitia in some areas along with bands of fibrous connective tissue. **(1pt)** There is muscular hyperplasia of the walls of smaller arterioles at the periphery.

MORPHOLOGIC DIAGNOSIS: Mesenteric artery: Arteritis, proliferative, granulomatous **(1pt)** and eosinophilic **(1pt)**, transmural, chronic, diffuse, severe, with thrombosis and luminal larval strongyles **(1pt)**

CAUSE: *Strongylus vulgaris* **(2pt)**

WSC 2019-2020 Conference 24

Case 2. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Small intestine. There is severe diffuse villar blunting **(1pt)** and crypt elongation **(1pt)**, resulting in a villar:crypt ratio of 1:6 or higher. Villi are often denuded of mucosal epithelium. Crypts are elongate with numerous mitoses along their length **(1pt)** and often piling up of nuclei at their base (crypt hyperplasia) **(1pt)**. Hyperplastic crypts often herniate **(1pt)** through the muscularis mucosa into the underlying submucosa. Paneth cells are prominent. (NOTE: This is a good way to tell you are in the small intestine when villi are so diminished). Crypts are separated, surrounded, and often elevated off of the underlying muscularis mucosa **(1pt)** by large numbers of macrophages **(1pt)** and lymphocytes **(1pt)**, with fewer neutrophils **(1pt)** and eosinophils **(1pt)** admixed with abundant cellular debris. Rare crypts are dilated and contain sloughed epithelium and cell debris within their lumens (crypt abscesses). The inflammatory infiltrate extends through the muscularis into the more superficial submucosa **(1pt)**. The submucosa is profoundly expanded by edema **(1pt)** and lymphatics are markedly dilated. Vessels are often outlined by bluish ground substance. Th serosa is mildly expanded by edema and dilated lymphatics.

MORPHOLOGIC DIAGNOSIS: Small intestine: Enteritis, proliferative **(1pt)**, diffuse, marked with villar blunting **(1pt)**, crypt herniation **(1pt)**, histiocytic and eosinophilic enteritis, and submucosal edema **(1pt)**.

CAUSE: *Lawsonia intracellularis* **(3pt)**

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

WSC 2019-2020. Conference 24

Case 3. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Colon: There are two sections of colon **(1pt)** on this slide (both acceptable for description.) There is full thickness necrosis **(2pt)** of the colonic mucosa. The luminal 1/3 has entirely lost stain affinity, and is covered by a layer of robust bacilli **(1pt)**. There is diffuse necrosis of enterocytes and loss of crypt architecture **(1pt)** in the underlying remnant mucosa, with moderate to large numbers of infiltrating and degenerate neutrophils **(1pt)**, hemorrhage, fibrin, and cellular debris. Mucosal vessels are markedly dilated and often occluded with fibrin thrombi **(1pt)**. Macrophages containing bacteria are occasionally seen immediately beneath the mucosa. The submucosa is profoundly expanded by edema **(1pt)**, and scattered hemorrhage and polymerized fibrin. **(1pt)** Submucosal vessels (both arterial and venous) are often markedly dilated, contain occlusive and non-occlusive thrombi **(1pt)**, and their walls are expanded by extruded protein and polymerized fibrin **(1pt)**, necrotic smooth muscle, viable and degenerate neutrophils, and cellular debris **(1pt)** (fibrinoid necrosis)**(1pt)**. They are often surrounded by degenerate neutrophils and cellular debris and abundant hemorrhage as well. **(1pt)** Lymphatics are also markedly dilated and contain abundant polymerized fibrin within their lumina. **(1pt)** There is multifocal hemorrhage within the muscular tunics.

MORPHOLOGIC DIAGNOSIS: Colon: Mucosal necrosis **(1pt)**, diffuse, with transmural vascular fibrinoid necrosis **(1pt)**, thrombosis, and severe submucosal edema. **(1pt)**

CAUSE: NSAID toxicity (*Salmonella* and *Clostridium* OK) **(1pt)**

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

WSC 2019-2020 Conference 24

Case 4. Tissue from a horse.

MICROSCOPIC DESCRIPTION: Pituitary gland **(1pt)**: Expanding the pars intermedia, compressing the adjacent pars nervosa and glandularis **(1pt)** is a 1.75 nodular, unencapsulated, well-demarcated, moderately cellular neoplasm. **(2pt)** The neoplasm is composed of palisading polygonal **(1pt)** neoplastic cells arranged in nests and packets **(1pt)** supported by fine fibrovascular stroma **(1pt)**. Frequently, cells palisade along the stroma and around blood vessels, forming pseudorosettes. **(1pt)** Neoplastic cells have variably distinct cell borders, moderate amounts of granular, microvacuolated eosinophilic cytoplasm. **(1pt)** Nuclei are antibasilar, round to oval, antibasilar nuclei with finely stippled chromatin, and 1 to 2 nucleoli. **(1pt)** Anisocytosis and anisokaryosis are mild, and mitotic figures average less than one per 10-400x HPF. **(1pt)** There are extensive areas of dropout and hemorrhage throughout the mass. **(1pt)** On the other side of the compressed and pars nervosa, the nonneoplastic pars intermedia contains clusters of large colloid-filled follicles ranging up to 1mm in diameter. **(1pt)** The pars nervosa contains scattered hemosiderin-laden macrophages. **(1pt)**

MORPHOLOGIC DIAGNOSIS: Pituitary gland, pars intermedia: Adenoma. **(5pt)**

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