



ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2015 – Histology

CASE3

DOUBLE LESION

Cat

HD: Small Intestine.

Transmurally, 70% of the small intestine is severely affected by two distinct pathological processes:

- multiple inflammatory and necrotizing lesions centered on vessels
- muscular layer expansion and replacement by an irregularly, 1.5 cm in diameter, intramural, nodular lesion characterized by severe inflammation and fibroplasia, non encapsulated and not extending beyond the serosal surface.

Vessels of the intestinal lamina propria, the muscularis mucosae, the muscular layers and the serosa, are characterized by hyperosinophilic endothelial cells, with loss of cellular details (necrosis), substituted by granular, intensely eosinophilic, amorphous, homogeneous material (fibrinoid change, vascular necrosis). Multifocally, within the necrotic vessels walls admixed with the fibrinoid change, scattered viable and degenerated neutrophils with fragmented nuclei (karyorexis) are evident (leukocytoclastic vasculitis). Within the vascular lumen multifocal aggregates of red blood cells, necrotic debris and pale eosinophilic, finely beaded meshwork of fibrillar material (fibrin) adherent to the vessels walls are evident (fibrin thrombi).

Accumulating at the periphery of the affected vessels, and occasionally invading, disrupting and obscuring the vascular wall, there are nodular aggregates of inflammatory cells, composed of a prevalence of mature plasma cells, small mature lymphocytes and epithelioid macrophages, lesser numbers of degenerated and viable neutrophils, and scattered extravasated red blood cells (hemorrhages) admixed to karyorrhectic and necrotic debris (pyogranulomatous vasculitis and perivasculitis).

In a locally extensive area, there is a submucosal transmural replacement of the intestine by and irregularly nodular mass. This mass is composed by irregular branching and anastomosing trabeculae of eosinophilic fibrillar material of dense collagen (osteoid-like appearance) separated by accumulation of large spindle to stellate cells with plump oval nuclei and finely granular chromatin and one to two small basophilic nucleoli (fibroblasts) associated with more mature spindle cells, fibrocytes (sclerosing fibroplasia). Admixed with fibroblasts there is a prevalence of eosinophils and lesser numbers of small mature lymphocytes, mature plasma cells, foamy reactive macrophages/histiocytes and rare viable neutrophils. Presence of numerous small calibre vessels lined by plump endothelial cells (angiogenesis) containing elevated numbers of red blood cells (hyperemia), and occasional haemorrhages are also evident.

The external muscular layer is compressed and muscle fibers are multifocally separated by edema and affected by degenerative changes including hyaline homogeneous cytoplasm (hyaline degeneration) and fragmentation (necrosis).

Intestinal mucosa is characterized by increased number of mitosis within the crypts (crypt regeneration), goblet cell hyperplasia. Lamina propria is expanded by multiple, enlarged nodular lymphoid aggregates with a clear center (follicular hyperplasia), edema, increased numbers of mature lymphocytes, mature plasma cells and lesser numbers of eosinophils. Epithelial cells in the superficial portion of the villi are focally lost (ulceration), and more

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rarely villi are shortened and fused. Within the intestinal lumen sloughed epithelial cells, hair shaft fragments and necrotic debris are present.

MD/MDs: Small Intestine:

- Severe, diffuse, subacute, pyogranulomatous vasculitis with fibrinoid necrosis and leukocytoclasia
- Severe, chronic, mural, locally extensive eosinophilic sclerosing fibroplasia with lymphoplasmacytic and eosinophilic enteritis with ulceration and follicular hyperplasia (0.5)

Name the Disease/s:

- Feline gastrointestinal eosinophilic sclerosing fibroplasia
- Feline infectious peritonitis

Histologic Description	Points
Style	1
70% of the small intestine is severely affected	1
Two pathological processes	1
One centered on vessels of all layers of the intestine	0,5
One locally extensive nodular lesion expanding and substituting muscular layers by inflammation and fibrosis	0,5
Vascular lesions	
Endothelial cell necrosis	0,5
Fibrinoid necrosis (description and interpretation)	1
Fibrin thrombi	0,5
Karyorrhectic nuclear debris of neutrophils in the wall (leukocytoclastic vasculitis)	1
Epithelioid macrophages	0,5
Small mature lymphocytes and mature plasma cells around vessels	1
Mass composed of	
Branching and anastomosing trabeculae (0,5) of dense eosinophilic fibrillar material (0,5) interpreted as collagen (0,5)	1,5
Interpreted as sclerosing Fibroplasia	0,5
Elevated numbers of reactive histiocytes/macrophages	0,5
Aggregates of eosinophils	0,5
Hyperemia/Hemorrhages	0,5
Muscular cell degeneration/necrosis	0,5
Lumen and mucosal lining	
Goblet cell hyperplasia	0,5
Ulceration/erosion	0,5
Follicular hyperplasia	0,5



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MD/MDs Small Intestine, severe, diffuse, subacute, pyogranulomatous (0,5) and necrotizing vasculitis (0,5), with fibrinoid necrosis (0.5) and leukocytoclasia Small Intestine, severe, chronic, mural (0.5), locally extensive eosinophilic sclerosing (0,5) fibroplasia (0,5) and lymphoplasmacytic and eosinophilic enteritis (0,5) with ulceration and follicular hyperplasia (0.5)	4
ND/NDs Feline gastrointestinal eosinophilic sclerosing fibroplasia (1) Feline infectious peritonitis (1)	2
	20

References:

- Feline gastrointestinal eosinophilic sclerosing fibroplasia. Craig LE, Hardam EE, Hertzke DM, Flatland B, Rohrbach BW, Moore RR. Vet Pathol. 2009 Jan;46(1):63-70.
- A Case of Feline Gastrointestinal Eosinophilic Sclerosing Fibroplasia Associated with Phycomycetes. Grau-Roma L, Galindo-Cardiel I, Isidoro-Ayza M, Fernández M, Majó N. J Comp Pathol. 2014 Oct 13;151(4):318-321.