

ECVP/ESVP Summer School in Veterinary Pathology

Summer School 2016 – Mock Exam

5. Tissue from a Dog

The **small intestine** shows a diffuse circumferential lesion characterized by:

- marked **villus atrophy and blunting**
- superficial villus epithelium acidophilia with loss of cell details (**necrosis**), and colonization by a myriad of basophilic, round, anucleate, 1-micrometer microorganisms (**bacterial colonies of cocci**)
- multifocal mucosal **erosion and ulceration** with exudation of an extracellular amorphous acidophilic material (**fibrin**)
- **necrosis of epithelial cells of the crypts** of Lieberkühn with attempts at **regeneration** characterized by scattered large bizarre **enteroblasts** with hypochromatic / **vesicular nuclei** and prominent eosinophilic **nucleoli**
- **dilated crypts** containing cellular debris (**necrosis**) and extracellular basophilic material (**mucus**), and lined by cuboidal to **flattened enteroblasts** (atrophy and regeneration)
- very rare enteroblasts contain large basophilic or amphophilic nuclear inclusions that can be interpreted as parvoviral inclusion bodies. The lamina propria between collapsed crypts contains **lymphocytes, plasma cells, macrophages** and rare neutrophils. In the lumen, there are multiple round to ovoid 2- to 3-mm sections of metazoan parasites, which possess a thick amphophilic **cuticle**, a **coelomyarian-polymyarian musculature**, a **digestive tract** lined by columnar cells with a brush border and a **reproductive tract** with embryonated eggs (**nematode parasites, adults**). The **embryonated eggs** are round, oval, or C-shaped, 80 to 90 micrometers in length, demarcated by a thick shell and containing a single nucleated zygote.

Morphologic diagnosis / diagnoses

Small intestine: Diffuse marked subacute **necrotizing (1) enteritis (0.5)** with villus atrophy, **crypt hyperplasia (0.5)**, and superficial **bacterial colonization (0.5)**

Small intestine: Luminal infestation by **adult nematodes (0.5)**

Etiology / Etiologies: **Canine parvovirus type 2 + Toxocara canis**

Marks

Small intestine	1
Villus atrophy and blunting	1
Mucosal ulceration / erosion	0.5
Superficial necrosis of villi	0.5
Bacterial colonies	1
Crypt cell necrosis	1
Regenerative enteroblasts + vesicular nuclei + nucleoli	2
Dilated crypts with cell debris	1
Plasma cells, lymphocytes, macrophages	1.5
Nematode adults	1
Coelomyarian musculature + intestine	1
Embryonated eggs + size + shell/capsule	1.5
Morphologic diagnosis	3
Etiology	2
Design	2