



Diagnostic Exercise From The Davis-Thompson Foundation*

Case #: 151 Month: October Year: 2020

Answer Sheet

Title: Proliferative gastritis in a pig.

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Morphologic diagnosis: 1. Moderate to severe, chronic, proliferative, lymphoplasmacytic and eosinophilic gastritis with intralesional larval nematodes, morphology consistent with Trichostrongylidae family. 2. Severe emaciation.

Etiologic diagnosis: Parasitic

gastritis **Etiology**:

Hyostrongylus rubidus

Histologic findings

In some segments of the stomach, several nematode sections are observed in the pits of the gastric glands and attached to the mucosa. Nematodes measure approximately 150–500 µm and are characterized by external cuticular ridges, pseudocoelom, platymyarian – meromyarian musculature, intestine lined by few multinucleate cells, and reproductive tracts. Multifocally in the gastric mucosa, there is loss of mucosal epithelial cells (ulceration) associated with congestion and hemorrhages. In other sections, there is severe proliferation and hyperplasia of mucosal epithelial cells with some portions of the mucosal glands lined by 2-3 times thickened cells. In the lamina propria there is generalized inflammatory infiltrate of lymphocytes, macrophages and eosinophils. In some sections, the inflammatory cells are arranged in small granulomas that distend the lamina propria and, in other sections, inflammatory cells infiltrate the submucosa.



Figure 3. Stomach. A, B and C, Hematoxylin and Eosin. D, Luna Stain for

eosinophils

Discussion

Hyostrongylus rubidus or the red stomach worm is a trichostonglylid nematode described in wild boars and warthogs. It is also occasionally found in rabbits and was previously common in grazing sows and gilts with a worldwide distribution (Roepstorff and Murrell 1997, Taylor et al. 2016, Jimenez et al. 2018). The life cycle is indirect and include an arthropod as an intermediate host. After penetration of the gastric glands by free-living larvae 3 (L3) there is rapid proliferation of undifferentiated cells and replacement of parietal cells, which is evident grossly as nodules on the gastric mucosal surface. In heavy infestations, there is increase in gastric pH with increased mucus production and hence a catarrhal gastritis that leads in some cases to ulceration and hemorrhages like seen in this case. Grossly parasites can be seen as slender reddish worms with males measuring around 5-7mm and females 6–10 mm in length (Sarashina and Taniyama 1986, Taylor et al. 2016). In most cases, infections with *Hyostrongylus rubidus* are asymptomatic. Heavy infestations are described with inappetence, vomiting, anemia, loss of condition and body weight. Sarashina and Taniyama 1986, Taylor et al. 2016. Thin sow syndrome is an increasing issue sporadically seen in sows during pregnancy and lactation characterized by sows with very low condition scores (visible ribs and backbones), slightly low temperature and pale mucosae. A multifactorial cause is described including poor husbandry practices, inadequate feeding and parasitism (*Hyostrongylus rubidus* and *Oesophagostomum* spp.) (Jackson and Cockcroft 2007)

Diagnosis of infection with *Hyostrongylus rubidus* in domestic pigs can be based on history of access to pastures and clinical signs. Confirmation requires examination of feces for eggs or larval identification following fecal culture (to differentiate from *Oesophagostomum* spp.)

References:

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*The Diagnostic Exercises are an initiative of the Latin Comparative Pathology Group (LCPG), the Latin American subdivision of The Davis-Thompson Foundation. These exercises are contributed by members and non-members from any country of residence. Consider submitting an exercise! A final document containing this material with answers and a brief discussion will be posted on the CL Davis website (http://www.cldavis.org/diagnostic exercises.html).

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