



Latin Comparative Pathology Group

The Latin Subdivision of the CL Davis Foundation

Diagnostic Exercise

Case #: 17 Month: January Year: 2012

Answer Sheet

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Histological description:

Figure 1 - Brain; groups of up to six astrocytes have markedly enlarged, vesicular and pale-staining nuclei, and their nuclei are surrounded by an empty zone (Alzheimer type 2 astrocytes).

Figure 2 - Liver; the hepatic cords are disrupted by interstitial fibrosis, hemorrhage, lymphocytes and a few neutrophils. The cytoplasm/nuclear ratio of the hepatocytes is reduced and several hepatocytes show large nuclei (megalocytosis). A few hepatocytes show vacuolated cytoplasm. A brown-greenish pigment (bile) is seen in cytoplasm of hepatocytes, Kupffer cells and plugging bile ducts. A dark brown pigment (hemosiderin) is also observed in the cytoplasm of kupffer cells.

Name the condition: Hepatic Encephalopathy

Pathogenesis and discussion: The swollen and reactive astrocytes in the brain (this is a section of cerebellar peduncles) are known as Alzheimer type 2 astrocytes and are diagnostic for hepatic encephalopathy in horses, but are not seen so well in other species, in which this condition is manifested more often by status spongiosis of central myelin, which seems not to occur in horses. The Alzheimer type 2 astrocyte formation in horses is consequence of hyperammonaemia due to liver disease.

Possible Etiology: The liver changes in this horse and in particular the presence of megalocytes is highly suggestive of intoxication by pyrrolizidine alkaloids.

Figure 1

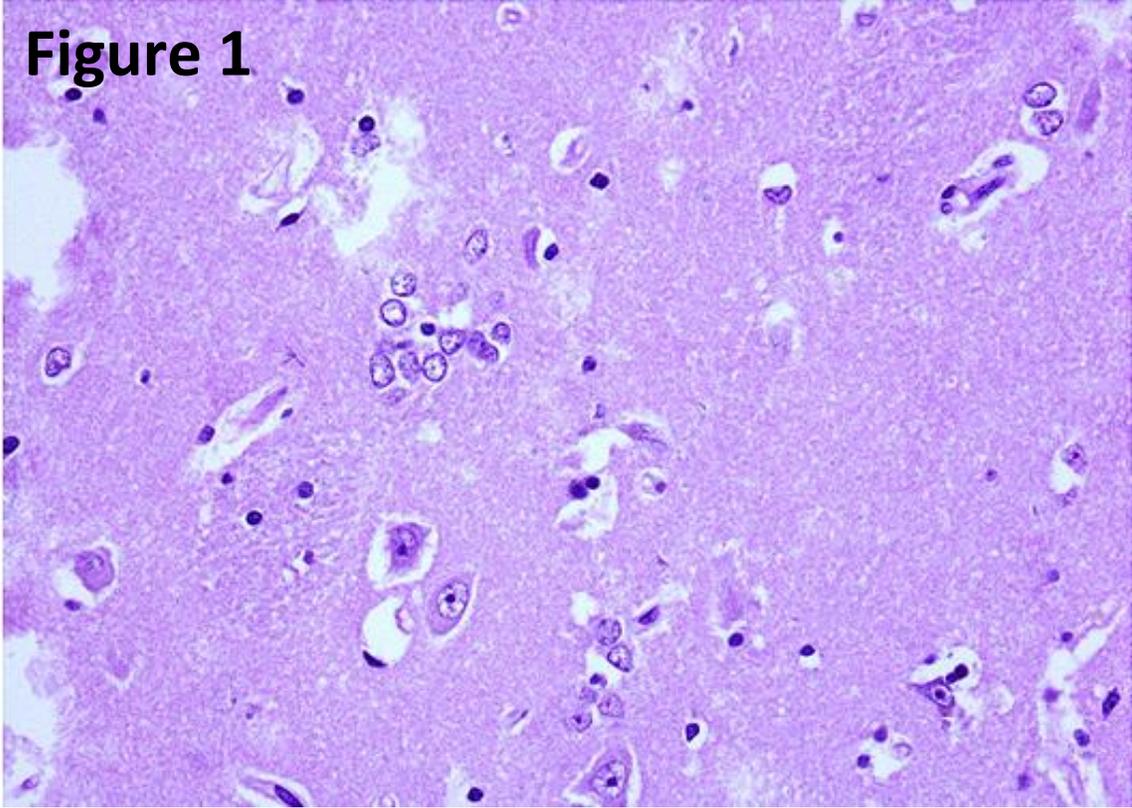
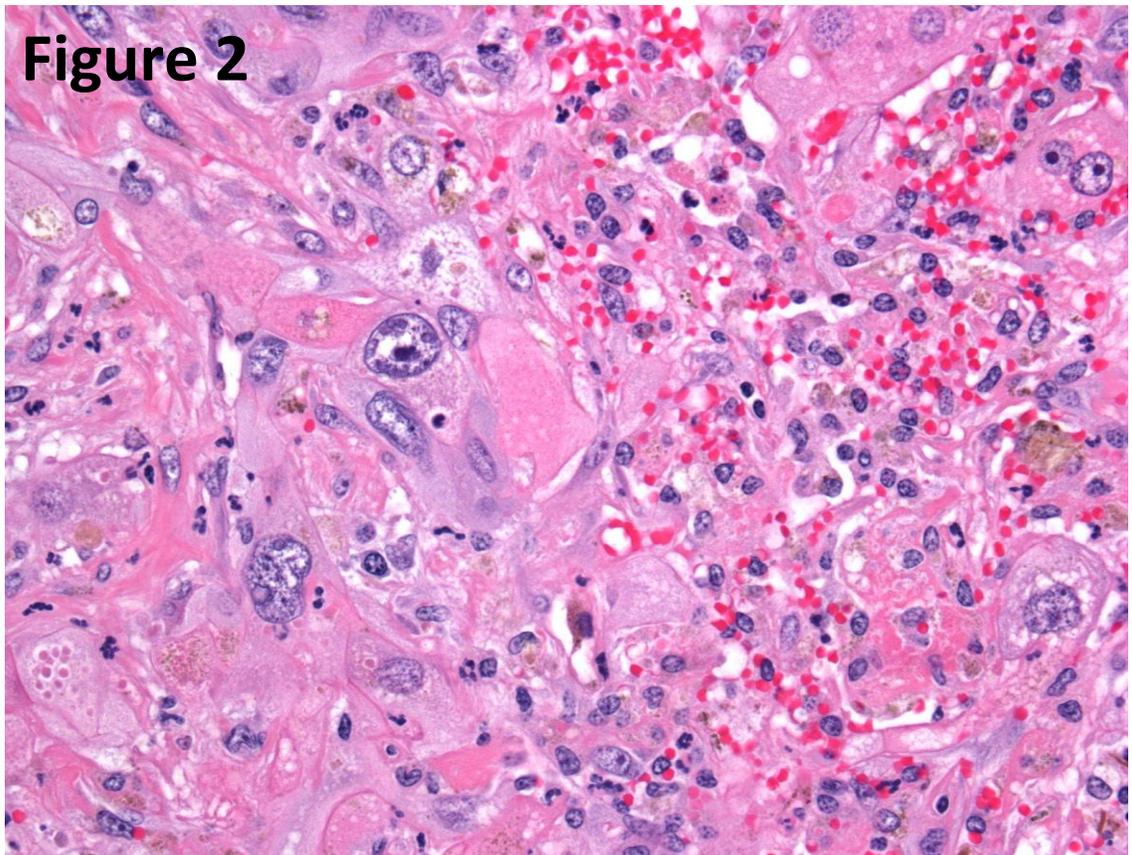


Figure 2



References and Recommended literature:

1. Cullen JM: Liver, biliary system, and exocrine pancreas. *In: Pathologic Basis of Veterinary Disease*, eds. McGavin MD and Zachary JF, 4th ed., pp. 414-422, Mosby Elsevier, St. Louis, MO, 2007
2. Maxie MG, Youssef S: Nervous system. *In: Jubb, Kennedy, and Palmer's Pathology of Domestic Animals*, Vol. 2, ed. Maxie MG, 5th ed., pp. 281-458. Saunders Elsevier, Philadelphia, PA 2007
3. Stalker MJ, Hayes MA: Liver and biliary system. *In: Jubb, Kennedy, and Palmer's Pathology of Domestic Animals*, Vol. 2, ed. Maxie MG, 5th ed., pp. 297-388. Saunders Elsevier, Philadelphia, PA 2007
4. Summers BA, Cummings JF, de Lahunta, A: Degenerative diseases of the central nervous system. *In: Veterinary Neuropathology*, pp. 208-211. Mosby, Inc., St. Louis, MO, 1995

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A final document containing this material with answers and a brief discussion will be posted on the C. L. Davis website by the end of the current month (http://www.cldavis.org/lcpg_english.html).