Veterinary Bioscience: Metabolism

WEEK 2 – DETECTING HEPATOBILIARY DISEASE

LECTURER: ASSOCIATE PROFESSOR JENNY CHARLES

As a veterinary graduate of the University of Sydney, Jenny Charles undertook specialist training in veterinary anatomic pathology at the University of Melbourne and the University of Guelph. She also worked in the United Kingdom on the clinical diagnosis and eradication of bovine spongiform encephalopathy before returning to Australia. She is a Diplomate of the American College of Veterinary Pathologists and previously served as a member of the international WSAVA multi-disciplinary team responsible for refining diagnostic criteria for hepatobiliary disorders of dogs and cats. Jenny's research interests include disorders of the liver, pancreas, and cardiovascular and reproductive systems of domestic animals, diseases of New World camelids, causes of wastage in the horse racing industry, and applied aspects of clinical pathology.

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INTENDED LEARNING OUTCOMES

At the end of this lecture, you should be able to:

- recognise the clinical signs that are suggestive of hepatobiliary disease in herbivorous and carnivorous domestic animals
- explain the pathogenesis of these clinical signs.

KEYWORDS

jaundice, icterus, hyperbilirubinaemia, cholestasis, haemolysis, bile infarct, extra-hepatic bile duct obstruction, hepatogenous photosensitisation, chlorophyll, phylloerythrin, photodynamic, hepatic encephalopathy, ammonia, astrocyte, hypoalbuminaemia, oedema, hepatic lymph, perisinusoidal space, ascites, transudate, modified transudate, polyuria, polydipsia, acholic faeces, steatorrhoea, haemorrhage, coagulation factor, antithrombin, thrombosis, hepatorenal syndrome, bilirubinuric nephrosis, hepatocutaneous syndrome

LECTURE 4 – WHY IS IT YELLOW AND HEAD-PRESSING?

Because of the large functional reserve and regenerative capacity of the liver, many hepatobiliary disease processes may remain clinically silent for protracted periods. Severe, acute, fulminant insults or chronic, persistent or repetitive insults to the liver that cause widespread hepatocellular degeneration and/or necrosis may result in the functional reserve capacity being exceeded. In such circumstances, not all of the normal functions of the liver will be lost simultaneously.

Clinical signs that raise suspicion of hepatobiliary disease in domestic animals include:

- **jaundice** (yellow discolouration of tissues due to imbibition of bilirubin)
- various central nervous system signs reflecting **hepatic encephalopathy** and/or **hypoglycaemia**

- inflammation and necrosis of the skin (**hepatogenous photosensitisation**) in herbivores
- **ascites** (accumulation of non-inflammatory oedema fluid in the peritoneal cavity)
- **oedema** elsewhere in the body
- **polyuria** (increased urine volume) and **polydipsia** (increased water intake)
- **haemorrhage** or increased tendency to bleed
- crusting and erosion of skin, especially of the muzzle and footpads, in dogs (**hepatocutaneous syndrome**)
- adverse responses to medication.

FURTHER READING

DL Brown, AJ Van Wettere and JM Cullen. Hepatobiliary system and exocrine pancreas. In: JF Zachary (ed.), *Pathologic Basis of Veterinary Disease*. 6th ed., Elsevier, St Louis, Missouri, USA (2017)

JM Cullen and MJ Stalker. Liver and biliary system. In: MG Maxie (ed), *Jubb, Kennedy and Palmer's Pathology of Domestic Animals*. 6th ed., Vol 2. Elsevier, St Louis, Missouri, USA (2016)