Veterinary Bioscience: Metabolism

WEEK 3 – THE LIVER IN DISEASE

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INTENDED LEARNING OUTCOMES

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

- recognise and explain the clinical significance of the various congenital malformations of the hepatobiliary system
- define and recognise the characteristic features of hydropic and fatty degeneration of hepatocytes, hepatocellular glycogen accumulation, hepatic amyloidosis, and diffuse and localised hepatic atrophy
- provide likely causes of these processes in domestic animals and indicate their clinical significance
- recognise at the macroscopic (gross) level the common pigments that can discolour the liver of domestic animals and explain their causes and significance
- explain the causes and potential consequences of displacement, lobe torsion and rupture of the liver.

KEYWORDS

congenital portosystemic shunt, bile duct atresia, serosal inclusion cyst, ductal plate malformation, atrophy, ceroid lipofuscin, haemosiderin, haemosiderosis, haemochromatosis, melanin, congenital melanosis, acquired melanosis, mulga liver, iron-porphyrin, fluke, hydropic degeneration, glycogen, steroid hepatopathy, hyperadrenocorticism, lipidosis, fatty degeneration, fatty change, amyloid, amyloidosis, melanin, congenital melanosis, ceroid lipofuscin, acquired lipofuscinosis, mulga liver haemosiderin, haemosiderosis, haemochromatosis, iron-porphyrin, fluke, liver lobe torsion, diaphragmatic hernia, haemoperitoneum

LECTURE 7 – MALFORMATIONS AND DEGENERATION OF THE LIVER

Most **developmental anomalies** of the liver and biliary tree are of no clinical significance. Incidental anomalies include absence or duplication of the gall bladder, abnormal lobe fissures, accessory or ectopic hepatic tissue, and subcapsular cysts. We will focus on those malformations that can be responsible for significant clinical disease: **absence** or **atresia of the extra-hepatic bile ducts**, malformations of the intra-hepatic bile ducts (**ductal plate malformations**) and especially **congenital portosystemic shunts**.

In this lecture, we will also review the following **degenerative processes** that can afflict the liver as a consequence of sublethal injury to hepatocytes: **hydropic degeneration**, **fatty degeneration** (fatty change or lipidosis), **glycogen accumulation**, **amyloidosis**, and diffuse or localised **atrophy**. The gross and microscopic characteristics of each of these changes will be discussed, in conjunction with their possible causes and consequences. The range of **pigments** that may accumulate in the livers of domestic animals will also be reviewed.

We will also cover briefly the causes and consequences of **displacement of the liver**, **torsion of a liver lobe**, and **hepatic rupture** in domestic animals.

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)