

# Veterinary Bioscience: Metabolism



## WEEK 4 – DRUGS, TOXINS AND TUMOURS

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### INTENDED LEARNING OUTCOMES

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

- define and utilise appropriately the terms hepatitis, cholangitis, cholangiohepatitis and cholecystitis
- recognise the common distribution patterns of hepatitis in domestic animals and suggest likely causes and routes of injury
- understand the potential consequences of chronic inflammation of the hepatic parenchyma
- understand the common causes of cholangitis/cholangiohepatitis in domestic animals and their potential consequences
- understand the pathogenesis and potential consequences of gall bladder mucocoeles in dogs
- list possible causes of obstructive jaundice in domestic animals
- explain the circumstances in which bile peritonitis may develop and understand why it is a life-threatening condition.

### KEYWORDS

hepatitis, multifocal hepatitis, abscess, hardware disease, ruminal acidosis, omphalogenic abscess, navel ill, black disease, bacillary haemoglobinuria, parasitic hepatitis, liver fluke, acute fascioliasis, cysticercus, milk spots, zonal hepatitis, infectious canine hepatitis, equine serum hepatitis, chronic hepatitis, cholangitis, cholangiohepatitis, cholecystitis, chronic fascioliasis, bacterial cholangiohepatitis, lymphocytic cholangiohepatitis, facial eczema, sporidesmin, tribulosis, geeldikkop, cholelith, gall bladder mucocoele, extra-hepatic bile duct obstruction, jaundice, bile peritonitis

## LECTURE 14 – INFLAMMATION OF THE LIVER AND BILIARY TREE

**Hepatitis** or inflammation of the hepatic parenchyma is common in domestic animals and may be of focal, multifocal, zonal or diffuse distribution. Causes of hepatitis include blood-borne infectious agents (especially bacteria arriving from the gastrointestinal tract via the portal vein, but also circulating viruses, fungi and protozoa), trans-abdominal traumatic inoculation of bacteria into the liver (in cattle with hardware disease), trans-hepatic migration of parasite larvae, and (in dogs) immune-mediated inflammation. In this lecture, we will review the distribution patterns of hepatic parenchymal inflammation and emphasise how recognition of these patterns is important in reaching a specific and correct diagnosis.

Inflammation may be centred on the biliary tree (**cholangitis**) and involve the extra-hepatic and/or intra-hepatic bile ducts. Inflammation that involves the intra-hepatic bile ducts may spill out from the portal areas to involve the adjacent hepatic parenchyma (**cholangiohepatitis**). Common causes of cholangitis/cholangiohepatitis in domestic animals include ascending bacterial infection from the duodenum (especially cats and horses), chronic liver fluke infestation (especially ruminants but also carnivores overseas), immune-mediated inflammation (cats), and plant and fungal toxins (ruminants). The potential consequences of cholangitis/cholangiohepatitis include obstructive jaundice, photosensitisation (herbivores), hepatic parenchymal atrophy and fibrosis, and progression to cirrhosis.

Other causes of **obstructive jaundice** in domestic animals include occlusion of the distal biliary tree by scar tissue, neoplasia, luminal parasites, and (rarely) choleliths (gall stones).

Rupture of the extra-hepatic biliary tree can lead to life-threatening **bile peritonitis**. The usual cause of rupture is abdominal trauma. However, rupture of the gall bladder can also be a consequence of inflammation (**cholecystitis**) or infarction of that organ or (in dogs) extreme distension of the gall bladder due to accumulation of excess luminal mucus (**gall bladder mucocoele**).

## 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)