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CLINICAL WORK-UP OF ICTERUS IN CATS AND DOGS

Icterus, or jaundice, is the presence of a yellow color of the sclerae, skin and mucous membranes. It is caused by diffusion of increased plasma bilirubin levels into tissues. Icterus becomes visible when bilirubin is highly increased ($> 15 \mu\text{mol/L}$, reference $< 3 \mu\text{mol/L}$). The main source of bilirubin is heme, resulting of the degradation of hemoglobin derived from erythrocytes mainly in liver and spleen. This unconjugated bilirubin is bound to albumin and cleared from the blood by the liver by facilitated diffusion. In the liver, it is conjugated and actively excreted into bile for excretion in the faeces. Clinical icterus is a clear indication of hepatic dysfunction and results from increased production of bilirubin, a decreased hepatic bilirubin clearance and decreased bile flow (cholestasis). Icterus as a sole result of hemolysis, without hepatocellular damage is extremely rare and usually results from hypoxia from the liver due to anemia. Blood supply to the liver is for 80 % dependent on venous portal blood and thus sensitive to hypoxia. Clinical icterus can be present in cholestatic liver disease, however absence of icterus does not exclude liver disease. Cholestasis can be subdivided into hepatic cholestasis and post-hepatic cholestasis. Hepatic cholestasis is caused by hepatocellular cell death, resulting in bile flow from the high pressure biliary system into the venous circulation. In addition, local processes and distortion of liver architecture can result in intra-hepatic cholestasis. Extrahepatic cholestasis is caused by biliary obstruction outside of the liver and can be caused by cholecystitis, gallbladder mucocele (dogs), choleliths, neoplasia (i.e. duodenum, pancreas) or other tissues causing a mass effect and constriction of the bile ducts.

During this lecture a practical and focused approach of the clinical work-up of icterus in dogs and cats will be discussed.