Hepatocholecystitis due to Salmonella Dublin in a crossbred calf

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Salmonella Dublin affects both young and adult cattle and is spread by oro-fecal contamination due to active shedding dam at parturition or by environment. If the calf survives to the acute stage of a gastroenteritis caused by Salmonella, a postsystemic or ascending localization in mesenteric lymph nodes, liver, spleen, and gallbladder can occur. But, by now, there is no literature regarding acute cholecystitis as complication in carriers. We herein report a case of acute hepatocholecystitis due to S. Dublin.

A two-month-old, female crossbred Belgian Blue calf was presented at the Clinic for Ruminants for anorexia for two days. The initial clinical examination revealed weariness, 8% of dehydration and a severe mucosal jaundice (yellow to orange). Faeces with an orange colour and abundant mucus were noticed. The abdomen was supple with a “drop-sound” on the left side and a light reduction of bowel sounds on the right. A mild fluid splashing sound was audible on succussion of both sides, but the paracentesis was negative. The urine was dark-orange and the test strips were highly positive for blood and lightly positive for bilirubin. The haematology revealed a marked neutrophilia and monocytosis. Blood biochemistry revealed a slight hyponatremia, an important bilirubinemia (total and conjugated), with an increase of bile salts and gamma-GT. The transabdominal ultrasonography revealed a hyperechoic liver with a hypoechoic distended gallbladder and anechoic liquid between the two structures. Symptoms and results of analysis drew us to a suspicion of cholestasis with a severe inflammation. After the hydration status was restored, and after administration of antibiotics, NSAIDs and hepatoprotectors, a ventral midline exploratory laparotomy was performed, confirming our clinical suspicion. The calf died after 24 hours. The necropsy revealed generalized jaundice, and a distended gallbladder without obstruction. Unexpectedly, abomasal content was observed in the rumen. The histopathology identified a moderate necrotizing cholecystitis, a severe acute multifocal necrotizing hepatitis with a diffuse lymphoplasmacytic cholangitis, acute necrotizing lymphadenitis of hepatic lymph nodes and a mild
lymphocytic interstitial nephritis, suggesting a Salmonellosis. At the bacteriological examination of
the bile, a pure culture of *Salmonella enteriditis serovar Dublin* was isolated. *A posteriori*, breeder
noticed that abortion due to salmonellosis occurred and that water contamination was suspected as
well.

Acute acalculous cholecystitis (AAC) has been described in humans as a gallbladder disease
accounting approximately for 10% of all cases of acute cholecystitis. The aetiology is still
uncertain, may be multifactorial, and includes secondary infection of the gallbladder (through blood
drainage or directly from the bowel along the common bile duct) following a systemic infection due
to bacteria, virus, parasites or fungi. The high clinical suspicion of ACC is based on nonspecific
findings such as epigastric and right hypochondria pain, anorexia, nausea, vomiting, fever,
leucocytosis, and abnormal liver enzymes. The definitive diagnosis is usually based on imaging
procedures. Exploratory laparotomy may be avoided in all critically ill patients. ACC is associated
with a high mortality rate (30 – 80 %).