

# **CANINE GALLBLADDER MUCOCOELE**

## **A commentary for use by Veterinary Surgeons and Owners**

### **What is a gallbladder mucocoele?**

Gallbladder mucocoele (GBM) is, by definition, a disorder characterised by the deposition of thick mucus into the lumen (interior space) of the gallbladder.

The canine gallbladder is a pear-shaped organ lying between the two liver lobes on the right side and its primary function is to store bile produced by the liver. When a dog eats, this causes the pancreas to release cholecystokinin, a chemical which stimulates the gallbladder to contract, thus releasing bile into the small intestine via the common bile duct. Bile is an important part of fat digestion/absorption.

When a mucocoele develops, the cells lining the gallbladder secrete excessive amounts of thick mucus. This makes it difficult for the organ to contract efficiently and it becomes distended. Some of the thickened mucus and bile may also clog up the common bile duct, the tube by which bile travels to the gut. If the condition is undetected the gallbladder may rupture and give rise to septic peritonitis with a high probability of death.

Not all animals with a mucocoele are ill, it sometimes being detected as an incidental finding during abdominal ultrasonography for other conditions.

Typically, breeds of dog weighing under 20 kg are most likely to be affected and it tends to occur in middle aged and older animals. Until recently the breeds most often diagnosed with gallbladder mucocoele were the Shetland Sheepdog, Cocker Spaniel and Miniature Schnauzer. Now the Border Terrier is also being highlighted as at increased risk.

Dogs with endocrine disorders such as hypothyroidism, diabetes mellitus and Cushing's syndrome are all at increased risk and in one survey those with Cushing's syndrome were 29 times as likely to develop a mucocoele. Pancreatitis and high cholesterol levels are also predisposing factors.

### **Symptoms of gallbladder mucocoele**

A number of symptoms are commonly reported none of which are exclusive to this condition. The main ones are:

- Vomiting
- Anorexia
- Abdominal pain/discomfort
- Jaundice
- Fever
- Increased thirst/urination
- Tachypnoea (increased respiratory rate)
- Tachycardia (increased heart rate)
- Diarrhoea
- Abdominal distension

Dogs in which the gallbladder is about to rupture, or has ruptured, are more likely to show obvious abdominal pain, jaundice, fever, tachypnoea, tachycardia and abdominal distension.

In some animals symptoms may be mild and intermittent over a course of several months e.g occasional vomiting and loss of appetite, but more typically when symptoms develop the dog becomes very unwell over a matter of days.

## **Diagnosis**

Gallbladder mucocoele may be suspected on the clinical signs but blood tests and diagnostic imaging are needed to confirm the diagnosis. Blood biochemistry is likely to show elevated levels of all liver enzymes and possibly increased bilirubin levels. Pancreatic function may also be affected. Very high liver enzyme levels are usually present where gallbladder rupture is likely or has taken place.

Haematology will often show a high white cell count and again this tends to be highest in those cases where rupture of the gallbladder is imminent or has already taken place.

Definitive diagnosis requires an abdominal ultrasound. The affected gallbladder has a starshaped appearance often compared to resembling a cut section of a kiwi fruit. If the gallbladder has ruptured this will show on the scan.

## **Treatment options**

In cases where the mucocoele is asymptomatic or signs are mild, medical treatment may be used, generally a combination of liver stimulating drugs and a low fat diet. If successful the mucocoele will resolve within 3-4 months. Repeated ultrasound examinations are needed to confirm this.

If symptoms are severe cholecystotomy (removal of the gallbladder) is likely to be advised. This is a high-risk surgery and mortality rates can be up to 30%. Mortality is highest where gallbladder rupture has already occurred. For those patients who survive the 14 days post surgery the long term prognosis is excellent.

As mortality rates are much higher in very ill patients many surgeons will advise surgery for any dogs diagnosed with the condition. This is not a surgery which the majority of vets will have performed and you may be referred to a specialist centre if your own vet doesn't feel comfortable about performing the procedure.

Until fairly recently gallbladder disease was rarely diagnosed in dogs, but the much wider availability of ultrasound scanning has shown that it is not uncommon and gallbladder mucocoele is the most frequently encountered condition.

This condition, particularly with regards to an apparent susceptibility in Border Terriers, is the subject of ongoing research by Mark Dunning, Fergus Allerton and Lorenzo Brunero of the Willows Referral Centre and they would be grateful if any owners of Border Terriers which have been diagnosed with gallbladder mucocoele could fill in a questionnaire. Link is:

[https://www.surveymonkey.com/r/border\\_terrier\\_gall\\_bladder\\_study](https://www.surveymonkey.com/r/border_terrier_gall_bladder_study)

We would also be grateful if owners of affected dogs would fill in one of our health questionnaires and return it to the Breed Health Co-ordinator.