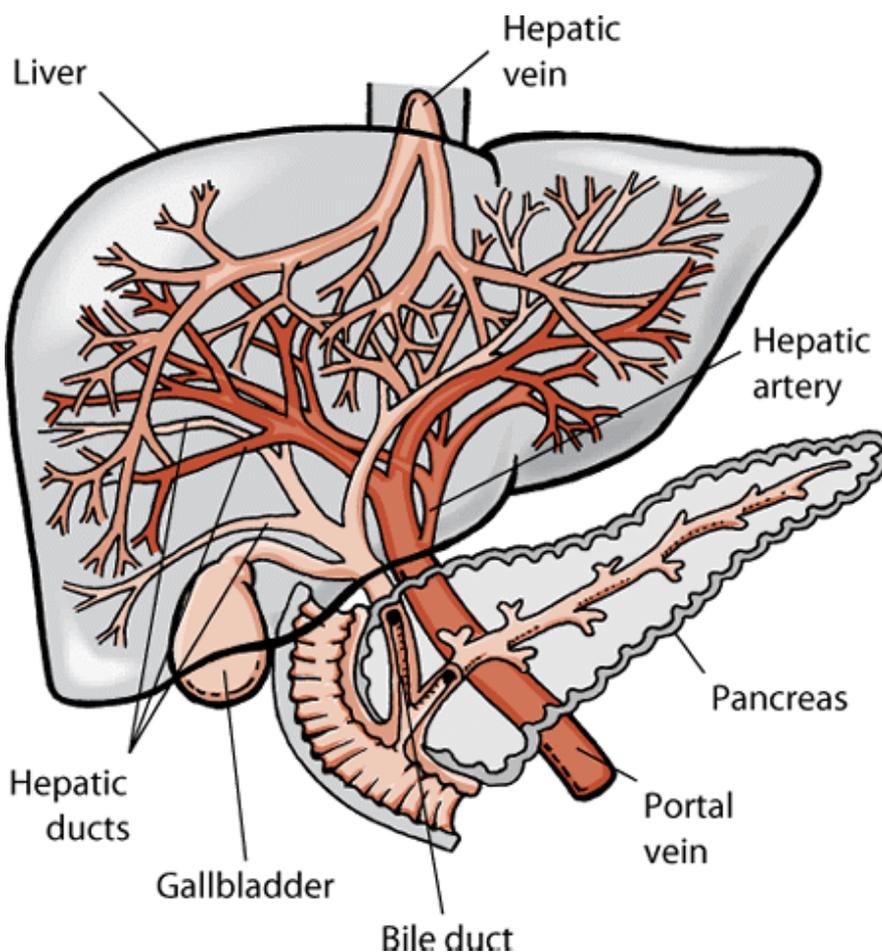


Gallbladder Mucoceles in Dogs

Gallbladder diseases are common reasons for dogs to be referred to board-certified veterinary internal medicine specialists. One of the more common gallbladder maladies is called a gallbladder mucocele, an anomaly that results in abnormal bile flow.

Bile is made by the liver and facilitates the absorption of fat from the small intestinal tract. The liver contains very small channels that collect bile from liver cells. These channels subsequently join progressively larger ducts (i.e.: hepatic ducts) that ultimately empty into the gallbladder. The gallbladder is the storage depot for bile. When a dog ingests food, a hormone called cholecystokinin is released from the pancreas to cause the gallbladder to contract and expel the stored bile into the small intestine via the common bile duct.



Normal gallbladder anatomy. Image courtesy of [The Merck Manual for Pet Health](#)

What is a gallbladder mucocele?

A gallbladder mucocele develops when there is an inappropriate accumulation of inspissated (thick) bile and/or mucus within the gallbladder. Subsequently the gallbladder becomes distended with green-black gelatinous material that may occasionally develop into a mass. The inspissated material can extend into the bile ducts, most notably the common bile duct, to cause a potentially life-threatening obstruction.

Who gets a gallbladder mucocele?

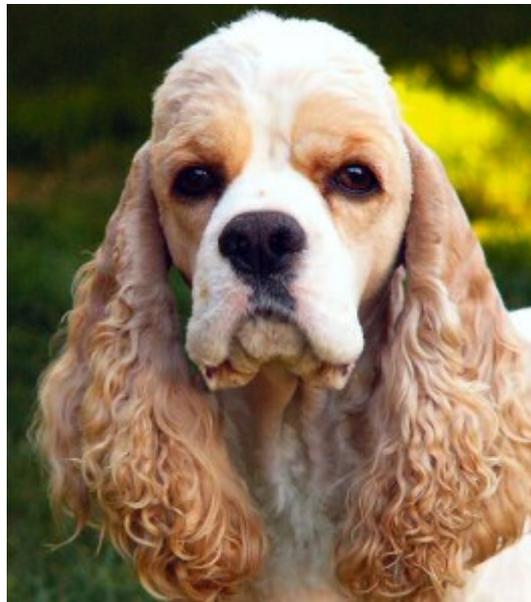
There is no sex predilection for dogs living with gallbladder mucoceles, and geriatric (older) patients are commonly affected. The reported median age is 10 years (range of 3.5-15.0 years). Dogs weighing less than 20 kilograms (44 pounds) are over-represented, accounting for more than 70% of reported patients. Three breeds are over-represented:



- Shetland Sheepdogs



- Miniature Schnauzers



- Cocker Spaniels

What are the clinical signs of a gallbladder mucocele?

Some patients living with gallbladder mucoceles do not have clinical signs. With that being said, affected dogs may show acute or chronic signs, including anorexia and abdominal discomfort. Other common clinical signs including:

- Vomiting (77%)
- Lethargy (73%)
- Loss of appetite (71%)
- Icterus or yellowing of the skin (47%)
- Abdominal discomfort (44%)
- Diarrhea (29%)
- Fever (20%)

What tests are needed to diagnose a gallbladder mucocele?

A board-certified veterinary internal medicine specialist will recommend a series of tests that range from non-invasive to minimally invasive, including:

Complete blood count (CBC)

This simple blood test provides important information about red blood cells, white blood cells and platelets (cells that help for a proper blood clot). A previous study showed white blood cell counts were significantly higher among non-survivors.

Serum biochemical profile (CHEM)

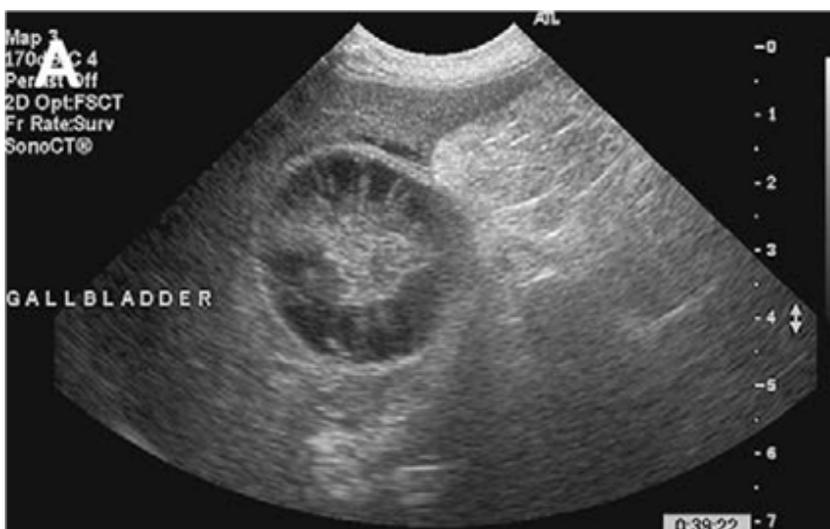
This blood test provides data about many different vital organ values, particularly those associated with the liver and gallbladder. A previous study showed potassium levels were significantly lower among non-survivors.

Urinalysis (UA)

Urine should always initially be evaluated at the same time as blood samples for a CBC and CHEM to provide complete and accurate information about major organ systems, particularly the kidneys.

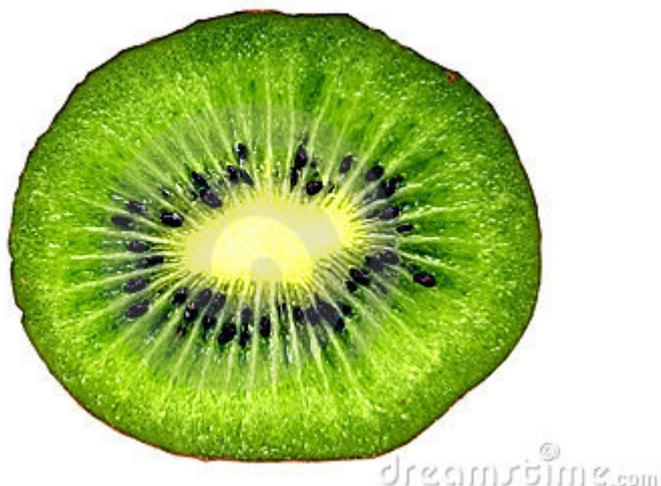
Abdominal ultrasound (AUS)

A gallbladder mucocele classically has a kiwi fruit or stellate appearance.



Note the kiwi-like appearance of the material within the gallbladder. Image courtesy of Stephanie Szabo,

VMD, DACVS



Testing for Cushing's disease (including a urine cortisol:creatinine ratio [UC:Cr], low-dose dexamethasone suppression test [LDDST] and/or ACTH stimulation test)

Many patients with gallbladder mucoceles have concurrent hormone disorders, particularly hyperadrenocorticism ([Cushing's disease](#)). Indeed this disease may play a significant role in the development of this gallbladder disorder. Dogs with Cushing's disease are 29 times more likely to develop a gallbladder mucocele compared to those without hyperadrenocorticism. Thus dogs diagnosed with gallbladder mucoceles should be screened for concurrent Cushing's disease if clinical suspicion exists.

How is a gallbladder mucocele treated?

Cholecystectomy or surgical removal of the gallbladder is currently the treatment of choice for patients living with a gallbladder mucocele and meaningful clinical signs of illness. While board-certified veterinary surgeons and internal medicine specialists generally agree on this course of action for patients who are sick from their mucocele, currently there is no strong consensus that surgery is needed for patients with very mild or no clinical signs. Overall cholecystectomy has a reported mortality rate of 15-30%, and this relatively low survival rate has led some to suggest preemptive surgical interventions may be a more appropriate treatment strategy in this patient population.

Successful medical management of non-ruptured gallbladder mucoceles in those patients without clinical signs has been sporadically reported in the veterinary

literature. Medications that have been successfully utilized include:

- Ursodeoxycholic acid (Ursodiol, Actigall®)
- s-adenosylmethionine (SAMe, Denosyl®)
- Omega-3 fatty acid supplementation
- Famotidine (Pepcid AC®)
- Low-fat diets

Substantial improvement in clinical signs and complete resolution of the gallbladder mucoceles can be seen within 3-4 months. Medical therapy may be appropriate for dogs with incidental gallbladder mucoceles and without clinical signs.

The take-away message...

Gallbladder diseases, particularly mucoceles, are relatively easy to diagnose with non-invasive blood, urine and imaging tests. Treatment can be more challenging, as both surgery to remove the gallbladder and medical management may be appropriate interventions. Thus consultation with a board-certified veterinary internal medicine specialist can be invaluable to help you decide which course of action is best for your fur baby.

To find a board-certified veterinary internal medicine specialist, please visit the [American College of Veterinary Internal Medicine](#).

To find a board-certified veterinary surgeon, please visit the [American College of Veterinary Surgeons](#).

Wishing you wet-nosed kisses,

cgb