

LAPAROSCOPIC (KEYHOLE) GALLBLADDER REMOVAL

For Gallbladder Mucocele

What is a gallbladder mucocele?

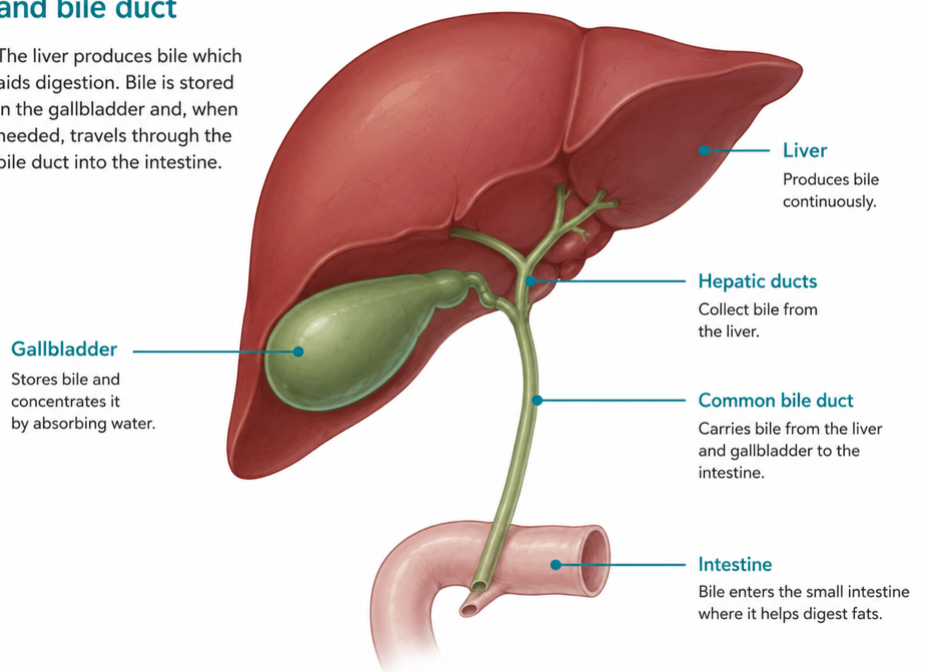
A gallbladder mucocele is a progressive condition in which thick mucus builds up within the gallbladder and prevents it from emptying normally. As the gallbladder enlarges, the wall can become damaged and, in severe cases, rupture.

Many dogs appear well when a gallbladder mucocele is first diagnosed. Unfortunately, the disease may continue to progress despite few or no outward signs until serious complications develop.

The gallbladder stores bile produced by the liver. Dogs can live a normal, healthy life without a gallbladder because bile continues to flow directly from the liver into the small intestine after surgery.

Liver, gallbladder and bile duct

The liver produces bile which aids digestion. Bile is stored in the gallbladder and, when needed, travels through the bile duct into the intestine.



Why do we recommend surgery early?

The safest time to remove a diseased gallbladder is before complications develop.

Waiting until a dog becomes unwell increases the likelihood of:

- Gallbladder rupture
- Bile leakage into the abdomen (bile peritonitis)
- Obstruction of the bile duct
- Severe inflammation around the gallbladder
- The need for emergency surgery

Early diagnosis allows surgery to be performed under controlled conditions before these life-threatening complications occur.

EARLY TREATMENT MAKES A DIFFERENCE

EARLY MUCOCELE <i>(Best time for surgery)</i>	ADVANCED DISEASE <i>(Higher risk)</i>	RUPTURE <i>(Emergency)</i>
		
✓ No obstruction ✓ No rupture ✓ Minimal inflammation ✓ Lower surgical risk	🔥 Inflammation ⚠️ Obstruction ⚒️ More difficult surgery ⬆️ Greater complication risk	💧 Bile leakage 🦠 Sepsis risk 🚑 Emergency surgery ⬆️ Higher complication risk
 LAPAROSCOPIC SURGERY INDICATED Minimally invasive (keyhole) approach is ideal.	 OPEN SURGERY RECOMMENDED Increased inflammation and adhesions make keyhole surgery unsafe.	 OPEN SURGERY REQUIRED Life-threatening emergency. Keyhole surgery is not safe.

Why laparoscopic (keyhole) surgery?

Laparoscopic cholecystectomy removes the gallbladder using specialised instruments inserted through 4-5 small incisions (0.5-1cm).

Compared with traditional open surgery, advantages include:

- Smaller incisions
- Less tissue trauma
- Reduced postoperative discomfort
- Faster recovery
- Earlier return to normal activity
- Excellent visualisation of the gallbladder and surrounding structures

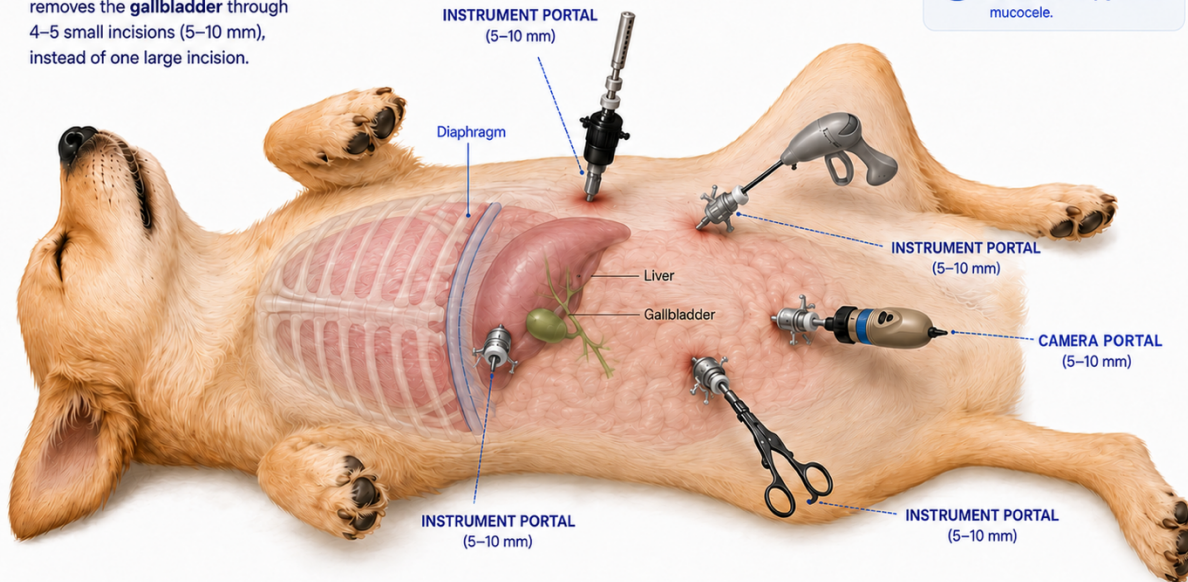
Not every dog is suitable for laparoscopic surgery. If severe inflammation, gallbladder rupture, extensive adhesions, or common bile duct obstruction is present, an open procedure may be the safest option.

LAPAROSCOPIC GALLBLADDER REMOVAL

Small incisions. Less pain. Faster recovery.

Laparoscopic (keyhole) surgery removes the **gallbladder** through 4–5 small incisions (5–10 mm), instead of one large incision.

 Laparoscopic surgery is indicated for early gallbladder mucocele.



Four to five small incisions instead of one large incision



Less tissue trauma and postoperative discomfort



Faster recovery and earlier return to normal activity



Excellent visualisation for a safe and precise procedure

Recovery after surgery

Most dogs remain in hospital overnight following surgery.

Because laparoscopic surgery uses several very small incisions rather than a large abdominal incision, most dogs are comfortably walking the same day and can gradually return to normal activity over the next 1–2 weeks.

During recovery, we monitor pain control and watch closely for any signs of postoperative complications.

Why not continue medical management?

Medicines such as ursodeoxycholic acid may help bile flow, but they do not remove the diseased gallbladder nor reliably reverse an established mucocele. The gallbladder may continue to worsen even when a dog appears well, with a risk of bile duct obstruction or rupture.

Dogs treated surgically have better long-term survival than dogs managed medically. Medical management is usually reserved for dogs that cannot undergo surgery, or when surgery is declined.

Medical management requires regular check-ups, blood tests and repeat ultrasound. If surgery is appropriate, operating early gives the best chance of a planned laparoscopic procedure before complications make surgery more difficult and riskier.

What about gallbladder sludge?

Gallbladder sludge is not always a mucocele. Small amounts of mobile sludge are common and may not cause a problem. Sludge is more concerning if it increases over time or becomes non-mobile, as this may represent progression towards mucocele formation.

In one study, 13% of dogs with sludge developed a mucocele. Ursodeoxycholic acid did not significantly reduce sludge in that study. Not every dog with sludge needs surgery, but persistent, increasing or non-mobile sludge should be monitored with repeat ultrasound.

Why investigate for an underlying disease?

A single cause is not always found, but endocrine or metabolic disease may contribute to mucocele formation. Depending on the dog, we may recommend testing for Cushing's disease, hypothyroidism, diabetes, and high cholesterol or triglycerides.

Miniature Schnauzers are particularly prone to inherited high blood fats. Finding and treating an underlying disease is important even if surgery is planned: surgery treats the gallbladder, not the condition that may have contributed to the problem.

Planned surgery is generally safer than emergency surgery

The safest time to remove a diseased gallbladder is before a dog becomes critically ill. In one study, the risk of dying before hospital discharge was 2% after elective surgery compared with 20% after urgent surgery. Individual risk varies, but early surgery is generally safer than waiting for obstruction or rupture.