



Hepatic (Liver) Tumors in Dogs and Cats

Quick Take

Liver tumours in dogs and cats can be **benign or malignant**.

Some are **single masses**, while others are **diffuse or spread throughout the liver**.

Dogs most commonly develop **hepatocellular carcinoma (HCC)** — often **large but slow-growing and highly treatable with surgery**.

Cats more often develop:

- Bile duct carcinoma,
- Lymphoma, or
- Benign nodular hyperplasia.

When the tumour is solitary and surgically removable, surgery offers the best chance of cure or long-term remission.

1) What's going on inside?

The liver performs essential functions:

- Detoxifies blood
- Stores energy
- Produces bile
- Regulates proteins, fats, and glucose

A hepatic tumour forms when liver cells or bile duct cells grow abnormally.

The tumour can:

- Compress or replace normal liver tissue
- Obstruct bile flow
- Cause internal bleeding
- Metastasise (spread)

Types of hepatic tumors

In Dogs

Primary (originating in the liver):

- Hepatocellular carcinoma (HCC)
 - Most common
 - Often large, solitary, and located in the left liver lobes (which are easier to surgically remove)
 - Slow growing; metastasis rate only 30–50%
- Bile duct carcinoma
- Neuroendocrine tumors
- Benign adenomas

Secondary (spread from elsewhere):

- More aggressive
- Often multifocal

In Cats

- Bile duct carcinoma (malignant, often multifocal)
- Lymphoma (responds to chemotherapy)
- Hepatocellular carcinoma (less common than in dogs)
- Nodular hyperplasia (benign age-related change)

2) What owners typically notice

Signs vary greatly depending on size, location, and type.



Mild or early symptoms

- Decreased appetite
- Weight loss
- Tiredness or reduced energy
- Occasional vomiting
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More advanced symptoms

- Abdominal swelling
- Pale gums (from bleeding)
- Jaundice (yellow eyes, gums)
- Increased drinking/urination
- Difficulty breathing (from fluid buildup)
- Collapse (if tumour ruptures)

Sometimes hepatic tumours are found incidentally on routine bloodwork or ultrasound.

3) Diagnosis

A) Physical exam

- Palpation of enlarged or firm liver
- Abdominal pain or distention
- Pale gums or jaundice

B) Bloodwork

- May show:
- Elevated liver enzymes (ALT, ALP, AST)
- Abnormal bile acids
- Mild anemia
- Low albumin or low blood sugar
- BUT: bloodwork cannot diagnose tumour type.

C) Imaging

Ultrasound

- Identifies tumor size, location, number of masses
- Evaluates blood supply
- Helps plan surgery
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CT scan (often recommended prior to surgery)

- Maps blood vessels
- Identifies surgical margins
- Looks for metastasis (lungs, nodes)
- Essential for planning removal of large tumours, especially HCC

X-rays

- Check for lung metastasis
- Assess abdominal organ displacement

D) Tissue diagnosis

- Fine needle aspirate (sometimes helpful)
- Biopsy (often performed during surgery)

Many surgeons prefer to go straight to surgery for large, resectable liver masses because FNA/biopsy can be inconclusive or risk bleeding. Once a mass starts to bleed, it rarely stops and can put pet owners in a much more stressful situation with a need to urgently consider surgery with a more unstable patient.

4) Treatment Options

There are three main approaches:

1. Medical management



2. Surgery (preferred for most solitary tumours)
3. Chemotherapy (for some tumour types)

A) Medical management

Used when:

- Tumours are diffuse throughout the liver
- The pet is not a surgical candidate
- Tumor type (like lymphoma) responds to medical therapy

Includes:

- Pain medication
- Anti-nausea drugs
- Appetite stimulants
- Liver protectants (SAM-e, silymarin)
- Nutritional support

Chemotherapy for lymphoma or bile duct carcinoma

Important: Medical therapy does not remove the tumor, except in the case of lymphoma responding to chemo.

B) Surgical treatment — Gold Standard for Many Hepatic Tumours

Surgery is the treatment of choice when the tumor is:

- Solitary
- Large or symptomatic
- Located in a resectable liver lobe
- Not diffusely infiltrating the entire liver

Why surgery works so well

- The liver has six lobes — one or more can be safely removed.
- The liver regenerates after surgery.
- Hepatocellular carcinoma in dogs is often encapsulated, making removal relatively straightforward.
- Removing the mass eliminates risk of rupture, bleeding, or bile obstruction.

5) Types of Liver Tumours Best Treated with Surgery

In Dogs

Hepatocellular Carcinoma (HCC) — most important

- Often huge (sometimes >10 cm)
- Usually a single mass in the left lobes
- Low metastasis rate
- Excellent surgical outcomes
- Surgery can be curative.
- Dogs often live years after complete resection.

Adenomas and nodular hyperplasia

- Benign
- Removal optional unless large or causing symptoms

Bile duct tumours

- Often more aggressive
- Surgery helps but prognosis is guarded

In Cats

- Solitary HCC: good surgical candidate
- Bile duct carcinoma: surgery may help if mass is localised
- Nodular hyperplasia: benign, no treatment needed unless the mass is bleeding.
- Lymphoma: not surgical — treated with chemotherapy unless bleeding



6) The surgical procedure

Performed by a specialist surgeon.

Steps:

1. Abdominal incision
2. Exploration of liver and abdomen
3. Identification of tumour lobe
4. Ligation/clamping of blood vessels
5. Removal of affected liver lobe(s)
6. Control of bleeding
7. Biopsy of other areas if needed
8. Closure of abdomen

Surgery time: 1–3 hours

Hospital stay: 1–4 days

In most cases, advanced surgical equipment like harmonic scalpel, LigaSure, or stapling devices are required to reduce bleeding and speed recovery. These procedures would benefit from the expertise of a Specialist surgeon.

7) Outcomes and prognosis

Dogs

Hepatocellular carcinoma (HCC) — after surgery

Survival 2–4+ years common

Many considered cured if margins are clean

Large HCCs >5 cm still have excellent surgical outcomes

Dogs with completely removed solitary HCC have median survival >1400 days (about 4 years)

Bile duct carcinoma

More aggressive

Median survival after surgery: 6–12 months

Benign liver tumors

Excellent long-term prognosis after removal

Cats

HCC

Good prognosis if resectable

Median survival: 1–2+ years

Bile duct carcinoma

More guarded

Median survival: 6–12 months

May recur or metastasise

Lymphoma

Treated medically; surgery not recommended

Prognosis depends on chemo response

8) Complications and realistic rates

Liver surgery is safe in experienced hands but involves major blood vessels.



During surgery

Complication	Rate	Notes
Bleeding	10-20% (manageable but may require transfusion)	Liver is very vascularised
Anaesthetic instability	5-10%	Especially with large tumours as they can compress the the large vessels heading to the heart (portal vein or caudal vena cava.)
Bile leakage	<5%	Rare with careful technique and surgical experience

After surgery

Complication	Rate	Notes
Transient liver enzyme elevation	Common	Not a true complication
Infection	5-10%	Usually treatable
Poor appetite/delayed recovery	Common	Managed with medication
Arrhythmia	<5%	Usually temporary
Recurrence	Depends on tumour type	Rare with HCC, but common with bile duct carcinoma
Perioperative mortality	<5-10% for solitary resectable tumours	Higher if the tumour has already ruptured or the dog arrives unstable

9) Recovery and aftercare

At home:

- Strict rest for 10–14 days
- Pain medications
- Soft or bland diet initially
- E-collar to protect incision

Watch for:

- Lethargy
- Vomiting
- Pale gums
- Abdominal swelling
- Yellowing of the eyes

Follow-up

Recheck at 2 weeks

Bloodwork at 1–3 months

Ultrasound monitoring depending on tumour type

Dogs often return to normal energy within 1–2 weeks, full recovery by 4–6 weeks.

10) Long-term expectations

Dogs with resectable HCC often live normal lives for years after surgery.

Some may never have the tumour return.



Benign tumours rarely cause further problems once removed.
Cats with benign or resectable malignant tumours can enjoy quality life for months to years.
The key is early detection, imaging, and experienced surgical care.

12) Selected Veterinary References

- ACVS – Liver Tumors in Dogs and Cats
- VCA Hospitals – Liver Tumors Overview
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Bottom Line

Many liver tumours in dogs and cats are treatable, especially solitary lesions.
Surgery is the gold standard for operable tumours and provides the best chance for long-term survival or cure, especially for hepatocellular carcinoma in dogs.
Modern surgical techniques and imaging have made liver tumour removal significantly safer than before.
Many pets go on to live happy, active lives for months to years following successful surgery.

