香港獸醫專科服務

HONG KONG VETERINARY SPECIALTY SERVICES

Chylothorax in Dogs and Cats

Quick take

Chylothorax means chyle (a milky **lymphatic fluid that carries dietary fat and immune cells)** is **leaking into the chest cavity,** building up around the lungs. This compresses the lungs and can make breathing difficult.

Some cases have an identifiable cause (heart disease, cancer, blood clots, fungal disease), but many are idiopathic (no clear cause).

Repeated fluid build-up can trigger **inflammation and fibrosis** ("restrictive pleuritis"), which can **permanently limit lung expansion.**

Surgery is the most reliable long-term treatment for recurrent/idiopathic chylothorax, especially when medical management fails.

1) What's going on inside?

After a meal, **fat absorbed from the intestines enters the lymph system as chyle**. Chyle normally travels through the **thoracic duct** and drains into **large veins near the heart**.

In chylothorax, something **prevents normal outflow or causes leakage:**

- Pressure builds in the thoracic duct
- Lymphatic vessels dilate and leak
- Chyle accumulates around the lungs

Potential **causes** include **cancer, heart disease, blood clots** in large veins, and **infectious diseases**; when none are found, it's called **idiopathic chylothorax.**

Why chronic chyle is a problem: chyle is irritating. Over time it can cause scarring of the pleura (lining of the chest), leading to **restrictive pleuritis**, making even a "fixed" case harder to breathe comfortably.

2) What owners notice

Common signs in both dogs and cats:

- Rapid breathing, shallow breaths
- Increased effort to breathe (belly push)
- Lethargy, hiding (especially cats)
- Reduced appetite, weight loss
- Occasional cough (more common in dogs)
- Sometimes a "better then worse again" pattern after chest taps

Emergency signs: open-mouth breathing (cats), collapse, blue gums, severe distress → immediate ER.

3) Diagnosis

Chest fluid sampling (thoracocentesis)

- Chyle often looks milky
- Lab testing confirms it (high triglycerides, characteristic cell types)

Imaging
- Chest X-rays: show fluid around lungs
- Ultrasound/ CT: help check for masses, heart changes, clots, or other causes

Cause-hunting
Because secondary causes matter, many vets will recommend heart evaluation and imaging to rule out the common underlying triggers.

4) Treatment overview (medical vs surgical)

A) Medical / supportive care (often a bridge, not a cure)

Used to stabilise breathing and sometimes to **try conservative management early**:
- Repeated **thoracocentesis** (removes fluid to relieve breathing)
- **Low-fat diet** (may help some)
- **Rutin** (supplement sometimes used to reduce effusion in some patients)
- Treat any identified underlying cause (e.g., heart disease)

Limitations: idiopathic/recurrent cases frequently continue to re-accumulate fluid and may develop **restrictive pleuritis.** This is why surgery is often recommended once the pattern becomes persistent.

B) Surgery / interventional procedures (definitive for many cases)
The goal is to **stop chyle from entering the chest** and encourage the body to reroute lymph flow safely.

5) Surgical treatment — the main options

1) Thoracic Duct Ligation (TDL)

Core procedure. The **thoracic duct is tied off** so **chyle is redirected through alternate lymph pathways** instead of leaking into the chest.
Why TDL alone sometimes fails: there can be multiple duct branches or collateral pathways, and pressure dynamics near the heart can still impair drainage—so T**DL is commonly combined with another procedure.**

2) TDL + Pericardiectomy (Pericardectomy / Subphrenic Pericardectomy)

Most established “combination” surgery for idiopathic chylothorax.
What it adds: **removing part of the pericardium** (the sac around the heart) may reduce right-sided pressure effects and improve lymph drainage.

A classic study of **idiopathic chylothorax treated with TDL + pericardectomy** reported **resolution of pleural fluid in 90% overall**—100% of dogs and 80% of cats in that series.
Modern minimally invasive (thoracoscopic/VATS) approaches are widely used in dogs and are considered highly successful.

3) TDL + Cisterna Chyli Ablation (CCA)

The **cisterna chyli** is a **lymph “reservoir” in the abdomen**. Ablating it forces the body to **create alternate lymphatic routes**, which can **reduce thoracic leakage**.
This is used in some dogs, often as part of multi-procedure approaches, especially for stubborn idiopathic cases.

4) “Triple-combination” surgery (TDL + Pericardiectomy + CCA)

Some centres use all three in difficult idiopathic canine cases. A published canine study evaluating this triple approach reported a study-end **mortality of 9.1%** and described resolution **outcomes comparable to previously reported open surgeries** (small series).

5) Cats: which combination is best?

Cats can absolutely **benefit from surgery**, but their smaller size and **higher frequency of concurrent disease** can make planning more individualised.

A JAVMA study focused on cats with idiopathic chylothorax reported that **adding CCA to TDL + subphrenic pericardiectomy (SPC) increased surgical time but did not improve outcome compared with TDL+SPC alone.**
Practical takeaway for owners: in cats, TDL + pericardiectomy is commonly the foundation, and additional procedures are chosen case-by-case.

6) Less common / special situation options

These may be considered when standard surgery fails, isn't available, or isn't appropriate:

Pleural access port: a small implanted port so owners/vets can drain fluid intermittently (palliative/supportive)

Pleurodesis: trying to scar the chest lining so fluid can't accumulate (variable success; not a first choice)

Denver Shunt: placement of a unidirectional valve that drains the chyle from the pleural space to the abdominal cavity and can be activated by the owners, by simply pressing over the pump found under the skin. This is a palliative option that can be tempting when other surgical options failed and the owners do not wish to seek the assistance of a veterinary professional each time the breathing is laboured.

Lymphangiography-assisted planning: imaging the ducts to reduce "missed branches," which can improve success in some approaches

6) Expected success rates

Because chylothorax varies by cause (idiopathic vs secondary) and chronicity (with or without restrictive pleuritis), no single percentage fits every case. But for idiopathic chylothorax, published outcomes support:

Dogs
TDL + pericardiectomy: high success; the classic series reported 100% resolution in dogs (small study). This study was done on a small number of patients and the results of this study were since challenged by less optimistic success rate reported (approx 80%).

Thoracoscopic (VATS) TDL + pericardiectomy has been reported as highly successful long-term, though late recurrence can occur.

Cats
- **TDL + pericardectomy**: classic series reported **80% resolution** (small study).
- In cats with idiopathic disease, CCA did not improve outcome over TDL+SPC in one JAVMA report.

Important: If restrictive pleuritis is already advanced, even "successful" surgery may not fully normalise breathing because the lungs can't expand normally. Therefore prompt surgical treatment should always be attempted in order to give the best chance of complete recovery of the ventilatory function.

7) Complications and realistic rates

Complications depend on technique (open vs thoracoscopic), patient stability, and how long the disease has been present.

Common ones owners should understand:

Short-term (days to weeks)

- Persistent effusion for a period after surgery (not uncommon; may need taps/chest tube)
- Pneumothorax (air in chest) → may require chest tube
- Incisional pain (more with open surgery; less with thoracoscopy)
- Infection (uncommon but possible)
- Anesthetic risk (higher in cats and in pets with severe respiratory compromise)

Medium/long-term

- **Recurrence** (sometimes months later) due to collateral lymphatics or incomplete duct control; late recurrence is specifically noted in dog series.
- **Restrictive pleuritis** may persist even after fluid stops (especially if chylothorax was present for a long time)

A specialist surgeon will often frame risk in a practical way: the **biggest determinants of outcome are underlying cause, chronicity, and whether lung scarring has already begun**.

8) Recovery and aftercare

Hospital phase

- Oxygen support if needed
- Chest tube in some cases (temporary)
- Pain control
- Monitoring breathing rate/effort and fluid production

Home phase (often 2–6 weeks of restrictions)

- Activity restriction
- Incision care
- Rechecks and sometimes follow-up imaging
- Feeding plan (often low-fat diet initially)
- Watch closely for:
  - increased breathing rate/effort
  - coughing, fever, lethargy (possible pneumonia)
  - decreased appetite

9) Selected veterinary references

- American College of Veterinary Surgeons (ACVS) — overview of causes and mechanism of chylothorax.
- Fossum et al., 2004 (J Vet Intern Med): outcomes for TDL + pericardectomy (90% overall; 100% dogs; 80% cats).
- Mayhew et al., 2019 (Vet Surg): multi-institutional long-term outcomes for thoracoscopic TDL + pericardectomy in dogs.
- Stockdale et al., 2018 (JAVMA): cats—adding CCA to TDL+SPC increased surgery time without better outcome.
- Ishigaki et al., 2022: canine outcomes/complications with triple-combination surgery (TDL+partial pericardiectomy+CCA).

Bottom line

Chylothorax is serious because it compresses the lungs and can cause long-term scarring.
Supportive care (tapping, diet, treating underlying causes) stabilizes patients, but recurrent/idiopathic cases often need surgery.
The most established surgical foundation is thoracic duct ligation, commonly paired with pericardiectomy, with good published resolution rates in both dogs and cats.
Early referral improves the chance of success by reducing time for restrictive pleuritis to develop.