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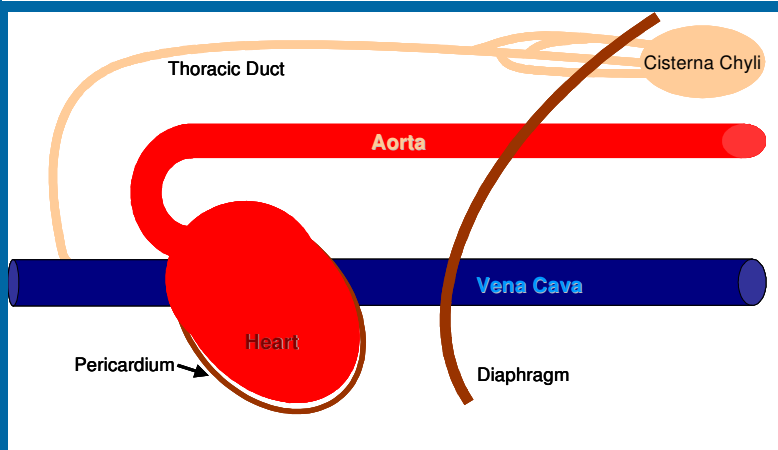
# Chylothorax

**Chyle** is fluid associated with the lymphatic system (series of lymph nodes). This fluid arises from the intestinal tract after absorption of foods high in fat. Chyle then moves to the intestinal lymph nodes and the cisterna chyli which is a collecting duct within the abdomen. Chyle flows into the thoracic duct (a vessel traveling through the chest cavity) where the chyle enters the general circulation in the cranial vena cava. **Chylothorax** is the accumulation of chyle within the pleural space (between the lung and body wall). This results in collapse of the lungs and life threatening respiratory distress.

**Pathophysiology** In most animals abnormal flow or pressure in the thoracic duct or dilated lymphatic vessels (lymphangiectasia) are thought to be the causes of chylothorax. Dilated lymphatics may occur in response to increased lymphatic flow, decreased lymphatic drainage into the venous system or both. Any disease process that increases systemic venous pressure may cause chylothorax. Trauma is an uncommonly recognized cause of chylothorax since the thoracic duct rapidly heals following trauma and chylous effusion resolves within 1-2 weeks. Possible causes of chylothorax are listed in the above table.

### Clinical signs and consequences

Any breed of dog or cat may be affected; however, the Afghan hound, Shibu Inu and oriental breed cats (Siamese & Himalayan) are over represented. **Coughing** is often the first (and sometimes only) abnormality noticed by owners. The cough is unresponsive to standard medical treatment. As chylous effusion accumulates, the animal's lungs slowly collapse resulting in respiratory distress and possible cardiac compromise. In long standing cases of chylothorax, fibrous pleuritis (scarring of the lung) may be irreversible and result in respiratory compromise.



### Causes of Chylothorax

- Cranial mediastinal mass
- Lymphosarcoma
- Thymoma
- Heart disease
- Cardiomyopathy
- Heart worm disease
- Pericardial effusion
- Heart base tumors
- Congenital malformations
- Vena cava thrombi
- Generalized lymphangiectasia
- Thoracic duct trauma
- Idiopathic (Unknown)

**Treatment** If an underlying disease is diagnosed, it should be treated and chylous effusion managed by intermittent thoracocentesis (draining the fluid from the chest cavity). If the underlying disease is effectively treated, the effusion often resolves, though this may take several months. Surgical intervention is most suited for idiopathic chylothorax. Though several techniques exist to treat chylothorax, the most effective surgical treatments are thoracic duct ligation, pericardectomy and cisterna chyli ablation. Thoracic duct ligation causes abdominal lymphatic vessels to communicate with the abdominal venous system allowing chyle to bypass the thoracic cavity. The success of thoracic duct

ligation alone is reported to be about 50%. With the relative poor prognosis associated with thoracic duct ligation, additional procedures have been developed to achieve chylothorax resolution. Removing the pericardium which is a sac surrounding the heart is purported to decrease venous pressure and help prevent the build up of chyle within the thoracic duct. Cisterna chyli ablation is the disruption of the abdominal chyle collecting system which prevents chyle from entering the thoracic duct and thus leaking into the thoracic cavity. One or both of these procedures are often combined with thoracic duct ligation and have resulted in the resolution of chylothorax in 80-90% of patients.

**Prognosis** Patients with idiopathic chylothorax treated with surgical intervention have a good chance of returning to a normal life without recurrence of chylothorax. Resolution of chylous effusion is not automatic and often occurs 2 to 4 weeks following surgery. This is the time required for lymphatics to bypass the thoracic cavity. Without surgical intervention, the prognosis is grave and spontaneous resolution of the chylothorax is unlikely.

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