

## **FELINE CHYLOTHORAX**

Chylothorax is a relatively uncommon disorder in the cat whereby lymph fluid (chyle) accumulates in the pleural cavity. This small cavity lies between the lungs and the inner lining of the chest wall. Normally, only about a teaspoon of clear fluid is present in this space. The purpose of the fluid is to keep the surface of the lungs slippery so that they don't adhere to the chest wall. When chylothorax is present, up to a quart of fluid may be present.

When a diagnosis of chylothorax is made, two abnormalities have developed.

1. A pleural effusion is present. This means that an abnormal amount of fluid has accumulated in the pleural space. The significance of this fluid accumulation is in the cat's inability to completely expand the lungs. The chylous fluid takes up space and forces the cat to breathe rapidly and shallowly. In some cases, this situation stresses the cat to the point of respiratory failure and death.
2. The normally clear fluid in the pleural space has been replaced by a milky-white fluid from the lymph ducts. This is a unique fluid in both appearance and in composition. The lymphatic ducts are somewhat similar to the vessels known as arteries and veins. However, instead of carrying blood, they carry lymph fluid from the lymph nodes to the heart.

### ***Are some cats more likely to get chylothorax?***

Purebred cats, especially the Siamese, may be at increased risk for chylothorax. The Himalayan is included in some reports. Male and female cats appear equally affected.

### ***What are the clinical signs?***

The main clinical sign of chylothorax is labored breathing. However, this finding is common to all cases of pleural effusion. Some cats appear to be "holding their breath" because there is a delay between inspiration and expiration. Interestingly, coughing is the first sign of chylothorax in some cats; it is not typically found with other causes of pleural effusion. This can be important because there are relatively few causes of coughing in the cat as compared to the dog.

In some situations, clinical signs of the underlying disease (e.g., tumor, heart failure) may overshadow those of the pleural effusion. Occasionally, owners note no abnormalities other than depression or exercise intolerance. This is because fluid gradually accumulates in the pleural space, and the cat is able to adapt for awhile.

### ***Do we know what causes it?***

At present, two main processes are known to lead to chylothorax.

1. Trauma. Not uncommonly, injury to the chest cavity can lead to chylothorax. Automobile injuries or falls from a building are often reported with traumatic chylothorax.

2. Increased pressure within the thoracic duct or veins. Associated causes include heart failure, heartworms, and tumors within the chest. Fungal disease in the chest is another cause of chylothorax.

When the cause cannot be identified after appropriate diagnostic procedures, it is called "idiopathic chylothorax." More than 50% of cases are in this category.

### ***How is the diagnosis made?***

The following tests are usually performed to achieve a diagnosis of chylothorax.

1. Thoracic radiography (chest X-ray). This will confirm the presence of fluid in the pleural space but does not characterize the type of fluid.

2. Fluid analysis. A small amount of fluid must be obtained from the chest cavity for analysis. First, it is inspected for color. Chyle is typically white or light pink in color. Next, chemical tests can be used to determine the triglyceride (fat) content of the fluid; it is typically high when the fluid is chyle. Finally, when examined under the microscope, it is found to have large numbers of lymphocytes (a type of white blood cell found in lymphatic fluid). Additionally, the fluid may be cultured for bacteria but it is virtually always sterile.

Once the presence of chylothorax is confirmed, additional tests will be performed in an attempt to identify an underlying cause. Such tests include routine blood work, additional chest and abdominal radiographs, tests for leukemia virus and immunodeficiency virus, cardiac tests, and heartworm testing.

### ***What is the treatment?***

Measures to improve the cat's respiratory capacity are usually the first steps in therapy. Fluid can be drained from the pleural space with a syringe and needle. In almost all cases, the fluid will reform and a drain tube will need to be surgically implanted to facilitate daily drainage. This tube may be left in place until chyle accumulation stops. If fluid is still accumulating after 1-2 weeks, thoracotomy (exploratory chest surgery) may be recommended to search for the underlying cause or to repair a torn thoracic duct which will not heal. When the cause is trauma, most cats will heal on their own and surgery will not be needed.

Feline chylothorax is a disease under active research. Some new treatment modalities may be on the horizon. Regardless, the most successful therapy will be directed toward treating the underlying disorder.

### ***Are some cases more complicated than others?***

Chyle is irritating to the tissue covering the inside of the chest cavity and the heart and lungs. After it has been present for several weeks, adhesions begin to form around the lungs and heart. This scar tissue contracts and compresses the lungs making it impossible for them to expand properly. This is called fibrosing pleuritis. Radiographs show lungs that are rounded instead of pointed, and inflammatory cells become prominent in the chest fluid. An ultrasound examination clearly demonstrates the adhesions floating in the chest fluid.

### ***What are the chances that my cat will get well?***

Chylothorax is a serious and potentially fatal disease. However, the prognosis is generally good if four conditions are met:

**1. *Respiration is stabilized.*** The cat must be able to withstand the initial diagnostic procedures and subsequent placement of a chest drainage tube. The accumulated fluid severely compromises respiration; as such, some cats die before sufficient fluid can be removed to improve their respiratory status.

**2. *The underlying disease is identified and successfully treated.*** In many cases, an underlying cannot be identified; in cases of true idiopathic chylothorax, the prognosis is usually good. However, if an underlying disease is present, it must be treatable.

**3. *The underlying disease does not recur.*** Chylothorax is likely to recur if the underlying disease cannot be identified and treated. When this is the case, the cat must be closely monitored for return of respiratory difficulty.

**4. *Resolution of the disease must occur before fibrosing pleuritis develops.*** Once it is present, the prognosis is grave, even if the underlying disease has been successfully treated.