

## Results of a new procedure to treat naturally occurring chylothorax in dogs

### What is this research about?

Chylothorax is a condition that results in lymphatic fluid accumulation in the pleural cavity. The pleural cavity is the space between two thin membranes that surround the lungs and chest cavity. This research is about a potential new minimally invasive treatment of naturally-occurring chylothorax in dogs.

A few key anatomy terms to know for this research are:

- Lymphatic system: contains vessels that carry lymph from the digestive system back to the blood.
- Thoracic duct: the largest lymphatic vessel, runs along the spine. When it is damaged or affected by disease a large amount of lymph can leak into the pleural cavity, resulting in chylothorax.
- Cisterna chyli: a sac like structure at the lower end of the thoracic duct.
- Cranial vena cava: a large vein that carries blood from the upper half of the body to the heart.

### How can you use this research?

**Veterinarians and vet technicians** can use this research to stay current on potential new techniques for treating chylothorax and they can learn from the lessons these veterinarians presented in their research.

**Pet owners** can learn about the condition and future potential treatment options for their pet.

### What you need to know:

Chylothorax is a debilitating condition characterized by the accumulation of lymphatic fluid into the pleural space. This research is about a new minimally invasive procedure to treat chylothorax.

The surgery involves inserting a catheter into the thoracic duct and creating an embolism (blockage). The procedure had a low success rate and is not yet recommended for clinical use, however, technical modifications may eventually allow this procedure to be used on clinical cases.

### What did the researchers find?

In nine of the fifteen dogs the cisterna chyli was successfully punctured and the wire was placed in the thoracic duct.

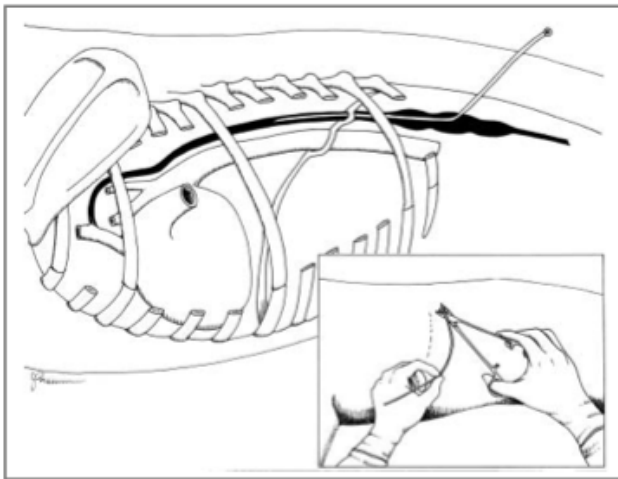
Inserting the catheter into the thoracic duct was only successful in five of nine dogs. The researchers were able to inflate the balloon catheter in four of four dogs; this led to an increase in pressure in the thoracic duct. An embolism was also successful in four of four dogs.

The results suggest that this procedure is feasible, but it cannot be recommended for routine use in practice because of the low success rate.

## What did the researchers do?

Fifteen mixed-breed dogs were used for the study. All dogs were anaesthetized for the surgery. Contrast medium was injected into the lymphatic system to make them visible on x-rays. Under x-ray guidance, the cisterna chyli was punctured and then a wire was placed in the thoracic duct (see figure). Following the wire, a catheter was inserted here.

A catheter was also inserted into the jugular vein (the large vein of the neck) to measure blood pressure. A balloon catheter was then inserted into the cranial vena cava just before its entry into the heart. The balloon was inflated to prevent



In this figure, the dog's head would be to the left, and its tail to the right; the heart is the large sac in the rib cage, the lungs are not shown. The large figure shows the catheter inserted through cisterna chyli and into the thoracic duct.

## About the Researchers:

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## Keywords:

Chylothorax, dog, thoracic duct, catheter, embolism, surgery, veterinary medicine

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