

## **Informed Consent**

### **Thoracic (Chest) Surgery for Chylothorax**

Chylothorax can be treated using two main techniques: open (thoracotomy) and minimally invasive (using thoroscopy). The visualization is magnified with the scope and given that and the fact that only a few small incisions are used instead of a large one, thoroscopy is the recommended approach. You have elected to have your pet undergo the open surgical procedure called thoracotomy. This is a procedure where the chest is opened surgically to address a problem in the thoracic (chest) cavity. In this case, the surgical goal is to perform procedures to treat chylothorax (chyle, or lymph build up in the chest) and may include ligation of the thoracic duct, cisterna chyli (an area where lymph collects) ablation, and pericardiectomy, where a portion of the sac around the heart is removed. Generally prognosis with surgery is good, but there are inherent risks with both the thoracotomy and the chylothorax procedures. Both will be discussed here. If you have any questions or concerns, please let us know.

#### **Thoracotomy**

Generally the prognosis with surgery is excellent, complications are rare (10% of cases, or less) but when complications occur, they can be life-threatening. There are many important structures in the chest that require manipulation, treatment of, or dissection near that have the potential to cause complications in chest surgery.

Pneumothorax (air in the chest)- the lungs are built for gas exchange, to get oxygen in to the blood, but air in the chest, outside of the lungs, does not allow that gas exchange due to pressure changes. As soon as the chest is opened to room air during surgery, your pet loses the negative pressure the diaphragm obtains in the chest used to pull air into the lungs. This is ok when it is planned, as in during surgery, because we can provide pressure by ventilating your pet during the procedure. If there is a leakage of air into the chest (from the environment or from a defect or damage in a lung or airway) after surgery, this can be life threatening. Most often, we recommend a chest tube be placed after surgery to be sure “negative pressure” is obtained for a few days to ensure the gas spaces are appropriately sealed.

Hemothorax (blood in the chest)- if there is continued hemorrhage after surgery, it collects in the chest, outside of the lungs. If there is sufficient volume of blood, it may not only raise concerns about low blood volume, but also the lungs may not have room to expand to allow breathing. This could be life-threatening.

Pyothorax (pus in the chest)- this could be due to the underlying process or could be secondary to surgery. Additional treatments (chest tube) or procedure may be recommended.

Cardiac arrhythmias- these are disturbances in the heart rhythm, and may be due to irritation of the heart or damage to heart muscle. Usually they are temporary and may or may not need medication.

Complications with chest tubes- the purpose is to monitor and evacuate the thoracic space. However, they have their own set of issues: their presence or placement can damage structures in the chest, leading to bleeding or pneumothorax (see above), heart muscle damage, heart rhythm disturbances (arrhythmias), or nerve damage, they could become displaced or leak (and lead to pneumothorax), or they could block or plug. Proper care, monitoring, and maintenance are key.

More minor complications of thoracic surgery include wound infection, wound dehiscence (opening), seroma (collection of fluid under the skin), subcutaneous emphysema (collection of air under the skin).

Rare complications include infection of the bone or ribs (osteomyelitis, a serious infection), fractured or displaced ribs/sternum, and lameness in the front limb(s) due to stretching of nerves in the armpits during surgery (usually temporary).

## Chylothorax

There are 2 main procedures we do in the chest to treat chylothorax: pericardiectomy, and ligation of the thoracic duct. Here are the risks and complications of these procedures (occur in about 50% of patients):

Recurrence or failure to resolve chylothorax- probably the most common risk, may have something to do with not being able to identify all branches of the thoracic duct, since the anatomy in this area can be variable. Sometimes, special imaging studies and additional surgery are recommended

Fibrous pleuritis- this occurs as a result of the chyle in the chest, not a direct result of surgery, and one of the reasons surgery is recommended, but can occur if chylothorax is not resolved with surgery. The chyle irritates the tissues of the lungs, can cause inflammation, scar tissue, and can reduce lung function.

Nonchylous effusion- in some cases the chyle resolves, but fluid continues to accumulate. Depending on rate and volume, additional treatments or surgery may be indicated.

Hemorrhage- the pericardium can be very vascular and the surgery occurs in the chest, near large vessels. Hemorrhage isn't usually but has the potential to be life threatening.

Damage to the phrenic nerve- the phrenic nerve controls diaphragm function and runs along the pericardium, it is usually our landmark by which we do not go any further. Inadvertent damage could affect diaphragm function and respiratory function

Rarely herniation of the heart could occur if the opening in the pericardium is too small and in this case, revision is recommended