Standard Operating Procedures
Tier 1 Veterinary Medical Center
Chest Tube Care and Maintenance

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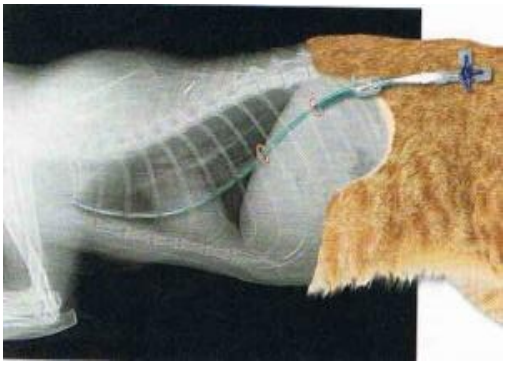
Introduction:
It is the standard operating procedure to provide the best care to patients and properly maintain patients with indwelling devices while in the hospital.

The procedures for chest tube care and maintenance is as follows:

General Requirements:



Thoracocentesis is a life-saving procedure that is performed when excessive fluid or air is present in the chest cavity. Trauma, infection, neoplasia, pleural effusion secondary to congestive heart failure, are examples of causes that can result in life threatening restriction of lung expansion requiring thoracocentesis. If the patient requires multiple thoracocenteses, a thoracostomy tube and intermittent or continuous suction might be warranted.

Once the DVM places the thoracostomy tube it should be fitted with a dura clamp, Christmas tree connector and a 3 way stop cock.

Negative pressure should then be re-established by either the connecting the tube via a leak proof extension tube to a suction unit or suctioning by hand.

A radiograph must then be taken to confirm positioning of the thoracostomy tube.

Once positioning is adequate, the thoracostomy tube should be marked with a sharpie just at the skin level so that adequate positioning can be confirmed via visual inspection during daily changes.

Next a protective bandage may be placed and the patient should be monitored for respiratory changes.

The thoracostomy tube will either be hooked up to a continuous suction device, or evacuated manually via syringe. Check with the admitting DVM to see what their preference is.

Make sure **ALL** connections are secure. For Christmas tree connectors and three way stop cocks, suture in place with finger trap sutures.

Chest tube should be attached to continuous suction or should be aspirated every 1-2 hours when first placed.

If the thoracostomy tube is to be hooked up to continuous suction, see procedural manual for instruction on how to set up the 3 chamber system, or ask he DVM. Make sure you keep the negative pressure at or below 20 cm H2O so as not to retard the body's ability to seal off any leaks.

When manually suctioning the thoracostomy tube, be careful not to pull harder then 2-3 cc negative pressure as this can dislodge seals that are forming and can be painful for the patient.

Gather your supplies:

A pair of gloves.
Alcohol to swab the port on the chest tube.
A new, appropriate sized syringe for the patient. (A new syringe should be used time)
An extension set

Aspiration of chest tubes should be aseptic

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1. Wear gloves.

2. Make sure that stopcock is turned off toward the patient. Swab the port with alcohol, and then attach a new syringe to the port. Turn the stopcock so that it is open to the syringe and patient, and off to the open port with the attached extension set. Aspirate the chest tube.

3. To empty your syringe, turn the stop cock off to the patient. Then squirt out thru the open port (that has nothing attached to it) into a container. It is preferable to leave the syringe attached to the stopcock, and to empty the syringe thru the open port with the extension set attached.

4. Always measure and record the amount of Air and/or Fluid removed each time.

5. Once you are finished manually suctioning the chest tube, **make sure all clamps and ports are closed and secure. Place male adaptors on the stop cock ports to maintain a closed system.**

In some cases, such as a pyothorax, lavage will be performed. Lavage should be done twice daily (or as ordered by the doctor), aseptically with warm saline. The amount lavaged should be 10ml/kg. The amount recovered should be at least 3/4 of the amount that was infused. Once the requested amount has been infused, turn the stop cock off to the patient and rotate the animal side to side to try and "rinse" the chest. Then open the stop cock again and remove the fluid with the same syringe.

Chest tube bandages should be changed every 24 hours. More frequently if they slip or become soiled. Please wear sterile gloves and use a sterile telfa pad and triple antibiotic ointment when changing the bandage for the chest tube. Also when changing the bandage palpate and make sure the tube is still going into the chest. Check to make sure none of the fenestrations are outside of the skin.

Most common complications of thoracostomy tubes include: pain, stoma, infection/irritation, subcutaneous emphysema and poor "seal" due to inadequate subcutaneous tunnel, inadvertent removal of the tube, and tube occlusion.

Catastrophic pneumothorax may occur if the patient interferes with the tube by dislodging connections or by biting through the tube. Patients should where an e-

collar, but don't be afraid to ask the DVM for drugs to help manage pain and activity if needed.

Prevention of stoma infection requires careful attention to asepsis during placement and handling. Therefore, keeping the protective wrap clean and dry, and using exam gloves when handling the drain is very important.

Let the DVM know right away if the chest tube has slipped, has changed position, or if you can see the fenestrations of the tube outside of the skin.