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Pleural Effusion

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BASIC INFORMATION

Description

Pleural effusion is an abnormal accumulation of fluid within the chest cavity in the space between the lungs and the chest wall (pleural space). Depending on the volume, fluid collection can compromise respiratory function.

Causes

A variety of conditions can cause pleural effusion, including the following:

- Infection (bacterial or fungal) within the chest cavity
- Heart failure
- Penetrating foreign bodies that enter the chest cavity via the chest wall, respiratory tract, or esophagus
- Infection with feline infectious peritonitis (FIP) virus (cats)
- Heartworm disease (mainly dogs)
- Primary lung tumors and tumors of other structures in the chest
- Leakage of chyle (a milky white fluid containing white blood cells) from the major lymphatic duct
- Bleeding from trauma, a clotting defect, or surgery

Other, less common causes of pleural effusion include decreased protein levels in the blood, a blood clot in a major vessel in the chest (thromboembolism), torsion (twisting) of a lung lobe, pancreatitis, congenital cysts, and diaphragmatic hernias (often from trauma).

Clinical Signs

How severely the animal is affected is largely dependent on how much fluid is present. As fluid collects, it eventually diminishes the lungs' ability to expand. Increased respiratory effort (panting, open-mouth breathing), decreased activity, cyanosis (blue gums caused by lack of oxygen), coughing, and lethargy may occur. With chronic conditions, weight loss, decreased appetite, and coughing are common. Signs of recent trauma may be present with diaphragmatic hernia and bleeding into the chest.

Diagnostic Tests

Sometimes abnormal sounds or muffling of the heart and lung sounds is detected with a stethoscope. A fever suggests the possibility of an inflammatory, infectious, or tumor-related problem.

Pleural effusion is usually discovered on chest x-rays. Animals that are in respiratory distress may have a chest tap to remove air or fluid so that breathing improves before x-rays are taken. Fluid removed from the chest is sent for analysis and culture. Additional laboratory tests are helpful in characterizing the type of fluid present. Some types of fluid are more likely with certain causes.

Other tests that may be recommended to search for an underlying cause include routine laboratory tests, x-rays of the abdomen, ultrasound studies of the chest and abdomen, an echocardiogram (heart ultrasound), and tests for various infectious agents.

TREATMENT AND FOLLOW-UP

Treatment Options

Treatment consists initially of removing the fluid from the chest cavity to help alleviate breathing problems. If fluid accumulation continues, a chest tube may be inserted in one or both sides of the chest. The chest tubes may be attached to a low-pressure drainage system to allow constant drainage of fluid when it is accumulating at a rapid rate.

Once the type of fluid and the underlying cause are identified, treatment is designed specifically for that problem. For example, when treating pyothorax (pus in the chest from a bacterial infection), chest tubes are often used to flush infected material out of the chest cavity with saline, and antibiotics are administered. If heart failure is present, appropriate medications are given. Some pleural effusions require surgical intervention. Examples include removal of tumors and foreign bodies, correction of problems related to the abnormal accumulation of chyle (chylothorax), and removal of the sac around the heart if pericardial fluid is the source. (See the handout on **Pericardial Effusion**.)

If fluid analysis reveals a tumor, surgery or chemotherapy or both may be indicated. In some instances, the chemotherapeutic agent is injected directly into the chest cavity for the best results.

Follow-up Care

Intensive monitoring is needed both before and after surgery. Respiratory rate, heart rate, blood oxygen levels, body temperature, and continued production of fluid are monitored. Following open-chest surgery, the animal is usually hospitalized for several days. A chest tube is placed at the end of surgery to monitor for any air or fluid production. After discharge from the hospital, your pet must be strictly confined for several weeks. The timing of recheck visits is usually determined by the postoperative treatments chosen for the specific underlying condition.

Prognosis

Prognosis depends on the cause of the pleural effusion and its response to treatment. Some causes of pleural effusion (such as diaphragmatic hernia and lung lobe torsion) are often cured by surgery. Other causes (such as heart failure and low protein levels) may be controlled with medications for variable periods of time. Pleural effusion from lung, heart, or chest cavity tumors has a grave prognosis.

IF SPECIAL INSTRUCTIONS HAVE BEEN ADDED, THEY WILL APPEAR ON THE LAST PAGE OF THE PRINTOUT.