

Pericardial Effusion

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BASIC INFORMATION

Description

Pericardial effusion is an abnormal accumulation of fluid in the sac around the heart (pericardial sac). A small amount of fluid is always present in the sac, but when an abnormal amount accumulates, the fluid puts pressure on the walls of the heart and keeps the heart from filling properly. Since the heart cannot fill properly, blood backs up, causing signs of heart failure. Severe pressure and lack of filling of the heart is called *cardiac tamponade* and can cause acute death. Pericardial effusion is more common in dogs than in cats.

Causes

In up to 19-23% of dogs the cause is unknown (idiopathic). Tumors, such as hemangiosarcoma, are the most frequent cause. Hemangiosarcoma is a highly malignant tumor that can involve the wall of the right atrium and bleed into the pericardial sac. Golden retrievers and German shepherd dogs are predisposed to hemangiosarcomas.

Heart base tumors form from structures near the heart. They may eventually interfere with the blood supply to the pericardial sac and result in effusion. They are 10 times less common than hemangiosarcomas. The English bulldog, boxer, and Boston terrier are prone to these tumors.

Bacterial infections are uncommon causes and usually arise after penetration of the pericardial sac by a foreign body, via trauma or migration into the chest (such as grass awns). Systemic fungal infections and feline infectious peritonitis virus (in cats) are rare causes.

Clinical Signs

Most animals with significant effusion have a sudden onset of lethargy, weakness, and collapse. Trouble breathing occurs in about half of affected dogs, and 23% have abdominal swelling. Loss of appetite, vomiting, or coughing may be noted. Other signs of an underlying disease may also be present.

Diagnostic Tests

Pericardial effusion may only be suspected when x-rays of the chest show an enlarged heart. An echocardiogram (heart ultrasound) and an electrocardiogram (ECG) may be recommended to differentiate pericardial effusion from other cardiac diseases. Laboratory tests, abdominal x-rays, and an abdominal ultrasound study are often done to look for a cause and to identify any tumors in other organs. Some of these tests may be delayed until fluid is removed from the pericardial sac and the animal is stable. Often, the fluid is submitted for analysis. Additional tests may also be indicated.

TREATMENT AND FOLLOW-UP

Treatment Options

If the effusion is causing symptoms, it is removed by pericardiocentesis, which involves insertion of a catheter into the pericardial sac to drain the fluid. Dogs with idiopathic effusions usually improve markedly after removal of the fluid; however, the effusion usually recurs in 1-2 months. Removal of the pericardial sac may be considered, especially if the effusion recurs. The sac may be removed by open-chest surgery or by thoracoscopy (in which an endoscope passed through small holes in the chest).

Dogs with right atrial hemangiosarcomas are difficult to treat. Pericardiocentesis may provide temporary relief, but the fluid returns within a short time. Surgical removal of the tumor and chemotherapy may be attempted in some cases. Dogs with heart base tumors benefit from removal of the pericardial sac, because these tumors are very slow growing. Treatment of other tumors depends on the tumor type.

Dogs with bacterial infections in the pericardial sac must undergo surgery to remove the sac, followed by chest drains, flushing, and antibiotics. No effective treatment exists for feline infectious peritonitis, but removal of the effusion may temporarily make the cat more comfortable. Appropriate treatments for underlying heart or systemic diseases are also started.

Follow-up Care

Animals with idiopathic effusion that are treated only with pericardiocentesis are often monitored with monthly echocardiograms for several months, then periodically for 1 year. Periodic rechecks are also done for months following removal of the pericardial sac. The frequency of visits for animals with hemangiosarcoma or other tumors is determined by the treatment protocols. Dogs with bacterial infections need intensive monitoring for several months.

Prognosis

Dogs with hemangiosarcomas have an average survival time of 56 days (range, 0 to 229 days). Following surgery to remove the pericardial sac, the average survival time for dogs with heart base tumors is 730 days; without surgery, it is only 42 days. Dogs with idiopathic effusions that do not have the sac removed have a high rate of recurrence within 1-2 months and a high incidence of death from cardiac tamponade. Dogs with idiopathic pericardial effusion that have their pericardial sacs removed soon after the effusion first occurs are often cured.