

Pericardial Effusion

Pericardial effusion is abnormal fluid buildup in the membrane surrounding the heart called the pericardial sac. The clinical signs owners report depends on the amount of fluid accumulation as well as the rate of development of the fluid. Slowly accumulating fluid allows time for the pericardial sac to stretch and expand. Since the heart has time to adjust to the new fluid accumulation the intracardiac pressure does not increase to affect the filling ability of the heart until a critical point is reached. Enlarged hearts can cause compression of the lungs, bronchi, or esophagus. Owners of these patients report coughing or trouble swallowing. If the fluid rapidly fills the pericardial sac it can lead to increased intracardiac pressure and decreased filling of the heart. This leads to decreased cardiac output and shock.

Clinical signs of reduced filling of the heart include anorexia, lethargy, fainting, difficulty breathing, and weakness, vomiting and exercise intolerance. It can also lead to right sided congestive heart failure leading to ascities or fluid build up in the abdomen.

Diagnosis of pericardial effusion can be done by physical examination, radiographs, and cursory ultrasound. Physical examination can reveal poor pulses, dropped pulses (heart beat with no actual pulse on palpation), and muffled heart sounds. Radiographs often show a large globoid appearing cardiac silhouette. Ultrasound or echocardiogram is the most sensitive and specific non-invasive tool. It allows the heart to be visualized. Often times the fluid surrounding the heart and heart function can be assessed.

Treatment of pericardial effusion for patients in shock includes removal of the fluid. This can be done by inserting a needle/catheter into the pericardial sac and pulling the fluid out of the area. Although it is possible to send this fluid out for analysis for tumor cells etc this rarely yields a diagnosis.

There is a wide variety of causes for pericardial effusion. Masses such as hemangiosarcoma, mesotheliomas, lymphosarcoma in cats, and heart based tumors can cause effusion. Other causes include bacterial infection, migrating foreign bodies such as the Foxtail on the west coast, fungal infections in the southwest, left atrial rupture due to mitral valve disease in small breed dogs, coagulopathies, chronic heart failure, and FIP in cats have all been shown to cause pericardial effusion. After all of the causes of pericardial effusion are eliminated some animals are diagnosed with idiopathic pericardial effusion or unknown cause of effusion. Common breeds seen with pericardial effusion include German Shepherds and Golden Retrievers. These breeds often are diagnosed with hemangiosarcoma or idiopathic hemorrhagic pericardial effusion. In young animals congenital hernias can also cause a pericardial effusion.

Long term treatment for pericardial effusion depends on the inciting cause. If repeated removal of the pericardial fluid fails surgical options are available. A subtotal pericardectomy or removal of part of the pericardial sac can be performed. This does not stop the effusion but allows it to drain directly into the chest cavity and avoids compression of the heart.

Prognosis from pericardial effusion again varies depending on the cause. Idiopathic pericardial effusions have a good prognosis while hemangiosarcoma induced hemorrhagic pericardial effusion

has a poorer prognosis. If the effusion is caused by a slow growing tumor such as a heart based tumor, a subtotal pericardectomy may alleviate clinical signs. Occasionally dogs with long standing pericardial effusion can develop inflammatory fibrotic changes to the pericardial sac making it less pliable and causing constrictive pericardial disease.