ANIMAL MATTERS:
Tips & Treatments

Michigan Veterinary Specialists℠
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CARDIOLOGY:
Pericardial Effusion

What is it?

The pericardium is a thin membrane that follows the contour of the heart and forms a sac-like structure. Most of the time, the sac is empty and the membrane serves as a lubricated surface inside which the heart can easily move within. When fluid collects in that sac, we call the fluid pericardial effusion, which ultimately leads to cardiac tamponade.

During cardiac tamponade the fluid puts pressure on the heart to the point that the chambers of the heart cannot expand to fill with blood. If they cannot fill with blood, the heart cannot pump blood to the rest of the body. The most common causes for pericardial effusion include: bleeding from a heart base or right atrial tumor, or idiopathic. Other less common causes include: bleeding secondary to coagulopathy, bacterial or viral infection, heart failure, low blood protein (albumin) levels, or other ill-defined causes.

Clinical signs

The pet may exhibit weakness, lethargy, intolerance to exercise, and decreased appetite. Other gastrointestinal signs, such as gagging or vomiting may be present. Ascites, exertional syncope, or difficulty breathing may also be present.

Physical examination

Heart sounds are typically muffled or quieter than usual. Occasionally, an abnormal rhythm may be present. Pulse quality may be decreased or variable. On abdominal palpation, hepatomegaly and/or a ballotable fluid wave may be present.

Diagnosis

An echocardiogram is the best way to diagnose pericardial effusion, and will show build up of fluid in the pericardium or indicate that the walls of the heart are moving abnormally. Arrhythmias and/or electrical alternans (varying height of the QRS complex) may be visible on an ECG. Thoracic radiographs of the chest may show a very large, round cardiac silhouette as well as enlargement of caudal vena cava. However, if the fluid accumulates rapidly, the size of the cardiac silhouette may be normal on radiographs, at least initially. Blood work including a complete blood count (CBC), serum chemistry profile, and urinalysis may be needed to look for signs of underlying disease processes.

Treatment

In a patient experiencing cardiac tamponade, removing even a small amount of fluid relieves the pressure around the heart and the patient usually feels much better. The heart rate decreases and the character of the femoral pulses improves. The benefits gained from performing pericardiocentesis usually outweigh the potential complications.

The most common complication associated with this treatment is the development of ventricular arrhythmias. So continuous ECG monitoring should be performed during pericardiocentisis. Other less common complications can include puncture or laceration of the heart, lung or major blood vessels; introduction of air into the thorax; or spread of infection or cancer to the remainder of the chest.

Pericardial effusion may re-accumulate over a period of hours to months. The course of continued treatment of pericardial effusion largely depends on the cause. Therefore, further diagnostic testing should be performed to determine the underlying cause. This testing can include, but is not limited to: chest radiographs, abdominal ultrasound, echocardiography, full blood work and urinalysis.

For patients with idiopathic pericardial effusion or those with pericardial effusion secondary to heart base tumors, surgical removal of a portion of the pericardium may be recommended. This allows the fluid that would be trapped within the pericardium to drain into the larger space of the chest cavity, and then be absorbed. In these cases, removal of a portion of the pericardium can offer a good prognosis. However, for patients with pericardial effusion secondary to a right atrial tumor, surgical removal of the pericardium is not recommended. For these patients, periodic pericardiocentisis can be performed as needed for as long as the patient can maintain a good quality of life at home.

MVS Cardiologists:

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Please feel free to call our **Southfield office** to speak with a cardiologist for further information on this disease process and treatment. Our board-certified cardiologists are available for consultations, at our Southfield hospital, Monday through Friday. Emergency phone consults and echocardiograms with a boarded cardiologist are also available after hours by calling MVS emergency service.

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