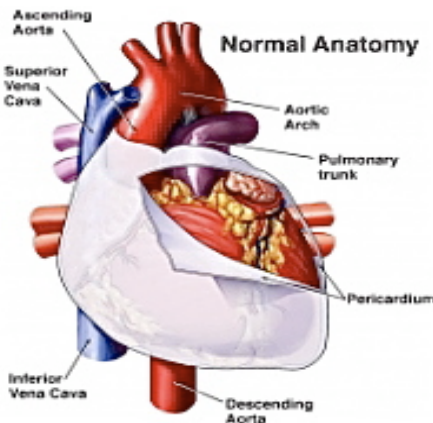


PERICARDIAL EFFUSION



A pericardial effusion is an abnormal accumulation of fluid inside the pericardium, a thin layer of tissue which encloses the heart like a sock. The pericardium does not easily stretch and hence a sudden effusion causes high pressure inside the pericardium, constricting the heart. The heart cannot fill properly, which seriously reduces the amount of blood pumped around the body. This is known as cardiac tamponade, and can be very dangerous.

If the effusion has built up gradually over a long period of time then the pericardium can stretch to a degree, taking much longer for cardiac tamponade to develop.

Pericardial effusions are mainly a problem in dogs. They do occur in cats but this is usually as a result of congestive heart failure rather than as a primary problem.

Causes of Pericardial Effusion

Many pericardial effusions occur without any obvious underlying disease. These are called idiopathic pericardial effusions, and tend to affect middle-aged to older large breed dogs.

Unfortunately tumours (growths) are also common causes of pericardial effusions in dogs. These can be benign, but some can be malignant cancers. A cardiac ultrasound scan can help to differentiate between tumours, since they tend to occur in particular locations.

The most dangerous tumour is a haemangiosarcoma, an aggressive cancer which affects the right auricle at the top of the heart and causes sudden bleeding into the pericardial space. This tumour often spreads quickly to other organs, and so carries a poor prognosis.

Other tumours which are more benign either arise from the great vessels leaving the heart (aortic body tumours) or from the pericardium itself (mesotheliomas). These do not tend to spread to other organs, but can cause ongoing fluid accumulation.

Rare causes include coagulation problems (which stop the blood from clotting and can cause bleeding into the pericardial space) or infections. Infections may result from a penetrating injury or a migrating foreign body (e.g. a grass seed), or alternatively bacteria can be spread in the blood.

Clinical signs

Initial signs are often vague, such as weakness, inappetance and poor exercise ability. As cardiac filling worsens then the slow circulation allows fluid build up in the abdomen and chest, leading to a swollen abdomen (ascites) and breathing difficulties. Eventually this will lead to collapse and even sudden death.

How is it diagnosed?

Pericardial effusion is usually diagnosed using **echocardiography** (a cardiac ultrasound scan). This is painless and non-invasive, and can usually be performed without sedation. Echocardiography is the easiest way to diagnose pericardial effusions, and allows a thorough examination for cardiac abnormalities or growths.

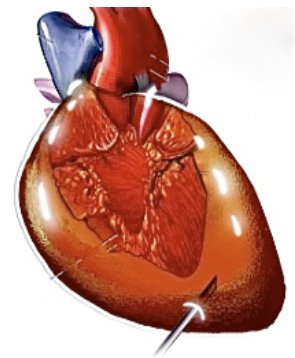
Chest radiographs (X-rays) are often taken to assess the shape of the heart and assess the lungs for evidence of disease or tumour spread.

How can a pericardial effusion be treated?

The signs associated with pericardial effusion can quickly be relieved by **draining the fluid** out of the pericardial space.

The patient is sedated and a needle is carefully placed into the pericardium. This is usually guided using an ultrasound scanner to avoid puncturing the heart muscle. Once all the fluid is drained the heart can return to normal function and the patient's clinical signs will resolve.

The fluid is analysed at a laboratory to look for abnormal cells, which may allow diagnosis of the underlying cause.



Pericardial effusion with needle in place to drain fluid

In some cases it can be very difficult to distinguish between idiopathic pericardial effusions and those caused by tumours. In patients with recurrent effusions but no obvious cause, **surgery** can be performed to remove as much of the pericardium as possible (pericardectomy). This allows the heart and great vessels to be closely inspected, and once removed the pericardium is tested at a laboratory to look for an underlying disease process.

Following surgery, any fluid produced from the small amount of remaining pericardial tissue no longer restricts the heart, and can be absorbed over time from the chest cavity. Many dogs can return to a normal quality of life following surgery without the need for repeated drainage procedures.

In other cases where repeated fluid accumulation occurs, permanent in-dwelling catheters can be placed to allow easy draining. These are special tubes with a port under the skin which can be drained via a needle and syringe after local anaesthetic cream is applied to the skin.

If a tumour is found then we will discuss the options with you. The prognosis depends on the type of tumour involved and how well your dog is coping with the disease. In some cases we may recommend you see one of our medical colleagues to discuss other types of treatment such as **chemotherapy**. This can be very helpful in controlling fluid and giving your pet a good quality of life for longer, and does not always cause the nasty side effects seen in people.