

What is Pericardial Effusion?

Dr. Mike Paul, DVM

Mike has more than 35 years of experience in companion animal veterinary practice and is a valued member of IDEXX's Pet Health Network team since 2013.

You have heard of the pericardium but may not know exactly what or where it is in the body or how it functions.

The pericardium is a double-walled sac, sort of like a balloon inside another balloon. It holds the [heart](#) and the great vessels. Between these layers is a small amount of fluid that serves as a lubricant and a shock absorber. In some situations the pericardial sac can accumulate excess amounts of fluid that can restrict the natural contractions of the heart. Excess accumulation of pericardial fluid can put pressure on the heart preventing it from filling properly -- causing poor heart function.

Causes of accumulation

There are several causes of pericardial fluid accumulation or effusion. [Infections](#), inflammatory and immune mediated diseases, [trauma](#) and [cancer](#) can all result in fluid formation and accumulation.

In dogs, although relatively uncommon, the most frequent cause is cancer often in the form of [Hemangiosarcomas](#). This is an extremely aggressive [tumor](#) and without chemotherapy the survival time is about three months.

In the case of aortic body tumors or mesotheliomas the growth rate is less aggressive and control of the pericardial effusion can be attempted by surgically removing part of the outer pericardium thus creating a drain for the fluid.

Clinical signs of effusion

The clinical signs of pericardial effusion are a result of compression of the heart. Clinical signs can vary greatly and may depend on the rate of development of the effusion. Sudden onset can result in weakness and even collapse. Gradual onset can result in abdominal

distension, fluid accumulation and exercise intolerance.

Diagnosis of effusion

An examination will give an indication that there is pericardial effusion present. The fluid may muffle the heart sounds or dull the intensity of the heartbeat. Radiographs of the chest will indicate enlargement of the heart. Electrocardiograms will reveal small-sized electrical amplitudes. Electrical changes may be seen because of movement of the heart within the pericardial sac. The best means of confirming the presence and diagnosing the cause of pericardial effusion is echocardiography.

Prognosis of effusion

Pericardial effusion is most often caused by a neoplastic process and the prognosis is generally unfavorable. However, partial removal of the pericardium either surgically or endoscopically may result in successful clinical management for some time.

Treatment of effusion

In acute crisis it is advisable to remove the fluid accumulated using a catheter. In most cases, clinical management involves partial removal of the pericardium to allow for drainage of fluid. Surgery is rarely curative. Pericardial effusion associated with hemangiosarcomas should not be treated by pericardectomy since subsequent bleeding episodes can fill the chest cavity resulting in rapid death. These cases are best treated using chemotherapy.

Unfortunately there is no way of predicting or preventing the development of pericardial effusion.

It is important to know that it exists and remember that the vague signs can be very subtle indications simply that "something isn't right."

Always consult your veterinarian if changes in the activity and behavior of your dog occur. [Click here for more information about your dog's heart, which beats 150,000 times per day!](#)

If you have any questions or concerns, you should always visit or call your veterinarian -- they are your best resource to ensure the health and well-being of your pets.

What is Pericardial Effusion?

1. ["Pericardial Effusion." Cleveland Clinic. April 26, 2007.](#)

