



## Pericardial Effusion in Dogs

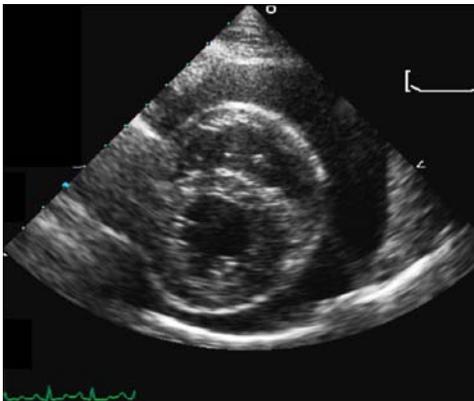
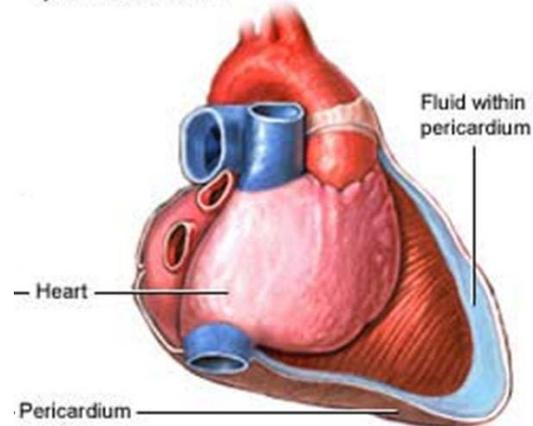
### What is pericardial effusion?

The heart is a powerful organ responsible for pumping blood to the lungs and the rest of the body. It consists of four chambers and is enclosed with a thin, two-layered membranous sac, the *pericardium*. In the space between the two layers of the pericardium there normally exists a very small volume (3-5 milliliters) of fluid that serves as a lubricant. *Pericardial effusion* is the buildup of excessive amounts of fluid within this space.

### Consequences of pericardial effusion

Excess fluid buildup in the pericardial space compresses the heart and compromises its ability to fill properly. In the most severe cases, *cardiac tamponade* occurs and leads to circulatory collapse. If not treated in a timely fashion, these patients experience dangerously low blood pressures, abnormal heart rhythms, and eventually death.

Compression of the heart due to fluid accumulation within the pericardium



### What are the clinical signs of pericardial effusion and how is it diagnosed?

Dogs with pericardial effusion usually develop a sudden onset of lethargy, weakness or collapse. The heart's inability to fill properly also leads to congestion in the systemic veins and leakage of fluid into the abdomen, or *ascites*, which manifests as abdominal distension. Pericardial effusion is suspected by a veterinarian via the patient's history and physical examination findings, and usually confirmed by performing a

screening ultrasound of the chest and identifying fluid around the heart.

### Causes of pericardial effusion

In dogs the two main categories used to describe causes of pericardial effusion are *neoplasia (cancer)* and *idiopathic (unknown cause)*. The presence or absence of a cancerous mass as the cause is confirmed by a veterinary cardiologist during an echocardiogram (cardiac ultrasound). If no mass is identified on the echocardiogram, the effusion is considered idiopathic. Rarely, conditions such as bleeding disorders, rupture of cardiac chambers, or trauma cause pericardial effusion.

In patients with cancerous causes, usually one of two tumor types is present: hemangiosarcoma (HSA) or chemodectoma (heart base mass, HBM). Certain breeds, such as Golden retrievers and German Shepherds are more likely to develop hemangiosarcoma. Brachycephalic (short-faced or short-headed) breeds such as Pugs, Boston Terriers, Boxers, and Bulldogs, are more likely to develop heart base masses.

*If my dog has pericardial effusion, what are the chances the cause is cancer?*

Approximately 50/50. A small number of dogs considered to have an 'idiopathic' cause may have cancer that is too small to be identified on ultrasound.

### Treatment

Definitive treatment for pericardial effusion is manual removal of the fluid by insertion of a long catheter through the chest wall and into the pericardial space under sedation. Although some risk is involved with this procedure, it is commonly performed by veterinary emergency doctors and cardiologists. More importantly, this procedure is life-saving in the short term.

### Prognosis

Prognosis for dogs with pericardial effusion is variable depending on the cause. In patients where the cause is considered idiopathic, some may live months without recurrence. Upon recurrence, surgical removal of the pericardium, or pericardiectomy, is recommended.

Dogs with heart base masses may also live many months prior to recurrence. Surgical resection of the tumor is not possible but pericardiectomy is also recommended in these patients on second recurrence and has been shown to improve survival. Dogs can live many months to years following their diagnosis.

In dogs with hemangiosarcoma, the prognosis is poor. Surgical resection is rarely possible and these tumors are highly metastatic (easily spread to other organs). Survival is expected to be from a few weeks to less than 4-6 months but quality of life between episodes is usually good. Chemotherapy may provide a small survival benefit.