

Dilated Cardiomyopathy in Dogs

What is dilated cardiomyopathy?

Dilated cardiomyopathy (DCM) is a disease of heart muscle that is defined by the two parts of its name. The word “dilated” indicates that one or more (and commonly all) of the four chambers of the heart are abnormally enlarged. The word “cardiomyopathy” indicates an abnormality of the heart muscle. Specifically, the heart muscle in dogs with DCM becomes weak and incapable of pumping blood forward as strongly as it should. In addition, the electrical conduction system in the heart is often affected, sometimes resulting in life-threatening or fatal arrhythmias (abnormalities in cardiac rhythm).

DCM is an acquired type of heart disease, as opposed to congenital heart disease which is present at birth. Although genetic transmission is suspected in many cases, it is not typically manifested until young adult or middle age. Rarely, a deficiency in the amino acid, taurine, is identified as the cause. Most often, however, there is no identifiable underlying cause. While it can occur in any dog, it is most commonly seen in large breed dogs. Some breeds are particularly prone to development of DCM, most notably the Doberman Pinscher.

How is DCM diagnosed?

Prior to the onset of any symptoms, many dogs that develop DCM experience a protracted initial period during which there are no outward signs of disease. This period may last for months or even years, and has been variably designated “occult” or “pre-clinical” cardiomyopathy. Although symptoms are absent, diagnostic testing performed during this time may reveal the presence of arrhythmias as well as early or even more advanced structural changes (e.g. enlargement of heart chambers) typical of DCM.

Abnormalities that may be noted during **physical examination** include the presence of a heart *murmur* (an abnormal “whooshing” sound associated with the normally crisp heart sounds) and weak arterial pulse strength (detected by placing one’s fingers over an artery inside the thigh). An arrhythmia (irregular heart rhythm) may also be detected. Coughing may have been noted in the past, as well as during examination. If congestive heart failure is present at the time of diagnosis, other findings may include noisy breath sounds, increased respiratory rate or effort, abdominal distension, and weakness.

Definitive diagnosis of DCM requires an **echocardiogram** (ultrasound examination of the heart). During this test, the size of the heart’s chambers and the strength with which the heart contracts are measured. Dogs with DCM have enlarged heart chambers and decreased contractile function. In some dogs the chambers on the left side of the heart are predominantly affected (the left atrium and left ventricle), while in many others all four chambers are enlarged. The degree to which the pumping ability of the heart is decreased is variable. All of the above abnormalities tend to progress over time.

Other diagnostic tests are important during initial and followup evaluation. Chest x-rays provide a “big picture” view of the heart and lungs, and are used to assess the presence and severity of congestive heart failure. An electrocardiogram is performed to identify and characterize arrhythmias, and to guide antiarrhythmic therapy if necessary. Blood work and urine analysis are important in the assessment of organ function, particularly that of the kidneys. Kidney values and electrolytes can be affected by the medications used in the treatment of heart disease and heart failure. It is important to monitor these values so that side effects can be avoided or minimized.

How is DCM treated?

Therapy for DCM typically includes an “**ACE inhibitor**,” an example of which is the drug **enalapril**. ACE inhibitors cause blood vessels throughout the body to relax, creating more space within them for fluid. In addition, they help to combat some of the counterproductive hormonal processes that occur as a result of poor cardiac function. The goal of therapy with ACE inhibitors is to reduce the workload placed on the heart.

If congestive heart failure is present or develops after initial diagnosis, **furosemide** (often referred to by one of its brand names, **Lasix**) is begun. Lasix increases urine production and so decreases the amount of fluid retained in the body. Similarly to ACE inhibitors, Lasix reduces the amount of work required by the failing heart.

Digoxin is another medication that is sometimes used. It is particularly useful to treat certain arrhythmias, in which it helps to keep the heart rate slower. It also causes the heart to contract a bit more strongly. Other medications may be used as well, depending on the initial response to therapy, the presence of arrhythmias, and the nature of the symptoms exhibited.

What is the prognosis? What should I watch for?

Prognosis is extremely variable and depends upon whether or not congestive heart failure is already present at the time of initial diagnosis. If there is no evidence of heart failure, the time until it occurs is difficult to predict, but may be a year or more. Unfortunately, once heart failure occurs, long-term prognosis is poor, with average survival time ranging from a few to several months. However, medical therapy is useful to relieve symptoms of heart failure, and can often greatly improve overall quality of life during this time.

Symptoms that may be observed prior to the onset of congestive heart failure include **coughing, intolerance to activity or exercise, lethargy, weakness, and fainting or collapse**. If heart failure develops, symptoms may include the above as well as **rapid or labored breathing**. Potential side effects of medications used to treat DCM and heart failure overlap with those already mentioned and include lethargy, weakness, and **loss of appetite**. If any of the above symptoms are noted, or if you have any questions or concerns, please call your veterinarian or Dr. Marshall at Veterinary Specialty Services immediately to discuss an appropriate plan. Problems that are caught early are more easily corrected and less likely to require a visit to the hospital. If you feel that the problem should not wait and requires immediate attention, then an emergency visit is warranted.