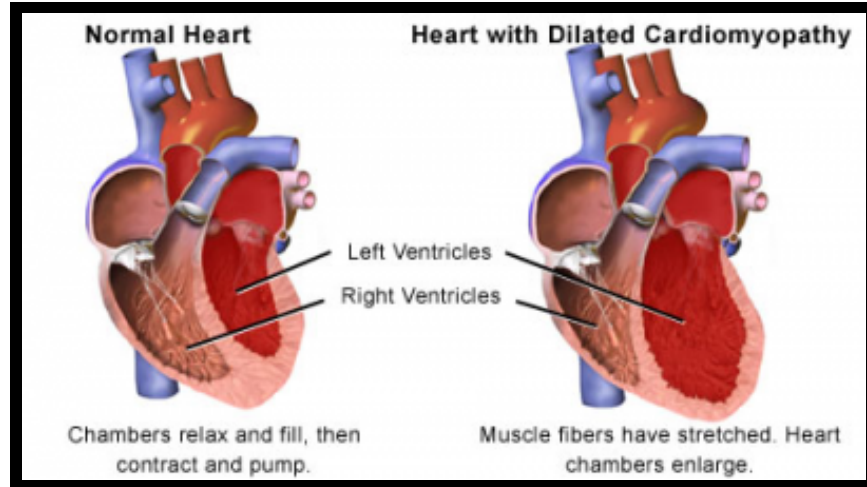


Dilated Cardiomyopathy (DCM)



Dilated Cardiomyopathy

Your dog has been diagnosed with dilated cardiomyopathy (DCM). This is a disease of the heart muscle that results in diminished contractile function and dilation of the heart.

In order to understand how this disease may affect your dog, it is important to understand normal circulation in the heart. Blood drains from the body into the right collecting chamber (called "atrium") where it passes through the tricuspid valve and into the right pumping chamber (called "ventricle"). From here, blood is pumped into the pulmonary artery and subsequently to the lungs where it picks up oxygen. The oxygenated blood then drains passively into the left atrium, through the mitral valve, and into the left ventricle. The left ventricle then pumps the blood through the aorta and back to the body.

In dogs with DCM, the muscle of the ventricle becomes weak and has decreased contractile function (called "systolic dysfunction"). In an attempt to compensate for the decreased systolic function, the heart dilates to help move more blood forward out to the body. As the disease progresses, the forward flow of blood diminishes, and in the severe stage, heart failure can develop.

Causes of Dilated Cardiomyopathy

There are many potential causes of the disease but the vast majority of clinical cases are "idiopathic" meaning that the cause is unknown. There are some rare, but partially reversible causes of DCM:

- **Taurine Deficiency:** Taurine is an amino acid (building block of protein) that is metabolized abnormally in some dogs. It is rare but when taurine deficiency is identified, is partially treatable.
- **Hypothyroidism:** Thyroid is a hormone that helps maintain metabolism, and is also essential for heart function. In rare cases, dogs with severely decreased thyroid levels (hypothyroidism), can develop reversible DCM.
- **L-Carnitine Deficiency:** L-Carnitine is an important molecule that is essential for myocardial metabolism. In very rare and unique cases, supplementation with L-Carnitine has been shown to improve systolic function in specific breeds of dogs (Boxers) with DCM.

Unfortunately, most cases of DCM are idiopathic or genetic and slowly progress to congestive heart failure despite treatment. There is a wide range of disease, ranging from "occult" disease (meaning that the dog has no overt signs of disease but has changes that can be detected by your cardiologist) to overt disease with clinical signs of heart failure.

Diagnosing Dilated Cardiomyopathy

Dogs with occult disease have no signs of heart disease, and changes can only be detected by an ultrasound of the heart (called "echocardiogram"). Your veterinarian may hear a soft heart murmur on examination, or notice an abnormal heart rhythm (called "arrhythmia"). Other more severe signs include collapse episodes, or signs of heart failure (increased respiratory rate, coughing, lethargy).

There are some breeds of dog that are predisposed to DCM, such as Doberman Pinschers and "giant breed" dogs such as Great Danes and Irish Wolfhounds. In these breeds, disease is typically detected around middle age. In some cases, such as when dogs have a family history of disease, "screening" for heart disease with echocardiography may be recommended.

Echocardiography: An echocardiogram allows us to look inside of the heart and assess the heart's structure and function. This is the best way to diagnose DCM. The echocardiogram will be repeated periodically to monitor for changes in heart function.

Chest x-rays: Dogs with DCM should be monitored at home for a cough or an increase in respiratory rate (greater than 40 breaths per minute) or effort. If any of these occur, a chest x-ray should be taken to evaluate for the presence of fluid in the lungs (called "pulmonary edema") which is a sign of heart failure.

Electrocardiography and Holter monitoring: Dogs with DCM can also develop arrhythmias (abnormal heart rhythms) which can result in weakness or collapse episodes. Arrhythmias require close monitoring by electrocardiogram (ECG) and/or Holter monitoring (24 hour ECG) and are typically treated by specific anti-arrhythmic medications.

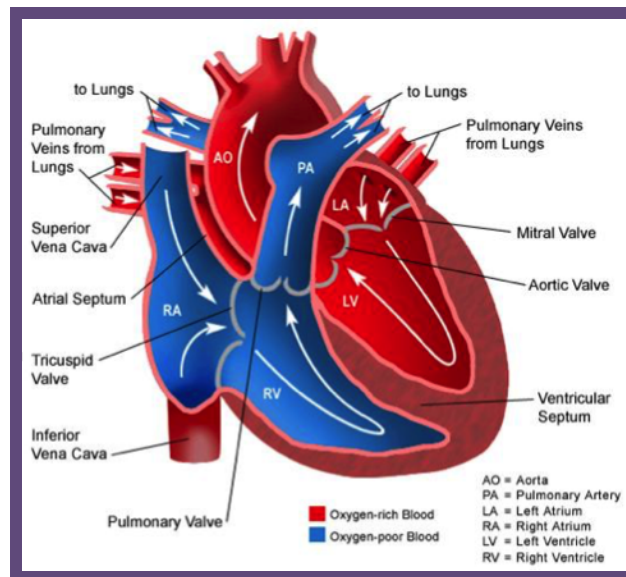
Bloodwork: Depending on the stage or severity of your dog's disease, medications may be prescribed, especially if your dog is in heart failure.

Some cardiac medications can adversely affect the kidneys. For this reason, it is important to monitor kidney function with blood tests as new medications are introduced or dosage changes are made.

Genetic Testing: You may read about genetic testing for some dogs with DCM. These genetic tests are currently specific to Boxers and Dobermans. For these breeds, genetic testing is primarily helpful for breeders. Not all genetic markers of DCM have been identified, and therefore a negative genetic test does not guarantee that your dog will not develop DCM, and conversely, some dogs with positive genetic tests, do not develop disease.

Treatment for Dilated Cardiomyopathy

For dogs with heart failure, there are several medications that are currently being investigated which may delay the progression of DCM to heart failure that we will discuss with you. Thankfully, most dogs with DCM feel good as long as their congestive heart failure is controlled. We will work closely with your family veterinarian to ensure that your dog gets the best care possible.



Flow of blood through a normal heart.