EAST COAST VETERINARY CARDIOLOGY

# Dilated Cardiomyopathy

Dilated cardiomyopathy (DCM) is a type of heart muscle disease where the contractility (strength) of the heart is inherently reduced, resulting in secondary dilation of the heart. In general, DCM tends to affect large and giant breed dogs – Doberman Pinschers, Irish Wolfhounds, and Great Danes are more commonly affected breeds. Occasionally smaller breed dogs can be affected such as the Cocker Spaniel. It estimated that between 45-63% of Dobermans in North America are affected with DCM. In general, DCM tends to affect older dogs (age of onset is typically between 5-7 years) and males are often over-represented. In rare cases, dogs as young as 2 years of age can develop DCM. A juvenile form of DCM has been reported in very young Portuguese Water Dogs. The cause in many veterinary patients is idiopathic (meaning no underlying cause), but associated etiologies may include infectious (Parvovirus, Distemper, fungal, parasitic such as Trypanosoma Cruzi), endocrine disease (severe hypothyroidism), drugs/toxins (doxorubicin, catecholamines), arrhythmias (tachycardia induced dilated cardiomyopathy), nutritional (taurine deficiency, patients fed a grain free diet), or muscular dystrophy.

The disease is generally associated with a longer occult (asymptomatic) period which may last for several years prior to development of overt clinical signs. During this phase of disease, affected dogs will have evidence of ventricular dilation and/or the presence of ventricular arrhythmias on an electrocardiogram (ECG). Therefore, screening high risk breeds is critical as early detection of the disease in the occult phase can help delay progression of the disease. In the Doberman breed, early diagnosis of DCM in the occult phase with initiation of therapy with Vetmedin significantly prolongs the time to the onset of clinical signs and improves survival in affected dogs (the PROTECT study). Other studies have also shown benefit of other therapies such as ACE inhibitors in the occult phase of the disease. Therefore, initiation of screening in high risk breeds should commence at approximately 3-4 years. It is important to remember that a one-

time screening is not sufficient to exclude the possibility of development of DCM in the future – therefore, annual screening is recommended as the disease can develop with age. Echocardiography and Holter monitoring (a 24-hour ambulatory ECG) are generally the best test for screening high risk individuals.

The symptomatic phase of the disease is generally associated with the development of congestive heart failure (CHF) – this refers to fluid accumulation within the lungs (pulmonary edema), outside of the lungs (pleural effusion) and in the abdominal cavity (ascites). Patients in CHF generally exhibit signs of labored breathing, coughing, exercise intolerance, abdominal distension and a reduced appetite. Fainting (syncope) can sometime be the first sign of disease, prior to the onset of CHF. And unfortunately in some cases, sudden death can occur prior to development of any other overt signs.

Average survival times once in CHF are generally 6-12 months but in some breeds, such as the Doberman, it is typically less. Arrhythmias can be common and can consist of ventricular arrhythmias and can be fatal. It is estimated that sudden death occurs in approximately 25-30% of affected dogs. These arrhythmias can be worse during excitement (such as strenuous play) therefore controlled activity is recommended. Affected dogs are at risk for atrial fibrillation, which dramatically decreases survival times in some affected dogs. In those dogs with an underlying cause for their DCM, prognosis can be improved with addressing the underlying etiology – this may include the addition of taurine to the diet (if taurine deficiency is diagnosed), a change of diet (if a grain free diet was fed) or addressing any primary arrhythmias (such as in dogs with tachycardia induced cardiomyopathy).

Treatment for dogs with DCM and CHF is aimed to help improve systolic function and address the congestive heart failure (ACE inhibitors, diuretics). In patients with arrhythmias, anti-arrhythmic therapy is also prescribed. Exercise and diet modifications may also be helpful in management of the disease.

## Key Points

DCM is most common in larger breed dogs, particularly the Doberman.

Early detection of disease will improve survival and delay onset of clinical signs.

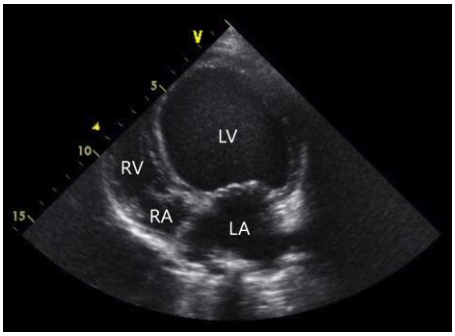
Early medical therapy generally entails the use of Vetmedin and an ACE inhibitor.

Affected dogs are at risk for congestive heart failure, arrhythmias and even sudden death.

Early diagnosis involves the use of echocardiography and Holter monitoring.

Signs of disease can include labored breathing, coughing, exercise intolerance, abdominal distension and fainting (syncope).

If you are concerned about DCM in your dog (high risk breed, clinical signs of DCM), please talk to your family veterinarian about a cardiac evaluation for your pet.




An echocardiogram (ultrasound) of a dog with dilated cardiomyopathy – the left ventricle is significantly dilated and spherical in appearance with thinning noted of the left ventricular walls. LA = left atrium, RA = right atrium, LV = left ventricle, RV = right ventricle