



Dilated Cardiomyopathy: the silent killer

by Dr. Janet Olson, DVM, DACVIM (Cardiology)

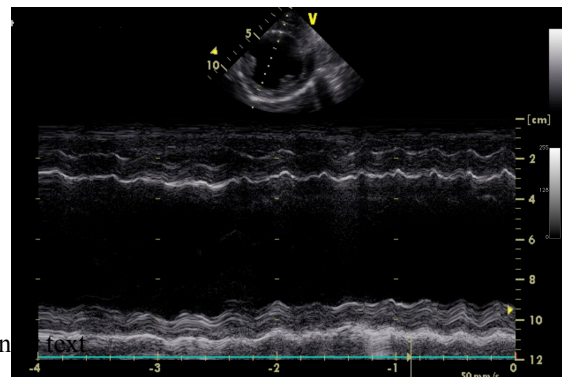
Case Report:

7 year old, male neutered, 17.9 kg Whippet. No clinical signs. No heart murmur. Presented for a routine cardiac screening, simply because he is a whippet. And look what we found...

Thoracic Radiograph V/D

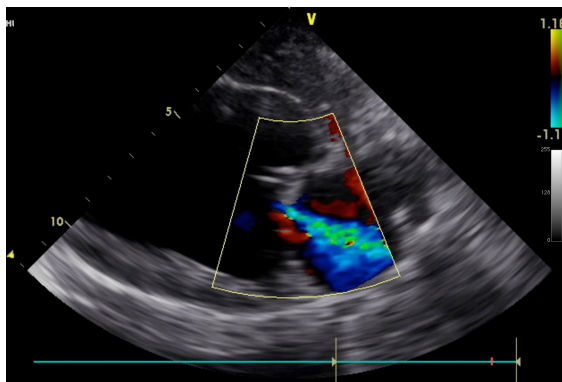


Echocardiogram



**Left Ventricle Diameter -
M-mode: 7.1
cm (normal =
4.5 cm)**

**%FS: 11%
(normal >
22%)**



**Blue/green color
variance indicates
mitral
regurgitation**

Wow! That's a big heart, with very poor left ventricular systolic function and notable mitral regurgitation. Why no murmur?

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Dilated Cardiomyopathy (DCM) is a primary heart muscle disorder which leads to dilation of the left ventricle. The valvular incompetence is a secondary issue. The mitral valve annulus pulls apart as a consequence of the left ventricular dilation. As the annulus pulls apart, the mitral valve leaflets can no longer coaptate and create a tight seal when the heart contracts. This allows blood to leak across the valve. So, mitral regurgitation occurs in advanced dilated cardiomyopathy. This is in direct opposition to the mitral regurgitation associated with chronic degenerative valve disease (CDVD). With CDVD, a leaky heart valve is the first concern, which over time can lead to heart enlargement. In summary: dilated cardiomyopathy >> severe heart enlargement, then murmur vs. CDVD >> murmur, then severe heart heart enlargement.

So, why no murmur in this case? He clearly has severe heart disease. Heart murmurs are created by high velocity, turbulent blood flow. In DCM, the left ventricle is dilated and not contracting well. So even if there is a leak across the valve, the blood regurgitating across the valve is typically not flowing at a high speed. Low velocity >> no sound. Yes, some dogs with DCM do have heart murmurs that we can hear. But, they are often soft. Again, this is in opposition to the CDVD dogs. These dogs have good, if not exaggerated left ventricular systolic function (their heart is contracting very well). This leads to high velocity blood flow across the valve and is therefore associated with loud murmurs.

How do we address this issue?

Encourage routine heart screens on all dogs predisposed to dilated cardiomyopathy to include annual thoracic radiographs. If heart enlargement noted, recommend an echocardiogram. Note that Holter monitors are also recommended in DCM patients as ventricular ectopy is also a major concern.

What breeds? When do we start?

Dobermans, Boxer dogs, Great Danes and Whippets are among the top breeds to develop DCM. It is recommended to start screening at 3 years of age.

What can be done if we diagnose occult DCM?

A recent study showed that initiating Pimobendan (Vetmendin) during the occult stage of the disease can significantly prolong the onset to heart failure and trended toward overall increased survival times. The use of enalapril in occult DCM may also be of benefit.