

Veterinary Centre

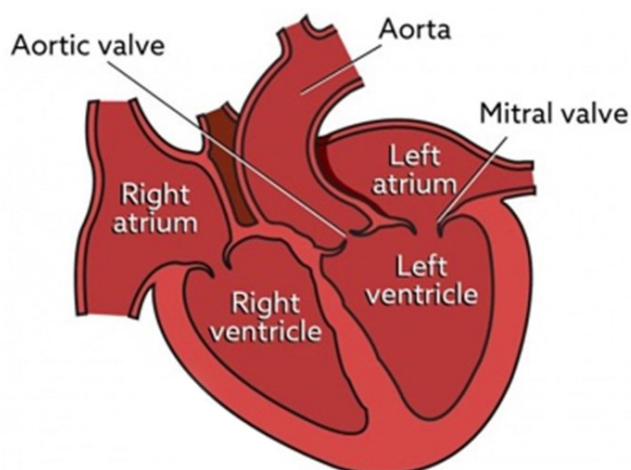
Myxomatous Mitral Valve Disease (MMVD)

INFO
Sheet

What is MMVD Disease?

The heart has four chambers. The upper chambers are called atria (the right atrium and left atrium) and the lower chambers are called ventricles (right ventricle and left ventricle).

The valve between the left atrium and left ventricle is called the mitral valve.



The valves act as a gate allowing blood to flow in only one direction. In MVDD the mitral valve (most commonly, though other valves can be affected) which normally are thin, translucent and soft, become thickened. This means the valves don't work effectively and blood is able to leak back into the previous chamber.

The severity of valve leakage is dependent on the severity of valve lesions; usually the valve leakage is comparatively mild in the early stages, but it progressively worsens with time. Progression of the disease varies between individuals, but affected dogs can usually tolerate the disease for years. Eventually the heart might become incapable of meeting the increased workload imposed upon it and congestive heart failure (CHF) develops.

The disease is most commonly seen in dogs of small- to medium-sized breeds, such as Cavalier King Charles Spaniels (CKCS), Dachshunds, Miniature Poodles, and Yorkshire Terriers, but dogs of any breed can be affected. What exactly is causing MMVD is currently not known, but the current leading scientific belief is that genes and inheritance are important for initiating the valve lesions. The reason is that some breeds, such as the CKCS and Dachshund, are pre-disposed to an early onset of MMVD and the age of onset is inherited in these affected breeds.



What is Congestive Heart Failure?

A heart murmur can progress into congestive heart failure. This is where the heart isn't able to work effectively at getting blood pumped around the body. As a consequence, fluid can start to build up in the lungs causing changes in energy levels and a cough. This is a serious condition.

Coughing can be caused by heart disease for a couple of reasons. First of all, the heart getting bigger can push on the windpipe in the chest causing coughing. Secondly, if the leaky

mitral valve is letting too much blood flows backward, fluid accumulates in the lungs, causing coughing.

That said, not all coughing means heart disease. In other cases, coughing may be caused by a respiratory issue rather than a heart issue. This includes bronchitis, allergies, pneumonia, asthma, or kennel cough.

How is MMVD Diagnosed?

There are several tests that provide valuable information while looking at different aspects of heart function. We will advise you which tests are best for your pet but may include:

Physical examination will determine if there are other symptoms or underlying conditions that may complicate or be affected by heart disease.

Auscultation or listening to the heart and lungs with a stethoscope is the first step in diagnosing heart disease. Pulse quality and heart rate and rhythm are also assessed during auscultation. Fluid in the lungs (pulmonary oedema) can often be detected with a stethoscope.

Chest radiographs (X-rays) are used to determine the size and shape of the heart and the presence of fluid in the lungs. Additionally, the lungs are examined for any abnormalities such as enlarged blood vessels (pulmonary hypertension).

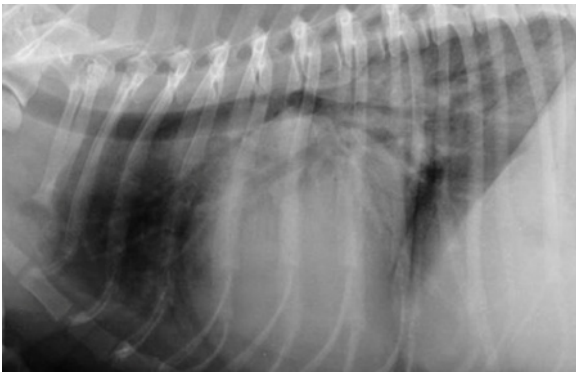
Signs of Congestive Heart Failure:

- Lethargy
- Fainting/collapsing
- Coughing
- Not able to exercise as well
- Trouble breathing
- Fluid build-up in the abdomen.

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Blood and urine tests are performed to give an indication of any other disorders in the body. Liver and kidney function are often decreased in dogs with heart disease.

Ultrasound examination (echocardiogram) utilises sound waves to evaluate the heart's contractions and to measure the amount of blood pumped by the heart. This test is the most useful one to assess the heart's function, and serial (repeated) examinations are recommended to chart the progress of disease and the response to treatment.

The combination of all of these tests gives the best evaluation of the dog and its heart function.

Blood pressure is assessed as changes in blood pressure (usually increased) are common in heart disease.

Based on the results of the radiographs and ultrasound the degree of mitral disease is staged according to severity. This allows us to provide recommendations for treatment and to monitor the progression of disease.

Monitoring at Home

Dogs with minimal heart enlargement should be treated as normal dogs. The first signs of CHF often include shortness of breath, exercise intolerance, or cough – these signs should prompt you to give us a call. Additionally, at home, you can monitor for progression by recording the **resting respiratory rate (RRR)** twice a week. This means counting the breathing rate during sleep or rest. When your dog is at rest, watch their sides rise and fall as they breathe normally. One rise and fall cycle is equal to one breath. Count the number of breaths they take in 15 seconds, then multiply this number by 4 to get total breaths per minute. For example, if you count 8 breaths in 15 seconds, that is equal to 32 (8 x 4) breaths per minute. **A normal dog at rest should have a respiratory rate less than 36.**

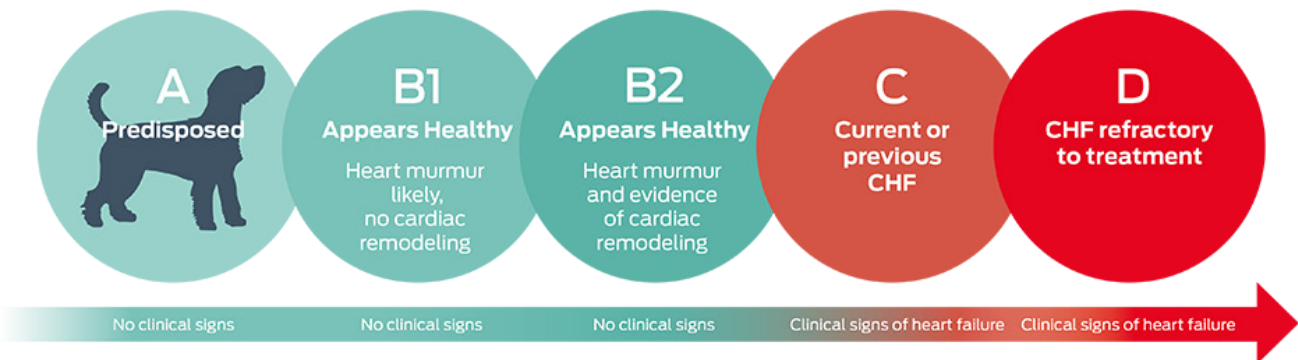
If you notice this number increasing consistently, or notice an increase in the effort it takes to breathe, please give us a call. You can also monitor for any lethargy, collapse, exercise intolerance, coughing or decrease in appetite.



Is Diet Important?

While some salt restriction (e.g. avoidance of high salt treats) is ideal for most dogs with significant MVD, and moderate salt restriction aids CHF treatment, it's important that your dog's appetite remains good, and his or her caloric and protein needs are met. Avoiding non-traditional grain free diets rich in legumes, such as lentils, chickpeas and green peas, is advised.

ACVIM stages of MMVD in dogs



Treatment

Treatment depends on the severity of the leaky valve and the degree of heart enlargement. Mild leakage with minimal or no heart enlargement is typically monitored every 6 months without treatment (Stage B1). Dogs with significant heart enlargement (Stage B2) benefit from medication to delay the onset of congestive heart failure (CHF). Dogs that experience CHF (Stage C and D) require additional medication and more intensive monitoring and support.

What is the Prognosis with MMVD?

Many older dogs affected with MMVD will not have their lifespan limited by their heart disease. The rate of disease progression varies, but it most often takes years before clinical signs of CHF develop. After CHF develops, dogs are expected to continue to have an excellent quality of life with treatment, and most survive for an additional 12-18 months, although their survival time varies widely.