

Heathcote Veterinary Clinic

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Hospital Hours
Monday to Friday 9.00am – 7.00pm
Saturday from 9.00am
Sunday 9.00am – 12.00pm

Heart Disease - Mitral Valve Insufficiency (MVI)

What is the mitral valve?

The heart has four chambers. The upper chambers are called atria (one chamber is called an atrium) and the lower chambers are called ventricles. The heart is also divided into right and left sides. Each chamber of the heart has a one-way valve to keep blood from flowing backward. The valve between the left atrium and left ventricle is called the mitral valve.

In a case of MVI, the valves of the heart do not seal properly, allowing blood to leak backward into the left atrium. This eventually leads to a heart murmur. The valve leakage increases the load on the heart, which is not able to adequately pump blood to the rest of the body and may become enlarged from the excess blood. MVI is a degenerative progressive disease.

What causes Mitral Valve Insufficiency?

Because of the pressure created when the left ventricle contracts, the mitral valve wears out in many dogs. This wearing out process begins with a small leak that gradually gets more severe. This is known as mitral valve insufficiency (MVI) or mitral regurgitation and is often associated with a heart murmur. Other causes of mitral valve insufficiency include ruptured chordae tendinae and heart valve infections many of which are a secondary result of dental disease.

What are the signs of heart failure?

The earliest sign of a leaking mitral valve is a heart murmur. This is produced by the turbulence created when some of the blood goes backward through the leaking valve and into the left atrium. A murmur does not mean that heart failure is imminent, but as time goes on, the leak will become more severe as more and more blood travels backward into the left atrium. This results in reduced pumping efficiency and, eventually, congestive heart failure. It may be a few months to several years until heart failure occurs.

Dogs with heart failure are usually sick whereas dogs with heart murmurs may have few, if any, clinical signs until heart failure develops.

Common signs of heart failure are:

- gagging as if trying to clear the throat
- chronic, hacking cough
- lack of stamina.

How is heart failure diagnosed?

- **Physical examination**, including listening to the heart and lungs, will determine if there are other symptoms or underlying conditions that may complicate or be affected by heart disease. Fluid in the lungs (pulmonary oedema) can often be detected with a stethoscope.
- **Chest x-rays** are used to determine the size and shape of the heart and the presence of fluid in the lungs.
- **Blood and urine tests** are performed to give an indication of any other disorders in the body. Liver and kidney function are often impaired in dogs with heart disease. These are done regularly during treatment.
- An electrocardiogram (ECG) may be performed to measure the electrical activity of the heart and allow accurate determination of both heart rate and rhythm.

- Ultrasound examination (echocardiogram) may also be performed by a veterinary specialist. This test is the most useful one to assess the heart's function, and serial 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.

What is the treatment for MVI?

It is important to remember that there is no cure for MVI. It is a progressive disease, worsening over time. The role of medications is to slow this progression and help the heart be more efficient in pumping blood through the body.

- **Angiotensin Converting Enzyme (ACE) inhibitors** - ACE-inhibitors work by lowering blood pressure and reducing the after-load or resistance to blood flowing out of the heart. They are one of the most powerful and commonly used classes of drugs for heart disease in both humans and pets. Enalapril and benazepril are commonly used ACE-inhibitors in dogs.
- **Vasodilators** - These drugs dilate the arteries and veins of the body to permit better blood flow. They are effective long-term treatments for patients with MVI.
- **Inodilator** (Pimobendan) exerts its effects via 2 mechanisms. It acts to increase the strength of the heart's contractions and as a vasodilator.
- **Diuretics** - These are drugs that stimulate the kidneys to remove excess fluid from the body. Furosemide (Frudix) and spironolactone are the most commonly used diuretics in veterinary patients

All animals will start out with our compounded benazepril/pimobendan capsules and Frudix tablets. These medications will need to be taken every day for the rest of the animal's life. The dose of the compounded capsule will remain constant throughout the treatment. The Frudix dose will change as the disease slowly progresses and an additional diuretic may need to be added in the later stages of the disease.

How will I know if my dog's Frudix dose needs to be changed?

There are two ways to do this. Regular check-ups at our clinic every 6 months and counting your dog's Resting Respiratory Rate (RRR). Counting the RRR is very easy to do and often changes before a cough appears. When your dog is asleep count the number of times his/her chest rises & falls in a minute without disturbing them. Less than 25 breaths/min may indicate that the dose of the diuretic may be lowered and more than 35 breaths/min is highly suggestive of the need for increased diuretic dosing. If you notice the above mentioned RRR please schedule an appointment with us as soon as possible so we can determine if a dose change is appropriate for your pet.

How much longer will my dog live?

There are many factors that must be considered before that question can be answered. The results of the diagnostic tests are important and your pet's response to treatment is another indicator. If a favourable response does not occur within a few days, especially in more advanced cases, the prognosis is not good. However, most dogs that stabilize quickly will live a good quality of life that with treatment is extended for many months or a few years.