

**Myxomatous mitral valve disease** (MMVD) – also called chronic degenerative mitral valve disease (DMVD), endocardiosis, or sometimes just called mitral valve disease (MVD) is the most common heart disease in dogs. We most commonly see this in small breed dogs – the Cavalier King Charles Spaniel is particularly prone to this, but we also see MMVD in larger breeds such as Collie and Lurchers and also Labradors and Dobermanns. It can happen in any breed.

MMVD is most common in older dogs and it is a progressive degeneration of the valve. This valve separates the left atrium (the upper chamber for storing blood returning from the lungs) from the left ventricle (the lower chamber and high pressure pump that sends blood to the body). Other valves can also be affected to a lesser degree.

Healthy valves open and close when the heart pumps, sealing to prevent backflow of blood. With MMVD, the valve becomes floppy and thickened and can bulge backwards (prolapse), allowing blood to leak back into the left atrium. This squirt of blood creates a sound which we hear with a stethoscope and call a murmur.

To pump more blood to compensate for the leak, the chambers enlarge. The bigger the leak, the harder the heart has to work to make up for the leak and the bigger the chambers become.

Eventually the heart struggles to pump the blood and fluid leaks out into the lungs. This is called pulmonary oedema, and causes difficulty in breathing, with a faster breathing rate (see our SRR information sheet). This stage of heart disease is called congestive heart failure (CHF).

Many small breed dogs also cough at this stage because the enlarged heart is pushing on the airways. In some dogs, a soft cough develops when the lungs fill with fluid.

Other signs (we call these clinical signs) can include a reduced ability to exercise, or slowing down on exercise. Exercise intolerance can be due to other problems such as arthritis, and older dogs will get slower, but it's important to identify if heart disease is the cause in dogs that slow down on walks.

**Diagnosis:** We can usually make an educated guess when we hear that a small dog with a heart murmur developed in later life is due to MMVD. To confirm the diagnosis, we use echocardiography (a cardiac ultrasound scan) which allows us to see the changes in the valve, show the leak with colour imaging, and measure the heart size to see how bad the disease is. Echocardiography is painless and non-invasive, and usually does not even require sedation. A small amount of hair clipping is usually necessary for ultrasound scans.

Echocardiograms give their most reliable results when high quality equipment is in the hands of an experienced cardiologist – but vets can take further training to acquire these skills.

There is a very clear review of mitral valve disease – with a really good animation explaining the leaking of the valves at <https://www.vetmedin.co.uk/small-dogs>

**Treatment:** We now know that treating dogs with MMVD ahead of the development of clinical signs can allow them to have a much longer periods of good quality life. This doesn't mean that all dogs with MMVD need treatment, our evidence is that this should be started when the heart gets sufficiently large (based on an echocardiogram). At that stage we use the drug Vetmedin (pimobendan). When (or if) a dog develops CHF we add to this treatment with diuretics to reduce oedema and in some cases drugs such as spironolactone and ACE inhibitors which can improve quality of life and extend lifespan.

There is a good explanation of the progression of mitral valve disease at this site  
<https://www.healthyheartsfordogs.com.au/heart-disease/stages-of-heart-disease/>