

Myxomatous Mitral Valve Disease (MMVD) in Dogs



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What is Myxomatous or Degenerative Mitral Valve Disease?

Myxomatous or degenerative mitral valve disease (MMVD) is a common disease of the heart valves that primarily affects older, small to medium size dogs, although any dog can be affected.

Predisposed breeds include the Cavalier King Charles Spaniel, Maltese, Chihuahua, Yorkshire Terrier, Miniature Schnauzer and Dachshund. The underlying cause of the valve degeneration is unknown. The mitral valve is the valve between the left atrium and ventricle (the main pumping chamber of the heart). The degenerative changes of the mitral valve allow the blood to leak backwards when the heart contracts, so less blood is going forward to the body. This backward flow is called "mitral regurgitation". Over time, mitral regurgitation causes the heart to enlarge and possibly result in congestive heart failure. The tricuspid valve (valve between the right atrium and ventricle) is also commonly affected but usually to a lesser degree; backwards flow on the right side of the heart is called "tricuspid regurgitation".

Though many dogs are affected with MMVD in their later years, only about 25 – 50% of those experience clinical signs of congestive heart failure (fluid build-up within the lungs).

How is MMVD diagnosed?

MMVD is usually first detected when a heart murmur is heard with a stethoscope during a physical exam by your veterinarian. The murmur is caused by the turbulence of the blood going in the backwards direction through the leaky valve. Thoracic radiographs (chest x-rays), an echocardiogram (ultrasound of the heart) or both are used to assess the severity of the leak and the extent of heart enlargement. A blood test for heart disease (NT-proBNP) can also be used to help determine the severity of the heart disease.

How is MMVD treated?

Treatment depends on the severity of the mitral regurgitation and the degree of heart enlargement. Mild MMVD with minimal or no heart enlargement (MMVD Stage B1) is typically monitored at regular intervals without treatment. Dogs with more significant heart enlargement (MMVD Stage B2) benefit from medications, such as pimobendan and possibly an ACE-inhibitor, to delay the onset to heart failure. Dogs that experience congestive heart failure (MMVD Stages C and D) require additional medications (diuretics), and some dogs may need to be hospitalized briefly for urgent heart failure treatment.

Medications only control the clinical signs of heart failure and do not treat the primary valve problem. Open heart surgery and mitral valve repair is commonly performed in people, but there are only a few centers in the world that perform surgical mitral valve repair in pet dogs. Another technique to reduce the valvular leak is transcatheter edge-to-edge repair (TEER), a hybrid surgical technique that does not require open heart surgery. This technique is also only offered for pet dogs at a few centers in the USA. The advantages and disadvantages of these advanced repair techniques can be discussed further with your dog's veterinary cardiologist.

How is MMVD monitored by my veterinarian and my cardiologist?

Dogs with MMVD and minimal heart enlargement (Stage B1) should be treated as normal dogs, requiring only usual (annual or semiannual) monitoring. Although an echocardiogram is often initially performed during the diagnosis, regular follow-up echocardiograms may not be needed at every assessment, and radiographs may provide a more cost-effective means of monitoring heart size and disease progression. Periodic bloodwork may be suggested to monitor kidney function, especially older dogs, and those on ACE-inhibitors. Dogs that have experienced heart failure are followed more closely with blood pressure and bloodwork, typically every 3-6 months or after medication changes.

How can I tell how my dog is doing at home?

Home monitoring is important to identify early signs of progression and early heart failure. Signs of heart failure often include shortness of breath, appetite changes, exercise intolerance, weakness/collapse, or cough – these signs should prompt a call and usually a vet visit. Monitoring the breathing rate during sleep or complete rest provides a sensitive indicator of possible early heart failure. Normal breathing rate at home is less than 30 breaths per minute. There are two smart phone apps that simplify obtaining and tracking the breathing rate (“Cardalis”, “My Pet’s Heart2Heart”); these can be downloaded from your app store.

Is diet important?

While some salt restriction (e.g., avoidance of high salt treats) is ideal for most dogs with significant MMVD (Stage B2, C or D), and moderate salt restriction aids CHF treatment, it is important that your dog’s appetite remains good and that his or her caloric and protein needs are met. Avoiding non-traditional diets rich in legumes, such as lentils, chickpeas, and green peas, is advised. Ask your dog’s veterinarian for advice regarding recommended diets for your dog’s age, activity level and cardiac condition.

What is the prognosis for dogs with MMVD?

The prognosis for dogs with MMVD varies with the stage of disease and rate of progression. Many older dogs affected with MMVD will not have their lifespan limited by their valve disease. The rate of disease progression varies, but it most often takes years after a heart murmur is detected before clinical signs of heart failure develop. Although survival time after heart failure develops varies, most dogs should have a good quality of life with treatment for CHF, and most survive for an additional 12-18 months with consistent therapy.

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