

# Mitral valve insufficiency

Your dog has been diagnosed with mitral valve insufficiency. The mitral valve is located between the left atrium and the left ventricle of the heart. When the heart contracts, this valve closes so that the blood can flow into the aorta instead of being pressed back into the left atrium. Chronic fibrosis (“endocardiosis” or “myxomatous degeneration”) of the mitral valve causes leakage and backflow of blood into the left atrium during a contraction. This creates a volume overload for both, the left atrium and left ventricle, causing them to dilate. Often, the corresponding valve on the right side of the heart, the tricuspid valve, is also involved, causing volume overload of the right heart.

Chronic mitral valve fibrosis with subsequent valvular insufficiency is the most frequent cause of congestive heart failure in the dog. Small breeds and older dogs are most often affected. Different phases of the disease can usually be recognized and echocardiography and chest radiographs (“x-rays”) are very helpful in determining extent of the disease and need for treatment. Other important diagnostics often include an ECG, blood pressure and blood work.

## **American College of Cardiology/American Heart Association Classification**

### **Stage A**

A heart murmur is present but the dog is asymptomatic – no clinical signs are seen. Thoracic radiographs are normal or show mild left atrial enlargement. Echocardiography (“echo”) shows no structural changes yet. This means generally that no treatment is needed and the prognosis is good although each dog progresses at an individual pace. A follow up examination should be scheduled in 6 – 12 months (always earlier if symptoms or problems occur).

### **Stage B1**

Your dog is still asymptomatic but the echo shows some mild remodeling of the heart structure. Usually, that includes dilatation of the left atrium or ventricle. Radiographs also may show left atrial and mild left ventricular enlargement. The heart rate may be somewhat elevated. The heart is well compensated and the prognosis is still good. Treatment is sometimes but not always needed. Exercise and excitement can often stay the same or may have to be mildly adjusted. Diet can stay the same but no salty treats should be given. A follow up examination is needed between 3 – 9 months.

### **Stage B2**

Cough is now a common (but not always present) complaint and exercise and/or excitement may induce fatigue, labored breathing, or coughing. At rest, the dog is often comfortable. Radiographs usually show generalized heart enlargement, possibly with some fluid in the lungs. The heart rate is often high and there may be an arrhythmia – an abnormally irregular heart beat. An echo will now show significant remodeling of the cardiac structure with moderate to severe dilatation of the left atrium and/or ventricle. The prognosis is fair but treatment needs to start, usually including an ACE-inhibitor such as benazepril and a beta blocker such as carvedilol for life. Often, a diuretic such as furosemide (lasix) and spironolactone will also be prescribed. Stress, excitement, and exercise should be limited if possible. A recheck is now needed between 2 weeks and 9 months depending on whether this was a follow up visit or a first office call, and to make sure that the kidney values stay stable.

### **Stage C (heart failure) and D (end stage heart failure; non-responding to treatment)**

Left sided heart failure is present and manifests itself with labored breathing and cough, often even during rest. There may be fluid in the abdomen as well if the tricuspid valve is also affected. Often, an arrhythmia is present and/or the heart rate is very high. On radiographs, there is generalized heart enlargement, fluid in and often around the lungs, and tracheal elevation. Echo shows severe dilatation of the left atrium and/or ventricle. Immediate treatment is needed and may include cage rest and oxygen therapy. The above mentioned medications will be added if not already administered, and additional medications such as the new inodilator pimobendan will be added. Other new medications may include more vasodilators such as nitrol ointment in the ear pinna, more diuretics such as hydrochlorothiazide, the old and excellent medication digoxin, and sometimes life saving intravenous drugs. The prognosis can vary from fair to guarded to poor. Close supervision by your veterinarian is recommended.

Unfortunately, we cannot cure valvular disease in pets. Some veterinary cardiac surgeons have attempted surgery and we can discuss this if you wish. However, with good cooperation between you, your veterinarian, and the veterinary cardiologist, many pets including yours could live years with the disease. Please try to follow the medication guidelines which will have to be fine tuned from time to time even if your dog appears to be doing well. Please contact your veterinarian if you see any changes in your dog. Depending on the severity of the disease at the time of presentation and age of your dog, a recheck echocardiogram is generally advisable within 3 – 12 months. Other rechecks will depend on clinical signs of your individual dog. I know how precious your pet is to you and I hope that I will be able to treat him or her for many years to come!

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