



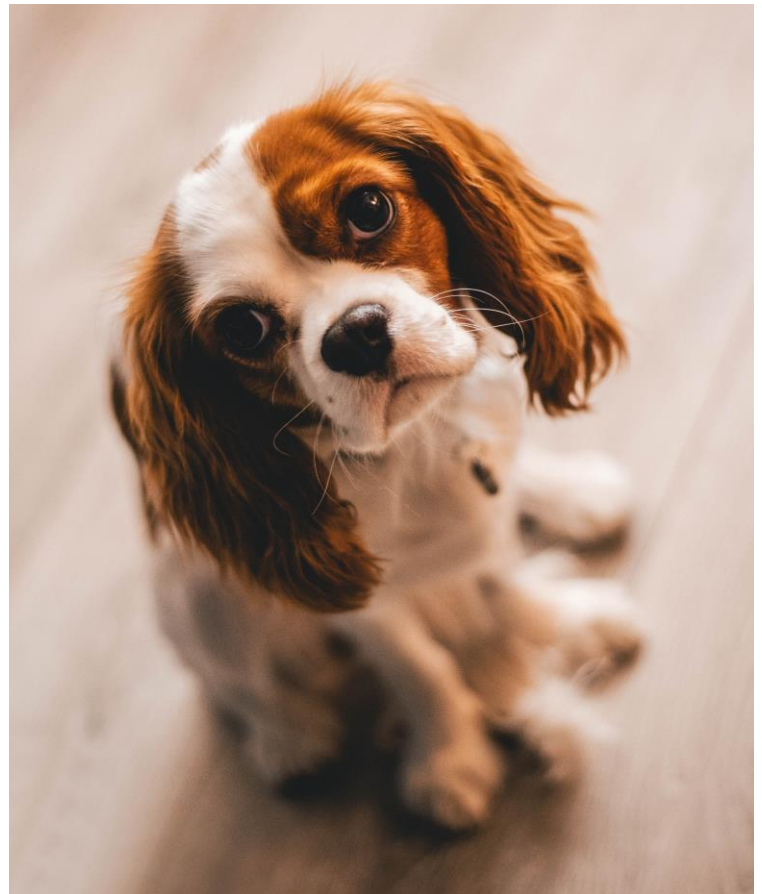
EAST COAST VETERINARY CARDIOLOGY

Mitral Valve Disease

Degenerative mitral valve disease is a common diagnosis in older small breed dogs and is the most common form of acquired heart disease in the dog. It is estimated that over 30% of smaller breed dogs over the age of 10 will have mitral valve disease.

The mitral valve is like a one-way door that controls the passage of blood from the left atrium (upper storage chamber) into the left ventricle (lower muscular chamber) of the heart. In normal individuals, no blood can flow backwards into the left atrium when the left ventricle is contracting (squeezing) as the mitral valve is closed and sealed. This ensures that blood only moves forward out of the heart into the aorta to travel to the body. In dogs with mitral valve disease, the valve becomes thickened and irregular secondary to degeneration of the valve, leading to a valve that does not close and seal completely. This results in blood flowing back (leaking) into the left atrium when the valve should be closed and the heart is contracting. In some affected individuals, a significant portion of the affected mitral valve can flip back into the left atrium (prolapse), contributing to more significant backflow of blood into the left atrium. This backflow into the left atrium is called mitral regurgitation (MR) and this creates the heart murmur which is heard on examination and represents the first sign of disease in affected dogs. With time, the back-flow across the valve worsens and leads to enlargement of the left side of the heart and can place affected animals at risk for congestive heart failure, irregular heart rhythms (arrhythmias) and even death.

Currently, it is unclear what causes the disease in the dog. It typically affects older small breed dogs like the Shih Tzu, Miniature and Toy Poodle, Pomeranian, Chihuahua, Spaniel and Terrier breeds, Dachshund and Cavalier King Charles Spaniels. The disease is very common within the Cavalier breed and it is estimated that about 90% of Cavaliers over the age of 10 years will have

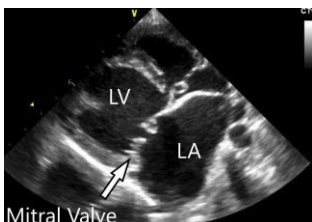


mitral valve disease. It can also affect some larger breed dogs like the Doberman Pincher, Dalmatian, Shepherd and some Retriever breeds.

Many small breed geriatric dogs will have heart murmurs related to mitral valve disease, and some of these dogs may live their entire natural lifespan without developing clinical signs related to heart disease. However, some dogs will progress to being symptomatic, due to the development of congestion (fluid, or pulmonary edema) within their lungs. We call this congestive heart failure (CHF). This build-up of fluid causes breathing difficulties, coughing, restless sleeping habits, lethargy, exercise intolerance and reduced appetite. If left untreated, affected animals can die of CHF. Typically, the asymptomatic phase of mitral valve disease can last anywhere from 3-6 years before animals become symptomatic, if they ever become symptomatic for their heart disease at all. If a dog develops CHF, average survival times of 1-2 years have been noted.

For asymptomatic dogs, there has been recent evidence that a medication called Vetmedin can slow and alter the progression of mitral valve disease. In a large prospective and placebo-controlled study (EPIC Study), dogs with moderate mitral valve disease who were treated with Vetmedin took longer to develop evidence of congestive heart failure compared to the control group who received the placebo. Not all dogs with heart murmurs should be treated with Vetmedin - it is important that a thorough cardiac evaluation with an echocardiogram be performed to determine if therapy with Vetmedin is indicated. Dogs with no heart enlargement and those with only mild heart enlargement should not be treated with Vetmedin.

Dogs with mitral valve disease should have periodic blood pressure measurements as hypertension can exacerbate the severity of mitral regurgitation. If hypertension is noted, appropriate medical therapy is warranted. Once CHF develops, therapy is instituted in all patients at that time consisting of diuretics, ACE inhibitors and Vetmedin. Some dogs may also benefit from a diet modification (reduced sodium) once in CHF. In people, mitral valve disease is a surgical condition whereby the leaky valve is repaired. In recent years, there are veterinary surgeons who have successfully repaired the affected mitral valve in dogs with good success and therefore improved both the quality and length of lives of these dogs. Unfortunately, this surgery is technically challenging (requires cardiopulmonary bypass) and expensive and only a handful of institutions around the world are offering this type of surgery in dogs.



An echocardiogram in a dog with severe mitral valve disease. The mitral valve leaflets are very thickened and irregular and do not close completely. There is significant dilation of the left atrium (LA) and left ventricle (LV) in this patient.

Key Points

Mitral Valve Disease is the most common form of acquired heart disease diagnosed in the dog.

Often affects older small breed dogs with over 90% of Cavalier King Charles Spaniels over the age of 10 having the disease.

Affected dogs are at risk for CHF, arrhythmias, sudden death. Some dogs can live a normal lifespan with mitral valve disease.

Echocardiography is considered the gold standard for disease diagnosis and is used to determine when medical therapy with Vetmedin is indicated.

Vetmedin in dogs with moderate mitral valve disease has been shown to increase the time to CHF compared to placebo in a large clinical trial.

Signs of disease may include difficulty breathing, coughing, lethargy, poor appetite, fainting and exercise intolerance.

Mitral valve disease is best managed surgically which is not readily available for dogs.

