

Restrictive Cardiomyopathy in Cats

What is restrictive cardiomyopathy?

Restrictive cardiomyopathy (RCM) is a kind of heart disease, the hallmark feature of which is a “restricted” ability of the heart’s walls to *relax*. That is, the main pumping chambers of the heart (the *ventricles*) are unable to adequately open, accept blood from the blood vessels “behind” them, and pass blood along in the forward direction. This stands in contrast to heart diseases in which the heart becomes too weak and cannot *contract* properly. The end result is that blood backs up and causes fluid to leak from blood vessels into the lungs and the chest cavity. This process is called *congestive heart failure* and is discussed in more detail in a separate information sheet.

How is RCM diagnosed?

Heart disease may first be suspected prior to heart failure during routine **physical examination**, based on detection of a heart *murmur* (an abnormal “whooshing” sound associated with the normally crisp heart sounds). However, some cats with RCM do not have a heart murmur (and many cats with heart murmurs have conditions other than RCM, such as the more common *hypertrophic* cardiomyopathy). If congestive heart failure is already present at the time of diagnosis, other physical exam findings may be present, such as rapid and labored breathing. Breath sounds heard with a stethoscope may be either extremely quiet or unusually loud, depending on where fluid has accumulated.

Definitive diagnosis of RCM requires an **echocardiogram** (ultrasound examination of the heart), during which information is collected about the size, structure, and function of the heart. Specific echocardiographic findings in cats with RCM are variable. The pumping ability of the ventricles often appears normal or nearly normal. However, due to the inability of the ventricles to relax and receive blood from the atria, these weaker chambers behind the ventricles are markedly enlarged. In some cases, scar tissue can be seen bridging across the left ventricle, contributing to its inability to properly relax.

Several other diagnostic tests may be important during initial and followup evaluation. **Chest x-rays** provide a “big picture” view of the heart within the chest cavity alongside the lungs. Prior to the onset of congestive heart failure, chest x-rays yield a baseline for future comparison. Once congestive heart failure develops, they comprise the most important imaging test by which medical therapy is monitored.

An **electrocardiogram** (often called an EKG or ECG) is used to identify and characterize arrhythmias (abnormalities in the electrical activity of the heart). The relative severity of an arrhythmia dictates whether or not it warrants specific therapy. Followup EKGs are instrumental in assessing progression of previously noted arrhythmias and their response to antiarrhythmic therapy. Finally, blood work may be performed to assess kidney function and electrolyte concentrations, which may be affected by many of the commonly used medications in the treatment of heart disease

and heart failure. It is important to monitor these values so that undesirable side effects can be avoided or minimized.

How is RCM treated?

Unfortunately, as is the case for many types of heart disease in animals and people, no medication has been shown to reliably delay progression of this disease. Therefore, controversy exists over which medication, if any, is most appropriate to use. Some classes of agents which are sometimes prescribed include “beta adrenergic antagonists” (typically called beta blockers), calcium channel blockers, and inhibitors of an enzyme called “angiotensin converting enzyme” (these are called ACE inhibitors). If congestive heart failure is present, a drug called “furosemide” (often referred to by one of its brand names, Lasix) is used together with an ACE inhibitor, sometimes along with a beta blocker or calcium channel blocker as well.

What is the prognosis? What should I watch for?

Just as the echocardiographic appearance of RCM varies between affected cats, so does the long-term prognosis. The presence of congestive heart failure does worsen overall prognosis, although many cats respond very well to medical therapy for some period of time. In the absence of heart failure at the time of diagnosis, some cats remain asymptomatic for prolonged periods, although it is impossible to predict how an individual cat will fare.

Once the diagnosis of RCM has been made, it is important to watch for signs of heart failure (the buildup of excessive fluid in the body due to heart disease). Symptoms of heart failure include **lethargy, weakness, intolerance to activity or exercise, and rapid or labored breathing**. Some cats may only show mild and nonspecific behavioral changes such as hiding or **loss of appetite**. Finally, a subset of cats with heart disease form blood clots inside their heart, which can then be released and become lodged in an artery downstream. This can result in a sudden onset of **difficulty walking, atypical vocalization, and even sudden death**. Observation of even the milder of these symptoms warrants a phone call to either your regular veterinarian or Dr. Marshall at Veterinary Specialty Services. More severe symptoms, such as difficulty breathing or walking, require immediate attention on an emergency basis.