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Feline Heart Disease

Understanding heart disease in cats

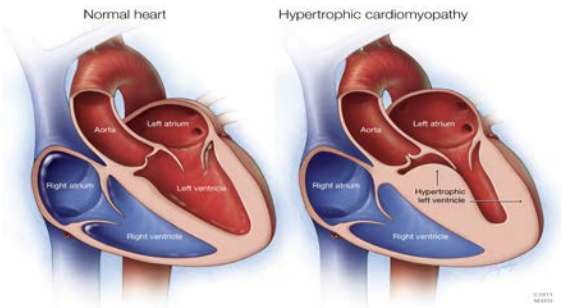
There are two broad categories of heart disease, in general: Congenital (present at birth) and acquired (develop later in life). Congenital heart disease in cats is relatively uncommon. The most common form is the ventricular septal defect, or VSD, whereby a hole exists between the left and right ventricles allowing blood to pass freely between these two chambers. VSDs in cats are usually small and do not require treatment. Acquired heart disease in cats is common and usually occurs with increasing age. The diseases affect the myocardium, or heart muscle. There are three types of heart muscle disease recognized in cats:

1. Hypertrophic cardiomyopathy (HCM) & Hypertrophic obstructive cardiomyopathy (HOCM):

Hypertrophic cardiomyopathy (HCM) is the most common form of heart disease in cats. In this disease, the walls of the left ventricle thicken, reducing the heart's ability to relax appropriately. Some cats with HCM also display abnormal movement of the mitral valve causing obstruction to blood flow inside the heart (HOCM). *Systemic hypertension (high blood pressure)* and *hyperthyroidism* can also cause thickening of the heart muscle. Cats with thickened heart muscle walls should undergo evaluation for these two conditions prior to declaring that a cat has HCM.

A genetic cause is likely in most cats with HCM. Pure-breed cats at increased risk for HCM include:

- *Maine Coon*
- *Persian*
- *British Shorthair*
- *Norwegian Forest Cat*
- *Ragdoll*
- *Turkish Van*
- *Scottish Fold*



At present, two (2) genes for HCM have been identified – one each in Ragdoll and Maine Coon cats. Genetic testing is available to determine if your Ragdoll or Maine Coon cat contains copies of these genes, which may indicate he/she is more likely to develop HCM later in life. Genetic testing can be performed by veterinarians or by pet owners themselves. For more information, discuss with your pet's cardiologist or visit the North Carolina State Veterinary Genetics lab website

https://cvm.ncsu.edu/genetics/submit-dna-testing/

2. Restrictive cardiomyopathy (RCM):

Restrictive cardiomyopathy usually consists of normal cardiac wall thickness with significant scarring and reduced ability of the heart muscle to relax.

3. Dilated cardiomyopathy (DCM):

Dilated cardiomyopathy causes poor pumping by the heart muscle and dilation of the cardiac chambers. Prior to 1987, dilated cardiomyopathy was common in cats due to deficiency of taurine. Reformulation of commercial cat foods with taurine has dramatically reduced the incidence of this disease, which is now rare in cats.

In some cats, the heart may take on characteristics of more than one of the above diseases and be referred to as *"unclassified cardiomyopathy."*

Consequences of heart disease in cats

Any of the above forms of heart disease in cats can lead to cardiac chamber enlargement. Once this occurs, cats may develop a number of outcomes that cause clinical signs (symptoms).
These include:

- *Congestive heart failure:*
  This occurs when cardiac dysfunction leads to leakage of fluid into the lungs (*pulmonary edema*) or within the chest or abdomen (*pleural or abdominal effusion*). Common signs exhibited by cats with congestive heart failure include respiratory distress, decreased appetite, and lethargy.
  (For more information see our informational bulletin entitled: Heart disease and congestive heart failure)
- *Thromboembolism (spontaneous blood clot formation in the bloodstream):*
  Blood clots (thrombi) can form inside the heart and eject into the circulation. The most common location for these thrombi to lodge is the abdominal aorta (affecting the ability to use the hind legs). Clots can also travel to the front legs, brain, or internal organs. Cats experiencing thrombi are often in distress.
- *Arrhythmias (abnormal heart rhythms):*
  Disease of the heart muscle can lead to abnormal electrical activity of the heart. Common signs exhibited by cats with cardiac arrhythmias include collapse, lethargy, or even sudden death.
  (For more information see our informational bulletin entitled: Cardiac arrhythmias).

Diagnosis

How do I know if my cat has heart disease?

- Definitive diagnosis of heart disease in cats on physical examination alone is difficult. Heart murmurs in cats may or not be associated with heart disease. Gallop rhythms (abnormal heart sounds) or cardiac arrhythmias are more specific for heart disease, but not always present. Many cats with heart disease do not display abnormal physical examination findings at all. We recommend that NT-proBNP blood levels are submitted annually by primary care veterinarians in all (including healthy) middle to older-aged cats as part of their routine wellness examinations. An elevated NT-proBNP suggests that heart disease may be present.
- If heart disease is suspected, echocardiogram (cardiac ultrasound) is the diagnostic test used to evaluate structure and function of the heart. NT-proBNP testing, thoracic radiographs (x-rays), blood pressure, and thyroid testing may also be valuable components of a feline cardiac evaluation.

Treatment

- In the early stages of disease, treatment is limited. Cats with obstructive HCM (HOCM) are often treated with medications to slow the heart rate.
- Congestive heart failure requires treatment with diuretics and other medications to maintain quality of life
- Thromboembolism in cats can be difficult to treat and may carry poor prognosis (depending on location). Treatment usually includes blood thinners, supportive care, and pain management.
- Cardiac arrhythmias may be treated with antiarrhythmic medications, depending on severity.

Prognosis

- Progression of cardiomyopathy can vary significantly among cats
- A recent study reported the following outcome risks in cats with HCM:
  - Within first year of diagnosis: 7.0% risk of congestive heart failure, 3.5% risk of thromboembolism
  - Within five years of diagnosis: 20% risk of congestive heart failure, 10% risk of thromboembolism
- Survival time for cats with congestive heart failure is usually between 12-18 months with treatment

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