FELINE CARDIOMYOPATHY

What is cardiomyopathy?

Literally, the term "cardiomyopathy" means disease of the heart muscle. More specifically, cardiomyopathy (CM) is a disease of the heart muscle in which either the heart walls thicken greatly (hypertrophic and restrictive forms) or stretch greatly (dilated form). In either form, the heart's function is significantly compromised and leads to an eventual state of heart failure.

What causes cardiomyopathy?

Several causes of feline cardiomyopathy have been identified.

1. **Maine Coon Cats, American Shorthairs and Persians** have an increased rate of *hypertrophic* cardiomyopathy due to an inherited gene defect.
2. **Hyperthyroidism**, a non-cancerous growth of the thyroid gland, can cause a variation of *hypertrophic* cardiomyopathy.
3. **Restrictive** cardiomyopathy is associated with an unidentified inflammatory process within the heart muscle.
4. **Taurine Deficiency** has been linked to *dilated* cardiomyopathy in cats. Taurine, an amino acid, is essential for cats, which unlike many other species cannot produce taurine from other amino acids. Taurine is naturally found in meat, but the process used to make most pet foods can destroy the taurine. Since the late 1980s commercial cat foods have been supplemented with Taurine, but deficiency is still reported in cats fed unbalanced home-cooked diets or dog foods.
5. Unfortunately for many cases of cardiomyopathy a cause cannot be found.

What does a cat with cardiomyopathy look like?

Cardiomyopathy is a disease that progresses over an extended period of time. Unfortunately many cats with cardiomyopathy do not show signs of illness until their disease is grave, or not at all.

During the early stages of the disease, the cat will probably look normal. Some cats will have a murmur, or abnormal sound to the heart, although this does not always occur. A period of inactivity and poor appetite occur first. As the disease progresses cats may become inactive or tire easily. Once heart failure has occurred a cat will often become very inactive and exhibit labored breathing. Both may be due to insufficient oxygen transport to the body's tissues; the latter may also be due to a collection of fluid in or around the lungs.

How is this disease diagnosed?

Diagnosis is generally made with a combination of chest x-ray and an ultrasound of the heart (echocardiogram). A chest x-ray can show an abnormal size and shape to the heart, as well as fluid accumulation in the lungs and chest secondary to heart failure. An echocardiogram allows us to view the heart in real time to measure the shape and size of the heart as well as thickness of the walls, movement of valves and flow of blood. All of this information is critical in determining both the type of the cardiomyopathy and any necessary treatment.

Determination of the level of thyroid hormone in the blood (T_4) is often indicated in evaluating cats with hypertrophic CM. This simple blood test can help identify an overactive thyroid gland as the underlying cause of heart disease.

Evaluation of blood taurine levels is indicated in cases of dilated cardiomyopathy.

What is involved with treatment?

Treatment is based on the type of CM present. Different drugs are used for the two different forms. Therefore, if at all possible, tests necessary to define the specific form of CM are performed before treatment begins. Fortunately, most of these cats can be stabilized with the correct drug; however, continual medication may be necessary since the disease cannot usually be cured. The exception to this is the cat with hyperthyroidism. If hyperthyroidism is identified in a cat with hypertrophic CM, the heart disease is potentially reversible if the cat receives appropriate and timely treatment for the thyroid disease.

Are there complications that may occur?

Most of the cats with cardiomyopathy will eventually develop signs of heart failure, as previously described. In addition, cats with CM are prone to producing blood clots within their hearts.When these clots escape the heart, they travel through various arteries leading from the heart. They eventually lodge in a narrow part of the artery when their continued travel becomes impaired by the artery's diameter. The most common site for clots to lodge is the point at which the aorta splits before going into the rear legs, called a saddle thrombus. Thus, these cats often become paralyzed in the rear legs very suddenly and are in significant pain. In many cases, it is paralysis and pain that first becomes noticeable and is the reason that medical treatment is sought. Some owners mistake this event for an uncomplicated lameness, or even a broken leg. When these cats are examined, there are no pulses to one or both rear legs, the legs are cold, and the footpads appear blue (cyanotic) due to the lack oxygen.

Treatment of the paralyzed cat concentrates on drugs to relieve pain and to hasten the return of circulation to the legs. Since these cats also have severe heart disease, they make poor surgical candidates. Therefore, surgery to remove the clot is not advisable due to the high incidence of death during surgery.

The prognosis for the paralyzed cat is variable, but is improved if the cat receives immediate attention. Within 3-10 days, circulation is restored and leg function returns in most cats. However, the heart disease must be controlled quickly or they will die.

What is the prognosis for cats with cardiomyopathy?

The prognosis for CM is quite variable, depending on the form of the disease and the severity at the time of diagnosis. Many cats can live a fairly normal life if properly medicated, but unfortunately they often eventually die due to complications of their disease. The exception is when CM is caused by hyperthyroidism. If hyperthyroidism is successfully treated, the heart function will generally return to normal and the cat will no longer require treatment for heart disease.