

# **The Mastiff and the "Golden Years"**

**(Part 2)**

**By Robin M. Smith, DVM**

In my last article, I discussed some of the arthritic problems that address our aging Mastiff population. This sequel will discuss specific organ diseases encountered as our dogs age and what we can do to help slow down these aging processes or what we can do to help treat them and give our mastiffs the quality of life they deserve in their geriatric years. Personally, I would rather invent something to keep them with us forever, but until I do... I would like to help keep them in our lives for as long as possible.

While all organs are affected with age to some degree, I am only going to discuss some of the major organ dysfunction that I have encountered with our aging mastiffs. Most of this article will relate to our mastiffs, in particular, since I do believe they have a unique physiology due to their giant size. Most of what I will talk about comes from experience with the Mastiff breed as a veterinarian and may not be true of other breeds.

I am an advocate of annual veterinary exams for the Mastiff until age 5, then I like to see bi-annual visits. I will get a full blood chemistry and complete blood count, thyroid profile and urinalysis on all mastiffs I see between the age of 2-5 years of age. This is what I call the "baseline"... something that I can compare to down the road. After age 5, I will do the complete blood profile, thyroid profile, urinalysis and I will add survey radiographs (x-rays) of the chest and abdomen, and perhaps an ultrasound of the heart and abdomen. I do this yearly, but will also recommend 2 yearly visits. In this manner, I can usually detect early changes in the heart, kidneys and liver and may be able to prevent these changes from becoming problems down the road.

You know your Mastiff better than anyone does. Since our mastiffs are a very stoic breed, they may exhibit only subtle changes when something is bothering them. Don't ignore these little "quirks" and say, "well, it is just age" or consider it a 'normal' aging process. Take them into the veterinarian for a checkup. Sometimes, little subtle changes are the beginnings of major problems. With that said, I will move on to certain conditions encountered.

## **CARDIAC DISEASE**

Dilative cardiomyopathy (DCM) is one of the most common heart muscle diseases seen in large/giant breed dogs. The average age of presentation is between 4-10 years old. Early signs of DCM include anorexia (not eating), weakness, coughing, and exercise intolerance (like we would notice that in a Mastiff) The disease progresses to congestive heart failure. In our giant breed dogs, the right side of the heart fails primarily with accompanying fluid in the abdomen and around the lungs. Left-sided failure is the more common in smaller breeds.

DCM is the presumptive diagnosis when the symptoms are present and the physical exam suggests it and a soft heart murmur is heard. And ECG and ultrasound will confirm the diagnosis. At this time, I will also collect blood samples to check kidney and liver values. These

organs require massive amounts of blood to go through them to stay healthy and with heart disease the heart is not pumping as efficiently and can cause secondary renal and liver disease that can be held in check if detected early enough. I will also check the thyroid levels since many of our mastiffs are on thyroid medication, which can complicate matters sometimes. There can be accompanying anemia due to a decrease in the production of erythropoietin, the factor that tells the bone marrow to make more blood cells. As an added note, I find that healthy mastiffs and other giant breeds can normally run a little anemic according to the normal values, so again, having the baseline values to compare to are important.

I will take complete abdominal and chest radiographs. Heart disease can lead to the accumulation of fluid in the chest or abdomen which can be seen on the radiographs. Heart disease can lead to an enlargement of the liver which can be detected. Also, other problems, like tumors, not directly related to the heart can be noticed on the radiographs.

I will also take blood pressure readings, since many times with heart disease, as in humans, we will see high blood pressure. Not many veterinary practices can perform blood pressure testing, but a referral practice in the area may offer the service. If high blood pressure is found, medication will be needed to lower the pressure, since high blood pressure will only make the heart have to work harder at its' job in circulating blood.

An echocardiogram needs to be performed and preferably by a cardiologist. This special ultrasound will determine how the heart muscle is functioning, as well as determining if the valves are working adequately. It will also show the flow through the heart and if there is adequate flow of blood and if it is flowing at the right speed. I find echocardiograms to be "gibberish" to me... that is why I leave that in the capable hands of the specialist.

Many of you are probably wondering as to cost of this workup. I can give a "general" ballpark estimate, but all veterinary practices will vary, so make sure you get an estimate of the work up. I know many of us don't care what it costs, as long as we can help our faithful friends... but, bottom line... giant breeds do cost more and you need to be prepared. Following is a guesstimate on costs of the diagnostics.

Diagnostic testing for heart disease/ Mastiff: (\*\*Prices quoted are estimates only and for the time the article is written. Prices may increase or vary by location.)

Exam:	\$35.00
CBC:	\$30.00
Full Chemistry:	\$65.00
Urinalysis:	\$25.00
X-rays/4 views:	\$140.00
Thyroid(T4)	\$25.00
Blood Pressure	\$30.00
EKG:	\$70.00

Specialist:

Echocardiogram                 \$200.00

TOTAL:                             \$600-800

The treatment will be aimed at making the heart pump more efficiently. Digoxin is the mainstay of treatment and may be the first drug used. Other drugs may be used if there is an abnormal rhythm. Lasix may be used to help get rid of the fluid around the lungs and in the abdomen if needed. This will also make the dogs drink and urinate more often. Enalapril (Enacard) has also been shown to help the Mastiff with heart disease. L-carnitine, an amino acid, has been shown to be deficient in 50-60% of the dogs seen with DCM, so it may be helpful also. CoEnzyme Q, since it helps the cells work better and has been shown to help reduce the impact of hypoxia (low oxygen levels) to the heart. I will supplement 30 mg. every other day in the Mastiff.

Other nutritional therapies that have been suggested as helping in heart disease are adding the following:

Vitamin C- 500-6000 mg./day  
Vitamin E\_50-400 IU/day  
Taurine- 100-1000 mg/day  
Selenium- 5-50 ug/day  
Fish oil- 250-1000 mg/day  
Dimethylglycine-50-250 mg/day

Some herbal remedies have also been used in heart disease although I am not as familiar with them. Some of these include the use of alfalfa, ginkgo, hawthorn and motherwort. You should consult a holistic veterinarian for further information regarding these.

One of the deciding factors in how our mastiffs do with heart disease and the treatment is to have frequent rechecks to evaluate how things are going. Don't wait until there is a problem. I have seen many mastiffs with serious heart conditions live very comfortably for a few years after treatment was started, IF it was detected early.

Granted our mastiffs are stoic animals... and sometimes they do not show any signs of problems until a threshold is reached and then they "all of a sudden" go down hill. I see this happen a lot, especially being an emergency veterinarian. Just in case this happens to you and your Mastiff, I will discuss what I do in the emergency room with the Mastiff that has serious heart disease.

When presented on emergency with the aging Mastiff that " all of a sudden" got sick or went down, I first determine the heartrate. Most of the mastiffs will have a fast heartrate that is abnormal for the breed. I listen to the lungs to hear any fluid. I listen for muffled heart sounds, indicating fluid around the heart or in the lungs. I will immediately take the dog to the back, if it is having any trouble breathing and put it on oxygen using a facemask put in front of their face. Because the lack of oxygen makes the dogs very anxious and sometimes very resistant to anything, I will give some morphine to help calm the dog so we can proceed with treatment. If they are really having trouble breathing, I will shave both sides of the chest and do a thoracocentesis, which is where I will put a needle into the chest and pull off any fluid that is

accumulating. This is an emergency procedure. I will do this prior to any x-rays, as I find that x-rays can be very stressful to the Mastiff in this condition. It will not hurt if there is not any fluid around the lungs, but if there is, this procedure can be life saving. At the same time, I will have one of the technicians place an IV catheter into the front leg vein. We will collect blood samples from that catheter at that time. If the measures tried have not helped much, I will use nitroglycerin to help dilate the blood vessels and get rid of the fluid plus I will use injectable lasix to get rid of the fluid. Usually these measures are enough to help the dog in immediate trouble. Of course, we will also have an EKG running if possible. If these measures are not helping, I will do a quick ultrasound to look at the heart. Sometimes, fluid can build up around the heart sac and need to be drained. We do not save a lot of the dogs that come in this severe, but the ones that we do, well, they are the lucky ones. That is why I again stress the need for regular checkups as our mastiffs get older, so these conditions can be found early instead of later.

Degenerative valvular disease is the most common cardiovascular disease I see in the dog, but luckily, for the Mastiff, this is usually seen primarily in older smaller breed dogs.

I have seen one case of neoplasia (cancer) in the Mastiff that involved the heart. Hemangiosarcoma is the most common neoplasia encountered. But, in general, cancer of the heart itself is uncommon.

## RENAL DISEASE

Chronic renal failure (CRF) is the most common form of renal disease in our mastiffs. By the time it is usually diagnosed, it has prevailed for a long period of time, months to even years. Again, this is another reason for annual blood tests in our mastiffs.

The symptoms our mastiffs exhibit will vary depending on the nature, severity, duration and rate of progression of the disease. Some symptoms may be vague, such as depression, fatigue, anorexia and weight loss while others are more overt, i.e. drinking a lot of water, urinating a lot and dehydration, and when the disease progresses far enough, vomiting.

When I examine a Mastiff with suspected late kidney disease, they are usually slightly dehydrated and are in poor body condition and have a poor haircoat. But early in the disease, they may look extremely healthy. Depending on the severity of the disease, we will see an increase in the enzymes that show kidney damage, the Blood urea nitrogen (BUN) and creatinine, and phosphorus. We will also see an anemia if the disease has progressed. Remember though, the Mastiff may normally be slightly anemic, so compare to the baseline values. The urine is not concentrated and looks like water.

I take radiographs of the chest and abdomen. I will also get an ultrasound of the kidneys. I am a firm believer in an aggressive approach from the start to determine what exactly is going on. I want to get kidney biopsies at the earliest time I can to determine what is going on in the kidneys. With the use of ultrasound and sophisticated biopsy instruments, the danger is minimal. Kidney disease is a general term. Many things cause kidney disease and the kidneys can have many different changes occurring in them. Some of these processes can be arrested or at least slowed, while others can't be. A urinalysis will help determine if some kind of infection or

neoplasia is going on. The sooner I know what is going on, the better we can help the dog. I think it is better to do this early on while the dog is healthy, rather than think of doing it when the dog is sick.

Again, with our stoic mastiffs, I find that I do not diagnose them early in the disease process unless we have been following biannual checkups. I usually get them coming in when they are not eating and vomiting. When the toxic products can't be eliminated through the kidneys, they build up in the body and cause the dog to be sick to their stomach, thus vomiting occurs. When presented with a Mastiff that has kidney disease and is vomiting, I will try to get a kidney biopsy and since it takes 2-3 days to get the results back, I will start intensive intravenous fluid therapy to try and flush the toxins out of the body and to try and stimulate the kidneys to start working again. This involves placing 2 large IV catheters in the front legs of the dog and giving fluid very rapidly over a period of a few days. I will give a 200 lb. Mastiff a range of 400-800 ml/hour of fluids depending on how the heart is doing. This is a massive amount of fluids and can be quite costly. We are talking about giving anywhere from 12-18 liters of fluids a day. Most veterinarians that do not deal with giant breed dogs fail to give enough fluids to diurese the Mastiff. While doing this, we must monitor the amount of urine produced, so we do not get fluid building up in the body. IF the amount of urine isn't equal to the amount of fluid going in, we must give certain drugs to help stimulate the kidneys. I first start with lasix, but will start a dopamine drip if the urine production is not up to par. The prognosis is very poor if we cannot get the kidneys started in the production of urine. If the kidneys have not produced urine in a certain amount of time, then the dog is in complete kidney failure and nothing can be done further.

But, if the kidneys are producing a good amount of urine, then we wait for our biopsy to come back. In the meantime, we start drugs that will help reduce the stomach upset, like pepcid or tagamet and we add drugs that will bind the phosphorus that is so high in the body, since this also causes stomach upset. We will usually give antibiotics due to the poor state of the immune system at this time.

I will recheck the kidney values in about 4-6 days. But I will monitor the electrolytes, like sodium, potassium and chloride since we may need to add these to the fluids as we give them. I will also monitor blood pressure since kidney disease leads to hypertension, which can further damage the kidneys.

After getting the biopsy results back, we can determine if the kidneys are salvageable or not and determine what is the best course for long term treatment if the dog have responded to the initial treatment.

The cost of this initial diuresis for a Mastiff for 48-72 hours can be very high. I would guesstimate that with the intensive care needed, the fluids, the medicines and diagnostics, that it can be between \$3000-\$5000 for our giant breed dogs.

Let's say that we have been great parents and have taken our mastiffs in twice yearly and have had bloodwork done regularly, and we have picked up the renal disease in an early stage. What can we do to help the kidneys function longer and hopefully prevent serious shutdown? Dietary

therapy remains one of the cornerstones of management of the patient with CRF. The goals of therapy are (1) to reduce the clinical signs of uremia (the increasing toxic products) by reducing the production of protein waste products; (2) to minimize the electrolyte, vitamin, and mineral disturbances associated with excessive consumption of protein and certain minerals; (3) to provide daily protein, calorie, and mineral requirements; and (4) to slow the progression of renal failure. The first three of these goals are widely accepted. The efficacy of dietary protein restriction in slowing the progression of CRF in dogs is still controversial, however. The products of protein catabolism (or breakdown) contribute to the uremic signs in dogs with renal failure. So, if the dog is showing signs of uremia, like anorexia, vomiting, etc. then restricted protein is a good thing. But the value of protein restriction before clinical signs of CRF are apparent remains very controversial as to whether it will help. In the Mastiff, I am recommending decreasing the protein in the diet to around 13-15%. This may mean that you need to buy a prescription diet from your veterinarian. Unfortunately, some of these diets do not taste good, so I will suggest that perhaps a homemade diet is better and a little better on the pocketbook for the Mastiff owner. The following is a guideline for homemade renal diets:

1 lb. Ground beef  
4 large egg (hard cooked)  
8 cups cooked rice (without salt)  
12 slices white bread (crumbled)  
1 tsp. Calcium carbonate  
2 scoops of Nupro (or other balanced supplement)  
Braise the meat, retaining the fat. Combine all ingredients and mix well. Palatability can be improved by adding water.

Yields 4 lbs.

Your veterinarian will also prescribe drugs to help alleviate some of the symptoms associated with renal failure. There may also be drugs that help control blood pressure and help eliminate excess fluid.

There are many holistic approaches to kidney disease. Some of these are the addition of some herbal remedies. A few that can be mentioned are:

1. Rehmannia: usually cooked-it decreases blood pressure and cholesterol and is high in potassium.
2. Cornus-decreases blood pressure and has an antibiotic effect against Staphylococcus.
3. Hoelen-regulates fluid metabolism and aids in water circulation and is high in potassium.
4. Alisma-regulates fluid metabolism and increases the excretion of urea, lowers blood pressure and is high in potassium.
5. Pinellia combinations may be added to help control vomiting and diarrhea.

There are certain facts in life... and unfortunately, our mastiffs' aging is one of them. But I hope that I have enlightened you on a couple of the aging issues and made you realize that regular check-ups for your mastiffs are imperative to help catch these conditions early. Please never

hesitate to call me or to e-mail me. I have just moved so I am at a new job and it is very hectic right now, but I am hoping after the first of the year, to calm down a little.

In the third part of this series on the Aging Mastiff, I will discuss aging and gastrointestinal problems and neurological and behavioral problems.

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