

The Care and Fostering of Newborn Mastiffs

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Editor's Note: The following article first appeared in the Mid-Atlantic Mastiff Alliance newsletter (Fall 1995) and is reprinted here with the permission of the author and the publisher.

I decided on the subject of puppies because the fostering of puppies is very fresh in my mind. I have been involved with taking care of many litters, but never have I truly fostered a litter all by myself until recently. My experience with breeders is that many of you have many good methods of raising your puppies and are very successful. I, in no way, want you to change your ways of raising puppies if it works for you. I have gotten many good ideas from breeders over the years and have incorporated them into the way I try to take care of puppies. As a veterinarian, I have tried to rationalize all these methods by providing scientific reasoning behind why they work. I have accomplished some of this, but some I have not. As they say, "If it works, do it." I want to present certain facts about puppies and their needs as newborns until they are four weeks of age and try to present some of the problems that we, as breeders, have with why puppies die. Again, if you have any suggestions, please write to me; I would love to hear them.

If you have a bitch that is an easy whelper, produces good milk and is a good mother, you probably have few worries. But, most of us are not lucky enough to have all three characteristics. Most of what I am going to talk about will involve puppies that have to be hand-raised due to the bitch not having good milk or adequate milk, or the bitch that just is not a good mother, or, which hopefully will not be the case, the bitch that dies.

Immediately after birth, the bitch produces a special type of milk called colostrum. Colostrum is vitally important for the provision of passive immunity to newborn puppies. Once absorbed by the puppies' gastrointestinal tract, this immunity offers protection from a number of infectious diseases to the litter. In older puppies and adults, normal digestive processes would result in the complete digestion of these compounds, making them unavailable to the body. However, the intestinal lining of newborn puppies is capable of absorbing the intact antibodies that are provided by colostrum. The time period during which the newborn's GI tract is able to absorb the colostrum is very short. In puppies, the time period for absorption is approximately 24 hours. Several forms of colostrum are produced during the first 24 to 72 hours after birth, after which the composition transforms to mature milk. The composition of colostrum is lower in total solids, fat and protein than mature milk.

Besides the immunological and nutritional benefits of colostrum, it has also been postulated that the volume of fluid ingested immediately following birth contributes significantly to the puppies' circulating volume. This indicates that the lack of adequate fluid intake shortly after birth may contribute to circulatory failure in newborns that leads to death. This can be manifested as dehydration in the newborn.

I generally put the puppies on the bitch every couple of hours for the first 24 hours. Since that bitch may not have a lot of colostrum, a milk substitute is also utilized at this time to keep the puppies hydrated. If for some chance the bitch dies, you will need to collect plasma (not serum)

from the bitch prior to death, and have it available for the puppies. Sometimes, I collect plasma anyway if I am not sure the bitch will produce much colostrum. It is easy for your veterinarian to do. Then, I give each puppy one cc. of plasma at birth and another one cc in 12 hours orally. The plasma provides the antibodies from the bitch as the colostrum does.

During this first 24 hours, the amount of milk, whether from the bitch herself or as a supplement, needs to be monitored. Most newborn Mastiffs can handle one oz. (30 cc.) of milk per feeding. I have found that I can feed 30 ml. (one oz.) of milk at each feeding to the puppies for the first few days, approximately every three hours. After the first few days, the amount is increased as needed, and I do not really use a formula. You can overfeed puppies, also creating problems such as diarrhea and lethargy (which, of course, is sometimes even hard to tell in an adult Mastiff). I go by skin turgor and urine color to know if the puppies are getting enough milk. The skin of the back of the puppy, not the scruff, will pop right back into place when pinched if the puppy is well hydrated. The urine will be clear-colored, not yellow. Again, this is something you need to vary with each individual puppy. No one said it would be easy, right?

After the first week to week and a half, I increase the time between feedings to four hours, and by the time the puppies are four weeks old, we are feeding every 6 - 8 hours. Again, this may vary from puppy or litter to litter.

What to feed? One of the greatest challenges involved in raising puppies is providing them with adequate nutrition. Several commercial products are available. Most of these products are composed of cow's milk that has been modified to simulate the composition of bitch's milk. Bitch's milk has a large proportion of calories from fat and a low percentage from lactose, with protein intermediate. On a caloric basis, cow's milk has nearly three times the amount of lactose than bitch's milk. For this reason, puppies that are fed straight cow's milk will develop severe diarrhea. There are a lot of replacers out there, and your veterinarian and other successful breeders can help you with the decision. There are also homemade replacers, which is what I choose to use, but make sure that it has adequate nutrition or you will end up with problems.

How do I feed my puppies? There are two methods of feeding: bottle feeding, which is the way I feed; or tube feeding and delivering the milk directly into the stomach. There are advantages and disadvantages to both. Bottle feeding can be frustrating because of trying to get the right nipple so the puppies do not aspirate the milk and do not feed too fast. With patience, you can usually get it right. The main problem with bottle feeding is aspiration pneumonia from the puppy getting the milk into their lungs. As far as I know, all bottle-fed puppies develop at least a small amount of aspiration pneumonia. I recommend starting the puppies on Clavamox drops after the amount after the first few days of bottle feeding. With proper nutrition and Ben-Bac (I will talk about later), the diarrhea associated with antibiotics is abated.

Tube feeding is done by many breeders. The advantage is you can prevent aspiration pneumonia and know exactly how much to feed the puppies. The problem is you can feed too much and too fast. The major disadvantage is you need to be experienced with the procedure. Not done correctly can lead to passing the tube into the lungs and causing a severe pneumonia or death. I have used this method on puppies that were sick or weak or have aspiration pneumonia. Again, I implore you not to do this unless you are experienced.

During the first few weeks of life, puppies should nurse 6 - 8 times a day. The two primary activities of newborns are eating and sleeping (the same as their owners). The eyes of the puppies open between 10 - 16 days after birth, and their ears begin function between 15 -17 days of birth (of course, some of us have Mastiffs whose ears never began to function). Normal body temperature for puppies is 94 - 97 degrees F. for the first two weeks of life. Because puppies do not have a shivering reflex for the first 6 -7 days of life, an external heat source is needed. Keeping the environment warm and free from drafts is a must. For the first week of life, the ambient temperature should be between 85 - 90 degrees F. This can be decreased slightly to between 80 - 85 degrees F. during the second to fourth weeks, and then even lower after that. I prefer to use a heating lamp kept about four feet above the puppies. The use of heating pads is not recommended, since the puppies are sometimes not strong enough to get off of the pad, and with the combination of urine and heat, severe burning can occur. It is best to use a temperature gradient so that the puppies can move to warmer or cooler areas as needed. Humidity is important, also. If the environment is too dry, the puppies are subject to dehydration. If dry heat is used to keep the whelping box warm, pans of water should be placed near the heaters to maintain room humidity. A relative humidity of approximately 50% is effective in preventing dehydration and maintaining moist nasal and respiratory passages.

I mentioned the use of Ben-Bac in the puppies earlier. This is a lactobacillus product that, when giving to puppies, helps to begin the process of normal bacterial development in the puppies' intestines. The use of the product helps prevent diarrhea and, therefore, dehydration. I use the product on day two and three, then again in seven days. The directions for use are on the product.

Another important procedure must be done after feeding puppies. The anal/genital area of the newborns should be massaged gently with a damp cloth. This simulates the dam's licking, and stimulates urination and defecation. I do this with a Wet-One, and have a clean, dry paper towel on my lap. This way I can see the color of the urine, and if it is bright yellow, I know the puppy is dehydrated.

Rates of loss among puppies, of any breed in the first 12 weeks of life, usually is approximately 15 - 40%. Most puppy losses will occur during the following times: in utero (abortions and stillborns), at birth (stillbirths), immediately following birth (from birth to two weeks of age) or immediately following weaning (5 - 12 weeks of age). Rates of loss after 12 weeks are generally low.

Puppy losses between birth and 12 weeks of age usually result from problems acquired in utero, immediately after birth and just after weaning. Congenital abnormalities or those present at birth will not be discussed, but many times are the cause of puppy deaths and often go unrecognized, and are thought of as "fading puppies." Poor maternal nutrition during pregnancy can lead to weak and diseased puppies. I put bitches on puppy food about two weeks into their pregnancy. Traumatic injuries also cause puppy losses. An injury while in the birth canal or an injury from a bitch lying on her puppies can lead to death. Adequate supervision and a proper environment can prevent the latter.

Infectious diseases account for the most substantial proportion of puppy losses. Most deaths are attributed to primary infections of either the respiratory tract or the gastrointestinal tract.

Neonatal sepsis is usually caused by Staphylococcus, Escherichia, Klebsiella, Enterobacter, "strep," Pseudomonas and a few others. Gram negative bacilli are the most common. Sources from which they can enter the blood stream include the gastrointestinal tract, respiratory tract, skin and associated wounds, and the urinary tract. Proper sanitation can prevent many of these. I wipe the puppies down with Wet-Ones every time I handle them.

Several viruses can also cause puppy deaths. Canine herpes virus infections are thought to be the more common cause of puppy losses than other viruses. Most herpes virus infections are acquired during the late stages of pregnancy and the first three weeks of life. The clinical signs manifested by puppies with canine herpes virus infection may range from mild to severe, depending on age, stress factors, the presence of maternal herpes virus antibodies and the presence of other bacterial infections. Most puppy losses occur during the ninth and 14th day of life. Puppies show sudden onset and severe illness characterized by depression, anorexia (not nursing), persistent crying, abdominal discomfort, bloating, rapid and shallow breathing, hypothermia (low temp), and profound weakness and diarrhea with resultant dehydration. Once these symptoms occur, death follows in 18 - 24 hours.

The symptoms described above are symptoms of any severe infection in puppies. There are some things you can do to help beat the odds. They require 24-hour attention after the first signs appear, but sometimes you can save a puppy. When I have had very sick puppies, I will tell you what I have done to save them, if they were saved. Because I am a veterinarian, I have access to a lot of things normal breeders don't have, and the cost of trying to save a sick puppy can be overwhelming, but very satisfying.

My first indication that a puppy is not doing "right" is that they do not want to feed much or they fight the nipple. I never let a puppy go without some treatment if they do not eat the amount that they should. A puppy can get very dehydrated in a few hours. I first assess their hydration by picking up the skin on the back of the puppy and seeing if it goes into place right away. I also look at the urine and see if it is clear or getting a yellow color. Both of these can tell you if the puppy is dehydrated. I realize that sometimes puppies, as do infants, can sometimes have a stomachache and not feel well for a short time, so I do not get very alarmed if the puppy is hydrated and the temperature is normal for that age puppy. I usually just give some subcutaneous fluids at this time.

If the puppy on the next feeding still does not want to eat, I start looking for problems, especially if the puppy isn't as active as the others that are waking up, or if it starts to cry excessively. I listen to the lungs to see if there is any fluid in them and if they are expanding adequately. I check the color of the mucous membranes. I realize that Mastiff puppies have pigmented gums, so I look under the eyelids. They should be pink. Usually if the puppy has not eaten this second time, they are dehydrated.

Your veterinarian can instruct you on how to use fluids in puppies. You need to know the type of fluids and the type of syringe to use and how much to give. I give fluids under the skin to the puppy, the amount depending on size and how dehydrate I believe the puppy is. I usually use lactated Ringers or normal saline (sterile). I also start antibiotics on the puppy. My first choice is oral Clavamox. I also give some 50% dextrose by mouth, because hypoglycemia (low blood

sugar) is often the only reason a puppy who has not eaten one time will do poorly and die. Again, the amount needs to be at the discretion of your veterinarian. If the puppy doesn't eat again, it just depends on whether I tube feed the puppy. Again, this is individualized treatment. You can also try to put your finger in their mouths and give them formula by a small syringe. Be careful of aspiration, though.

Sometimes, you can look at the bellies and the pads of the feet, and if they are extremely reddened, this may be a sign of septicemia (or an infection that has spread throughout the system). These sick puppies are also very susceptible to hypothermia (low body temp) and need to be adequately warmed.

There is some controversy as to whether to separate the sick puppy from the rest of the litter. I, personally, do not. I like the stimulation that the other puppies give to the sick puppy. All the puppies are exposed, anyway. Again, that is your choice.

If the puppy continues after about 6 - 8 hours of being lethargic and starting to cry excessively, I usually will tube feed a small amount to get some nutrition into the pup. I continue the fluids and antibiotics. Many times, stimulation is what is needed to keep these puppies going. I have seen a couple puppies that were very sick, but with the persistence of the owner rubbing the puppy and keeping the puppy stimulated, have made it through. This can be very tedious, but can help. Usually, with all this attention, the puppy comes around in about 24 hours and will begin eating.

I also worry about diarrhea. I have found that using Biosol works well. This is a liquid large-animal antibiotic and is not approved in small animals anymore. There used to be a small animal counterpart. I use 1 - 2 drops orally once a day for a maximum of two days. I am also giving supportive fluids. If the diarrhea continues, I use Kaopectate ... 1/4 of a cc. per puppy twice a day. Between both of these, the diarrhea usually subsides. I stress again not to use the Biosol longer than two days. You can use it again if you need to, but give at least five days between doses.

If a puppy dies ... I immediately have the puppy sent in for necropsy (an autopsy to find out the reason for death) and if any other puppy looks even suspectingly sick, I begin a more aggressive approach to my treatment. I think this is where a lot of people wait and see if other puppies get sick or die and the wait is what causes further losses. I usually start amkacin and penicillin. The amkacin can be very toxic, so I dilute it with sterile saline and inject it into the peritoneum (belly) of the puppies. Again, this antibiotic should only be used with adequate fluids given also, and should be prescribed by a veterinarian and administered by one, also. The penicillin can be given under the skin. Fluids, dextrose and tube feeding may become necessary. If there are further puppy deaths, these are sent for necropsy, also. You usually get the results of the necropsy in a couple of days, and you can use the correct antibiotic for the bacteria isolated then. But, again, if you wait for the results, you may lose more puppies. Yes, I am aggressive. I did not use to be. I also did not save the amount of puppies that I save now.

Please feel free to call me or write with questions. If you have a problem with your puppies, I would be happy to help if I can. The Mastiff is a wonderful breed, and the puppies are so

exciting to raise. I must say, though, that after 3 1/2 weeks of feedings and all-nighters, I sure am happy the litter I fostered is eating on their own!!!!

One last thing: I worm all the puppies with Nemex or Strongid at two weeks of age. At four weeks, I will use a three-day dose of Panacur. Many of these puppies with diarrhea have roundworm infections from the dam -- even if the dam was checked for parasites previous to whelping. If I have a (pup with) diarrhea, one of the first things I do is a fecal. Many times there are coccidia infestations that can be treated with Albon.

Another last thing: I start vaccinations at six weeks with a combination distemper, hepatitis, leptospirosis, parainfluenza, parvovirus and coronavirus, and an intranasal bordatella. I have never had a problem giving all these at once. I vaccinate every two weeks until 16 weeks of age. We like to have three vaccinations given before the puppy leaves the premises.

In conclusion, I just wanted to say that I wrote this article several years ago, and have since then been involved with a lot of litters, but none truly all by myself as I did with the batch that gave me the idea for this article in the first place. All I can say is that at least "this" veterinarian now really understands how much work you all do with some of these litters, and I especially understand all the worry and tears that go along with raising puppies. I hope that this will help some of you, and if you ever have any questions, please contact me.

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