

Anesthesia and the Mastiff

By Robin M. Smith, DVM

Foreword by Lisa Edwards: Doc Robin (Smith) is no longer with us but we still have her expertise that she left behind by way of various articles. Doc Robin was a vet and a mastiff owner/breeder. She was someone I always turned to for advice and she was always willing to lend an ear and offer her thoughts and speak with my own vet. She is truly missed in the mastiff world. Note that many of these articles are rather old (from the late 1990s) so there have been new medications and therapies that have been formulated since then, but the basics are still applicable!

I thought that I would talk about anesthesia concerns and the mastiff since that is the most frequently asked question I get from mastiff owners.

First off, you **MUST** have a veterinarian that is willing to listen to you and who is not afraid to be questioned about their anesthesia methods and how they monitor the pet once they are under anesthesia. If they do not want to discuss this or if they have a comment like, "well, I have always done it so and so way and I am not going to change", find yourself another veterinarian. I think that the public needs to be aware of exactly what is happening to their dogs and the risks that are possible. ALL anesthetics are putting the dog at risk... BUT there are some that are much safer than others and I will discuss these.

To start, I want to mention a few anesthetics that I would avoid if at all possible. In the past, most of these drugs were used exclusively, but with the advent of the new drugs and safer ones, they should not be used in the mastiff. Mastiffs are not just big chihuahuas. The mastiff generally has a slower heart rate than smaller dogs and they also have inherently a lower blood pressure. They also, as you know, have a larger body mass. These things add to the risk of anesthetizing them.

I never use acepromazine anymore as a pre-anesthetic or tranquilizer. Acepromazine lowers blood pressure and dilates blood vessels thereby making the blood pressure even lower. It also is metabolized (gotten rid of by the body) very slowly and tends to accumulate in fatty tissues. Therefore, larger dogs and fatter dogs usually have to be given a larger dose than normal in order to have effect, and because of this, it takes these dogs sometimes days to get back to normal. I have used it a lot in the past... In fact, it was the "gold standard" for pre-anesthetic sedation, but not anymore. Many people have used it in tablet form for tranquilization during stressful periods, i.e. thunderstorms. Again, I used to use it for this, but do not now, especially in giant breeds... It is too unpredictable. Just to let you know, I use Benadryl for thunderstorms at a dose of 1 mg./lb but not to exceed 100 mg. and find it works very well to make the dog tired and rest better. Xylazine (Rompun) is another drug I avoid. I haven't used it in about 5 years. It makes the heart more susceptible to the effects of epinephrine (adrenalin) that is in the body and therefore, making the dog more susceptible to heart abnormalities. It is a difficult drug to dose in giant breed dogs.

Acepromazine and Xylazine are the two drugs that I try to avoid if possible. If your veterinarian is also a large animal (cow, not mastiff) veterinarian, he may very well use the two drugs as they are used in farm animals a lot.

If for some reason, your veterinarian must use these two drugs, I think it is mandatory that the dog be monitored by an EKG machine during surgery and immediately post-operatively.

Other drugs that I do not use much although they are still used are the thiopentals. These are like sodium pentathol. They work very rapidly to knock the dog down, but are very powerful and stay in the system a long time. Also if the drug gets out of the vein (like if the dogs jump) the thiopentals can irritate the surrounding area and completely slough the area (all the tissue dies).

The drug(s) that I use the most in mastiffs are valium, ketamine, telazol, and propofol. A combination of valium and ketamine given intravenously will be enough to knock the dog down in order to insert the endotracheal tube. Both of these drugs are very safe and I use them a lot in the older dogs. Neither one effect the heart much.

Telazol is very similar to valium and ketamine and also works well for anesthesia so that an endotracheal tube be place (I use .1 cc/lb and do not exceed 1.5 cc total).

I do use propofol (deprivan) for short procedures, i.e. OFA radiographs. Propofol is a fairly new drug in the veterinary field but has been used for a long time in the human field. It is a milky solution that after opening a vial cannot be stored. It gets contaminated with bacteria very easily. Because it is expensive, the veterinarian may try to cut corners and use old leftover propofol that is sitting in the fridge. It is given to effect or in other words, it is given IV until the dog goes down and then the dog is intubated and put on gas. The GREAT thing about this drug is that as soon as the animal is taken off the gas, the dog is awake and can walk out without assistance. I have also used the drug in C-sections to sedate the dog long enough to insert the endotracheal tube. It is a very top of the line drug. I do find the dosages of propofol to be a lot lower than the manufacturers literature dosage. One added thing: Propofol can lower blood pressure so the pet needs to be monitored while on that.

I also use oxymorphone for sedation and sometimes as the sole sedative for simple procedures like biopsy. It is an opioid and therefore it can cause respiratory depression, which means that the dog needs to be constantly monitored. There is a reversal agent called Naloxone that will reverse the effects of the drug and works quite well.

I will always put the dog on gas for a fairly short procedure. Isoforane is a gas of choice since it has fewer side effects. Halothane is still being used by some veterinarians. I do not use it since it (just like xylazine) sensitizes the heart which can cause irregular beats. But, as long as the dog is properly monitored, there should be no problem.

Prior to ANY anesthesia in any aged animal, I require a pre-anesthetic blood work up. I get a PCV (monitors whether anemic or dehydrated), a BUN (monitors liver and kidney function), Creatinine (monitors kidney function), ALT (monitors liver function), Alkaline phosphates

(monitors liver and the biliary system), Total protein (monitors the immune system and hydration status), glucose and the electrolytes (sodium, potassium and chloride). I get these as I said even in young animals... It is just good medicine to know where the dog is prior to surgery and anesthesia so we will know how they will tolerate anesthesia. It is the base line. These test also guide me to my use of anesthesia. For example, if there is kidney damage I know to avoid drugs that have to go through the kidney to be eliminated from the body. The temperature is also monitored along with the heart by an EKG.

Atrophine was a drug that was used all the time as a pre-medication to dry up the saliva in dogs and cats and to keep the heart rate up. It is not used much anymore, or shouldn't be used in large and giant breeds. I don't use it in any breed anymore. Atrophine causes the gut to slow down and this is not good especially in the mastiff. I believe slowing the gut down predisposes the mastiff to bloating.

Anesthetic Protocols:

Routine spay or neuter. I hate the word ROUTINE used here because no surgery is routine. I used valium at .3 mg/kg and ketamine at 10 mg/kg IV and then I put the tube down the trachea and start the dog on isoflurane gas anesthetic. I have not had problems with these in the mastiff.

OFA radiographs. I know many of you try to get OFA radiographs while the animal is awake. An unsedated animal is very hard to position correctly, but even more importantly OFA asks you to sedate the dogs. OFA believes that by not sedating the dogs, we're not getting good representative x-rays. I believe if the OFA radiographs are done with sedation, it would be very hard to miss a dysplastic animal. Depending on if the dog is going to go right home or stay in the hospital. I will use 2 anesthetics for each case. If the dog is staying, I use the valium/ketamine mixture and if the dog is not staying, then I use the propofol and then the dog is intubated. Just another added note. I always put an IV catheter in for a quick access to the blood stream in case something does happen and I need to give drugs quickly.

Cesarean Sections. The main goal here is to obtain the least sedation possible in the puppies. For the Cesarean section, I utilize Propofol at a dose of 3 mg./ lb. or until I can get an endotracheal tube down the dog. If I had to choose a second choice I would give the bitch torbutrol and valium as a preanesthetic as described next and then intubate after masking down. I use torbugesic at .45 mg/kg and give it to the muscle. Then I give valium (.45 mg/kg) intramuscularly. We prep the bitch on the floor by shaving her belly and then when done, we put her on the table and mask her down. We put a large mask over her muzzle and turn the gas all the way until she is asleep enough to put the endotracheal tube in. While masking the bitch down, she may struggle since the dog thinks it is not getting oxygen, even though it is. The trick here is to get in and the puppies out ASAP. Propofol can also be used and I have had good results with it. The bitch is wide awake as soon as the last staple is in. I am comfortable with either one.

More info on Anesthesia & the Mastiff -- 2 email conversations:

Re: Anesthesia for OFA

Date: 9/28/1999 12:10:34 AM Eastern Daylight Time

From: RocknRob56@aol.com

<< I would absolutely agree that Rompun should be avoided! Ketamine alone will be unlikely to produce sufficient relaxation for good xrays. I use valium/ketamine routinely for hip xrays and other short term procedures and would MUCH prefer this to Rompun. The dose should be reduced by about 20%; more can be given if needed. Other anesthetics are possible, of course; e.g. propofol, butorphanol or oxymorphone and acepromazine (I would urge caution with the Ace). Val/ket is short acting, and the dogs would be able to go home within a few hours. >>

I totally agree with all of this advise. I will utilize ketamine and valium or telazol but have found propofol combined with gas (isoflurane) is the way to go. It is more expensive but the dog gets right up and walks out.

Alot of veterinarians are using domitor and reversing it. I stay away from that even though it can be reversed. It lowers the heart rate alot but the hearts response is because the blood pressure is so high, it must slow down in order to maintain circulation...and I do not like slow heart rates in our giant breed dogs.

Robin M. Smith DVM

Propofol Dosing to use:

Date: 9/28/1999 12:55:05 PM Eastern Daylight Time

From: RocknRob56@aol.com

<< What is the dosage to use with propofol? We use it in the human OR and it works wonders.....right to sleep and quick wake up. >>

“Many use a pre-med with it...but I don't...I use the dose of 3mg/lb and give the 1st half fairly fast and sometimes do not have to give the rest...I can intubate then. The onset is 30-60 seconds and 1 bolus lasts about 2-5 minutes before the dog is up, so you must continue to infuse like they do in people or intubate. I intubate due to the cost of the drug. Don't give it too fast or apnea (respirations stopping) will occur...it is transient but can be profound.

I love the drug and use it now solely for my C-sections and short procedures if money allows. If not, I use ketamine and valium or Telazol.

Robin M. Smith DVM