

## **Gastric Dilatation-Volvulus; Bloat**

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June, 1997

Updated February, 2000

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Have you ever eaten too much at a family gathering? Remember that uncomfortable bloated feeling? All you did was sit down and relax for an hour or two, and you were ready for dessert. So why does everyone panic over bloat in their dogs?

Gastric dilatation-volvulus is an acute, life-threatening situation which requires immediate medical and surgical attention. Gastric dilatation means stomach distention or enlargement. This may or may not be accompanied by volvulus, or torsion, or twisting of the stomach on its long axis. Once the stomach twists, the stomach contents are trapped in place as the gas continues to build. As the stomach expands, it can press on major arteries and veins in the abdominal cavity, restricting blood flow and lowering blood pressure. Once this happens, the heart rate increases and the pulse becomes weak as the dog goes into shock. If the stomach swells enough, it can displace the spleen, cutting off circulation, and causing enlargement and even twisting of the spleen. With circulation for the stomach constricted, parts of the stomach wall can necrose, or die. All of this can happen over a period of hours, or even minutes. But once it starts, it needs immediate medical attention. Classic symptoms of bloat include pacing, difficulty walking, panting, discomfort, agitation, depression, drooling, foaming or frothing at the mouth, unproductive vomiting or retching, distention of the stomach. The swollen stomach may be grossly large, and hard (tympanic) to the touch. If the dog is going into shock, the gums will appear pale or grey, and when they are depressed with a finger, the color will be very slow to return; the heart rate will be fast, but the pulse will be weak. [Try looking at your healthy dog right now. Look at the color of the gums. Now you know their normal color. Press on the gum with your finger for a second. When you remove your finger, you will see a white mark where all the blood was pushed out of the capillaries. The speed with which the color returns shows a good blood pressure as the capillaries refill. Anytime the blood flow is compromised, the capillaries are the first to shut down. Now try to find the pulse. I just tried, and according to my findings, Maggie is dead. You can find the pulse by placing your finger on the femoral artery - high up on the inside of the back leg. I finally found Maggie's, but practice before you have to find it on a sick dog.]

In theory, the treatment for bloat is simple. Treat the shock with IV fluids, decompress the stomach, and if the stomach has twisted, get it back into position. In reality, it gets more complicated. An x-ray will usually show if the stomach has rotated or not. If a tube can be put down the throat into the stomach, this is what is preferred. The stomach contents are emptied and the stomach is rinsed with water or a saline solution. If the dog cannot be tubed [the danger with entubation is that it can rupture the lower esophagus], then another possible procedure is trocarization, or inserting a large bore needle directly into the stomach wall. [The danger with this procedure is peritonitis from stomach contents leaking into the abdominal cavity and causing infection. For an untrained person, the danger is that the needle will be put into an enlarged spleen instead of the stomach, or the wall of the stomach will rupture because the stomach wall has stretched too thin.] Once enough gas has been released by the trocar, the dog can sometimes be tubed to further decompress and empty the stomach. The other procedure is to make an incision in the stomach wall in order to empty the stomach.

Surgery may be required to reposition the stomach, and if part of the stomach wall has necrosed, that part will have to be removed (resected). If the spleen has sustained enough damage, it will have to be removed. Once the dog has bloated, there is an extremely high probability that he will bloat again. To prevent the stomach from twisting, and to significantly reduce the probability of bloat recurring, the stomach should be tacked in place (gastropexy). Some dogs with a high degree of risk can have a gastropexy done before the dog ever bloats. The easiest form of this is a laparoscopic gastropexy. Using a laparoscope to see, small incisions are made, and the stomach is tacked at each incision site. Done on an outpatient basis, it could cost under \$400US. When surgery is required for bloat, it typically costs about \$1200US if there are no complications. With complications, stomach resection, splenectomy, the cost can reach \$5000US.

Once a dog has bloated, there is a good chance that he will bloat again. He should be fed at least 2 times a day, avoid vigorous exercise for one hour before and two hours after eating. And always watch for signs of bloat, especially after any type of stress.

An ongoing study is being conducted at Purdue University by Dr. Glickman, and most of the current information about the risk factors and probability of bloat come from his extensive study, done mainly with Irish Setters. The dogs who are at greatest risk of bloat are the large, deep chested breeds. The greater the chest depth/width ratio, the greater the risk of bloat. Happy dogs are less likely to bloat. Factors linked to an increased risk are: history of belching and flatus, aggression toward people or other dogs, fast eating, fewer meals per day, less canned food, less table scraps, fewer snacks. Factors with NO correlation to risk are: dry food, dry food moistened with water, supplements, vitamins, multiple animal households, pre-existing disease, drug treatment, vaccines. The most recent finding in his study is that raising the food bowl actually INCREASES the risk of bloat - the higher the dish, the greater the risk. Some of the common precipitating factors are: stressful event, change in feeding time, bigger meal than usual. Most cases of bloat occur between 6pm and midnight - 59.3% of the cases studied by Dr. Glickman occurred during that time period. The gastropexy greatly reduced the risk of recurrence of bloat, from 4% per month to 0.3% per month. In Dr. Glickman's study of 1934 dogs with GDV,

he reports a death rate of 28.6% from gastric dilatation, and 33.3% from gastric dilatation-volvulus, and a lifetime recurrence rate of 80%, dropping to 3-5% with gastropexy.

There have been many stories on the Berner-L from people whose dogs have bloated. Many people now feed their dogs from an elevated food dish to help minimize the amount of air that the dog gulps with the food. Marianne Becktel and Marjorie Reho advocate giving the dog Mylanta II or Maalox before taking the dog to the vet.

From best case to worst case, here are the List examples:

- several people report their dogs have a gulping episode, but after an hour of this, it goes away with no other symptoms.

- pre-bloat behavior (pacing, discomfort) was noticed by **Gisela Haas** (Chuckie), **Judy Benoit** (Sarah), **Liz Bradbury** (Boots), and **Pat Long** (Vesta).

- **Susan Ablon's** Granville bloated 5 hours after eating, the vet successfully tubed him to decompress the stomach, there was no torsion or surgery. He bloated again at age 8.5, it's thought to have been triggered by the GI ulcer caused by all the medications he was taking.

- **Linda Klei** had just moved, her other dog was being kept at her Mom's house while undergoing chemotherapy, and on her first day at work, 9 year old Dutchie bloated after eating a lot of cedar chips and part of a blanket. Although she was about 180 degrees torsed, Dutchie was successfully tubed.

- **Cathy Burlile's** Cailler bloated when he was 4 years old, she feeds him 4 times a day, and he is now 9.5 years old. He had had minor surgery 36 hours prior to bloating.

- **Judy Benoit's** Sarah had a root canal, came home and curled up in the yard. When she came inside, she couldn't get comfortable. It was bloat. Sarah's sire and one littermate died of bloat.

- **Valerie Horney's** Booker was smiling and wagging, but his stomach looked distended. She had to insist on getting an x-ray because the vet didn't think it was bloat. It was, and Booker was already partially torsed. After surgery, he was raring to go!

- **Phil Shaffer's** Boris had shoulder surgery, bloated 24 hours later, but never did have any of the classic symptoms.

- **Jerry Uhl's** 10 year old Harbo bloated immediately after coming home from the place where he was boarded for 4 days. He successfully survived the surgery and lived another 2 years until his death from old age at 12.

- **Debbie Tripp's** Kim bloated right after checking into the Specialty. Kim had all the classic symptoms, it was bloat with torsion. With quick action on Debbie's part, plenty of

luck, and a lot of good medical help, 10.5 year old Kim survived the bloat and the surgery. It is believed that Debbie survived the Specialty!

- **Frankie Rubel's** Matt bloated at 1:30am. Having previously lost a dog to bloat, Frankie's son recognized the symptoms. Quick action and surgery helped Matt pull through successfully. The procedure cost \$2108 at U of P Vet Hospital. Matt's sire is Cathy Burlile's Cailler.

- The **McHale's** Quincy bloated at 7 months. Six weeks later, he bloated again. They then had the gastropexy done, but just one week after the vet gave the go ahead for Quincy to receive normal activity, Quincy contracted Parvo which he was unable to survive. His immune system was probably seriously compromised from all the stress.

- **Marge Reho's** Anneke had surgery to correct an ear-flap hematoma, and went into cardiac arrest from an allergy to the anesthetic (before the days of isoflurane). She was put on heart medication which is no longer on the market, because it produces stomach problems. The first time Anneke bloated, she was successfully tubed. The second time she bloated, Marge was able to fix the situation with almost half a bottle of Maalox. The last time, Anneke was given some ice cream in celebration of her 6th birthday. Anneke bloated, the stomach torqued completely, she was unable to be tubed, and because of the allergy to anesthesia, surgery would have been immediately fatal. The stomach did not twist back on its own, and Anneke did not survive. The vet felt that the cold food was the immediate trigger for the bloat.

- **Bev Barney** fed her 10 month old bitch one morning, crated her that night, and she was already bloating the next morning when the crate was opened. The bitch died on the way to the vet.

- **Cathy Burlile** lost her Dallas to bloat when he was 2 years old. He showed all the classic symptoms, and survived the surgery only to die of complications following the procedure (DIC, disseminated intravascular coagulation).

- **Marge Reho's** Heike underwent an emergency spay, bloated that night at the vet's clinic, and was dead the next morning when they opened at 6am.

- **Dino Candelaria's** Diver started to show classic early signs of bloat, and when she called the vet he agreed. He told her to take her to the emergency clinic for overnight observation, but to first perform a "full nelson bloat joggle" (Dino's term!). She put her arms behind Diver's front legs, then under and up in front and then up and over behind the neck (a full nelson on a person). Dino picked Diver up and joggled her up and down to allow the weight of the food to help straighten the stomach. It allowed Diver to start belching, and by the time Diver reached the emergency clinic, there was no gas in the stomach, and the stomach had not twisted. Diver stayed overnight for monitoring, but no surgery was required. Dino stresses that the bloat joggle should not be used instead of going to the vet, but only as the first line of defense.

Some of the other contributions to the list include:

- **Christine Nielson's** friend's dog who had his teeth cleaned Friday, bloated on Saturday and tubed successfully, bloated again on Sunday and was again successfully tubed.
- **Gael Goldsack** knew of an 18 month old irish wolfhound who died of bloat after eating too much bread, which was felt by the owner to have fermented, causing gas (gas in the stomach of dogs with GDV has been shown to be primarily air, not gas produced by bacterial fermentation. - paraphrase from Small Animal Clinical Nutrition as per Cathy Burlile).
- Roscoe posted all the newf-L posts about bloat, one of which linked bloat in her dog to a soy based diet (although no study has ever been done which links soy to bloat); another related the story of a newf on a natural diet who bloated.
- **Bronnie Longhurst** knew a Saint Bernard on the BARF diet who bloated.
- **Cathy Burlile** knew someone with a GSD who used Gas-X successfully on the first 2 occurrences of bloat, but the third time there was full torsion that required immediate surgery.

As you can see from this collection, there are many different symptoms, and many different outcomes. One of the keys to helping a dog survive bloat is to know your dog. If he's not acting normal and you suspect bloat, go to the vet and have it checked. If your vet isn't sure, but you are, insist on having x-rays taken. Many of the cases of bloat presented here followed surgery - stress. Always watch a dog carefully for the first 24 hours following any surgical procedure. If the dog has to remain at the vet's clinic, ensure that the dog will be monitored regularly around the clock. Otherwise, consider Dr. Laurel Cain's advice and move the dog to an emergency clinic where he will receive careful monitoring. Feed your dog at least twice a day. I found that mixing in a couple of large spoons of canned food with the dry helped to slow Vesta and Maggie when they eat. Minimize exercise before and after eating. And keep those guys happy!

### **References:**

See this great Health site list for more links to bloat information:

[http://members.rogers.com/rcamken/BMD\\_Health\\_Info\\_Links.html](http://members.rogers.com/rcamken/BMD_Health_Info_Links.html)

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Back Digests of the [Berner-List](#), 051, 202, 203, 207, 208, 226, 230, 279, 295, 298, 299, 384, 385, 386, 387, 440, 443, 502, 523, 525, 528, 538, 568, 569, 662, 701, 715, 727, 729-734, 736