Gastric dilatation and volvulus (GDV) is a life-threatening event most commonly experienced by dogs in which their stomach bloats or distends, and then twists up on itself. This is an emergency, and a fast response is critical to improve the chances for a successful outcome. The longer the dog suffers from this condition, the less favorable the outcome.

**Risk Factors**
This disease is more likely to occur in deep-chested, large or giant breed dogs, such as Great Danes, Weimaraners, Saint Bernards, and Irish Setters. GDV is more commonly associated with dogs who are older, eat from an elevated surface, eat very quickly, eat one large meal per day, or engage in vigorous exercise shortly after eating (within one hour or so).

**How does this make my dog sick?**
The etiology of GDV is not completely understood, however, it appears as though the stomach becomes bloated or distended, and the pylorus (the exit from the stomach to the intestines) is pulled from its normal position on the right side toward the left side and up (see figure 1). As this occurs, the esophagus twists, which prevents the dog from being able to throw up. Air continues to distend and twist the stomach, further pulling the pylorus out of place. The blood vessels on the stomach begin to stretch and flatten, cutting off circulation, starving the tissues of oxygen, thus resulting in tissue death and necrosis of the stomach wall.

As more air becomes trapped in the stomach, pressure in the abdomen increases, compressing the veins bringing blood back to the heart, decreasing the blood flow to the heart. This process causes the heart to work faster to try to compensate for the deficit of blood being returned. At the same time, increases in pressure in the stomach and abdomen places more pressure on the chest, making it more difficult for the dog to breathe, and they begin to show signs of respiratory distress.

**Recognizing a dog with GDV**
GDV can rapidly change from a concerning situation to a life threatening condition. These changes can take place over the course of mere minutes, often before a problem is even identified. The dog may start acting restless, pacing, and acting unsettled. Owners may observe their dog seems anxious or uncomfortable. The dog will often salivate or drool excessively, and this clinical sign may or may not be accompanied by period of retching where the dog will try to vomit unsuccessfully. In severe cases, dogs may develop severely distended abdomens. These signs are accompanied by a depressed or lethargic attitude. Dogs affected by GDV will have faster heart and breath rates than normal. In later stages, the dog will collapse or become comatose due to the severe circulatory shock.
**Diagnosing GDV**

GDV is a serious, life-threatening medical emergency. Owners should not delay in going to the veterinarian if they suspect their dog is suffering from GDV. The longer he experiences symptoms, the less likely he is to survive. Upon arrival to an animal hospital or clinic, the veterinarian will ask the owner questions about the dog to narrow down the possible associated medical conditions. The vet will also perform a physical exam. Depending on the condition of your dog, your vet may give the dog fluids and other medications to make him stable so they can take radiographs (x-rays). A radiograph of the dog laying on his right side provides the best diagnostic image to determine if the stomach is indeed twisted on itself. The position of the stomach in a case of GDV offers a clear diagnosis by highlighting what is termed a “Popeye arm” or “reverse C” appearance of the stomach (see image 2). If this is seen on radiographs, the dog will require surgery as soon as they can stabilize him enough to bring him to surgery.

**Treating GDV**

Stabilizing the dog is vital to provide the best chance of surviving the surgery and starting the recovery phase. Stabilization is accomplished by starting the dog on high volumes of intravenous fluids to normalize his blood volume as well as to replace electrolyte deficits. Next, the vet will try to relieve the distended stomach by one of two methods: (1) an orogastric tube or (2) an abdominal trocar. The orogastric tube is a tube that is placed in the dog’s mouth and runs to his stomach. If the esophagus is not severely twisted, the tube may be passed and the air released. If the esophagus is severely twisted, a trocar (a large, special needle) is placed through the abdominal wall into the stomach to release the buildup of excessive air. Next, the vet will perform surgery by making a large abdominal incision to correct the displacement of the organs. If tissue necrosis (tissue death) has occurred, the dead tissue will need to be excised and removed to prevent bacterial growth which can result in septicemia and death.

Dogs that develop GDV once have a 75% chance of developing the condition again. A procedure called a gastropexy is necessary to ensure that GDV will not occur again. A gastropexy is where part of the stomach wall is attached to the body wall, so that the pylorus can no longer move freely. This allows the stomach and intestines to continue functioning normally, without risk for volvulus or rotation in the future. Post-operative care is critical for survival. The dog must receive intravenous fluids for 48-72 hours after the surgery and will require intensive monitoring. An echocardiogram machine will be used to monitor the dog’s heart rhythms to ensure electrolyte abnormalities are not interfering with normal heart function.

**Complications**

This condition is risky, and can result in severe complications, even after a successful surgery. Many variables need to be monitored due to the compression of the abdominal veins, electrolyte imbalances, and tissue damage. After a GDV event has occurred and been treated, cardiovascular problems, heart arrhythmias, electrolyte imbalances, necrosis of stomach, peritonitis, disseminated intravascular coagulation (spontaneous hemorrhage), or even death are complications for which the owner needs to be prepared. Peritonitis or intestinal stasis can occur, each of which needs to be promptly recognized and treated. All the complications are serious, which is why the dog requires such intensive post-operative monitoring.

**Prevention**

Prevention is the best treatment for this condition. It is the cheapest and safest option for the dog. Gastropexy is highly recommended in dogs who are considered to be at an increased risk for developing GDV (Great Danes, Weimaraners, etc). This procedure is easily performed when your dog is brought in to be
castrated or spayed. Ensuring that the dog receives adequate nutrition and feeding the dog several, smaller meals a day (instead of one large meal) has been shown to decrease incidence in GDV. Using a device like a slow feeder or maze feeder has been shown to slow down fast eaters, which decreases the risk of developing GDV. It is important to let your dog rest before and after eating. Keeping your dog calm while their stomach digests the food will minimize the risk of bloating (gastric dilatation), which in turn reduces the risk of volvulus.

Sources Cited