

The Animal Medical Clinic

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Bloat in Dogs

This is a term that is synonymous with the more scientific term "Gastric Dilatation/Volvulus." It is often called GDV. It means that a dog's stomach distends with gas to the point that the dog goes into shock and may die.

Dilatation means that the stomach is distended with air, but it is located in the abdomen in its correct place. *Volvulus* means that the distention is associated with a twisting of the stomach on its longitudinal axis. Normal outflow from the stomach is obstructed and it distends with air even more severely.

Prevalence

This condition almost always occurs in adult, deep chested dogs of large and giant breeds. Some of the more commonly affected breeds include Great Danes, Irish Setters, German Shepherds, and Afghan Hounds.

Causes/Transmission

Even after extensive study, we still do not know the cause of GDV. In all likelihood, there are multiple causes. Original theories suggested that it occurred when a dog ate a large meal of dry food and then consumed an excessive amount of water. The water caused the dry food to swell. Vigorous exercise, including running and jumping, after eating contributed to the twisting (torsion) as the stomach moved about in the abdominal cavity. There is still no clear scientific evidence to support this theory.

Other theories have included consideration of excessive stomach acid production, swallowing air, stress, and fermentation of bacteria in the stomach.

In most dogs experiencing GDV, the stomach is not excessively full of dry food and the dog has not recently engaged in strenuous exercise. The most current theory is that the stomach's contractions lose their regular rhythm and trap air in the stomach; this can cause the twisting event. However, the sequence of events for most cases defies a good explanation.

Clinical Signs

An enlarged stomach will cause the abdominal wall to protrude prominently, especially on the dog's left side. The swelling will be very firm and obvious enough to see across the room. Occasionally, this distention is not very apparent. This occurs in dogs that have a large portion of the stomach up under the rib cage. In most cases, however, the owner is able to detect the distention. The dog will be very restless, painful, or very depressed. It may lie in what is commonly called a "praying position" with the front legs drawn fully forward. Vomiting will eventually progress to nonproductive retching (dry heaves). This sequence of events occurs relatively quickly, over two or three hours in most cases.

Diagnosis

The first step in diagnosis is to determine if the correct breed is involved.

The next step is to establish that the stomach is distended with air.

The presence of a rapidly developing distended abdomen in a large breed dog usually provides adequate evidence to render a tentative diagnosis of GDV. A radiograph (x-ray) is used to confirm that the diagnosis of dilatation. It can also identify the presence of volvulus, in most cases.

Treatment

The first major life-threatening event that occurs is shock. This occurs because the distended stomach puts pressure on the large veins in the abdomen that carry blood back to the heart. Without proper return of blood, the output of blood from the heart (cardiac output) is diminished and the tissues are deprived of blood and oxygen.

Reduced blood output from the heart and high pressure within the cavity of the stomach cause the stomach wall to be deprived of adequate circulation. If the blood supply is not restored quickly, the wall of the stomach begins to die; the wall may rupture. If volvulus occurs, the spleen's blood supply will also be impaired. This organ is attached to the stomach wall and shares some large blood vessels. When the stomach twists, the spleen is also rotated to an abnormal position and its vessels are compressed.

When the stomach is distended, digestion stops. This results in the accumulation of toxins that are normally removed from the intestinal tract. These toxins activate several chemicals that cause inflammation, and the toxins are absorbed into circulation (endotoxemia). This causes problems with the blood clotting factors so that inappropriate clotting occurs within blood vessels. This is called disseminated intravascular coagulation (DIC) and is usually fatal.

Several important steps must be taken quickly.

1. Shock must be treated with administration of large quantities of intravenous fluids. They must be given quickly; some dogs require more than one intravenous catheter.
2. Pressure must be removed from within the stomach (gastric decompression). This may be done with a tube that is passed from the mouth to the stomach. Another method is to insert a large bore needle through the skin into the stomach. A third method is to make an incision through the skin into the stomach and to temporarily suture the opened stomach to the skin. The last method is usually done when the dog's condition is so grave that anesthesia and abdominal surgery is not possible.
3. The stomach must be returned to its proper position. This requires abdominal surgery that can be risky because of the dog's condition. During surgery, the stomach wall will be inspected for areas that may have lost its blood supply. Although this is a very bad prognostic sign, the devitalized area(s) of the stomach should be removed.
4. The stomach will be attached to the abdominal wall (gastropexy) to minimize the possibility of recurrence of GDV. Although this is not always successful, this procedure greatly reduces the likelihood of recurrence.
5. Abnormalities in the rhythm of the heart (arrhythmias) must be diagnosed and treated. Severe arrhythmias can become life threatening at the time of surgery and for several days post-operatively. An EKG will be recorded every few hours to detect this problem.

Prognosis

The prognosis is guarded. Early intervention improves the likelihood of a good outcome. Other factors related to survival include the severity and duration of the distention, the degree of shock, how quickly treatment is begun, presence of endotoxemia, and the presence of other diseases, especially those involving the heart. Dogs who survive the surgery and immediate post-operative period have a good prognosis.

Prevention

The most effective means of prevention is gastropexy, or the surgical attachment of the stomach to the body wall. This will not prevent dilatation (bloat), but it will prevent volvulus in most cases.

Various dietary and exercise restrictions have been used, but none of these have proven value.