

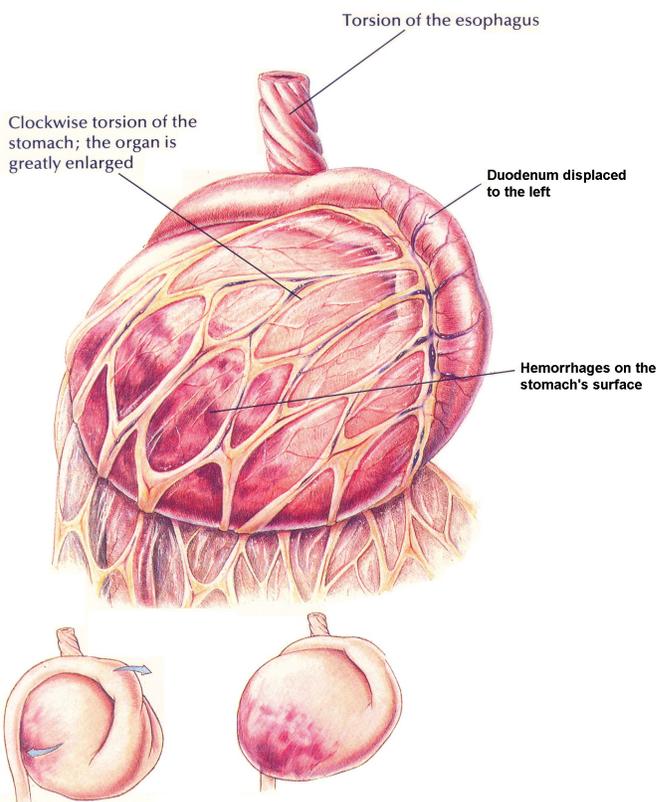
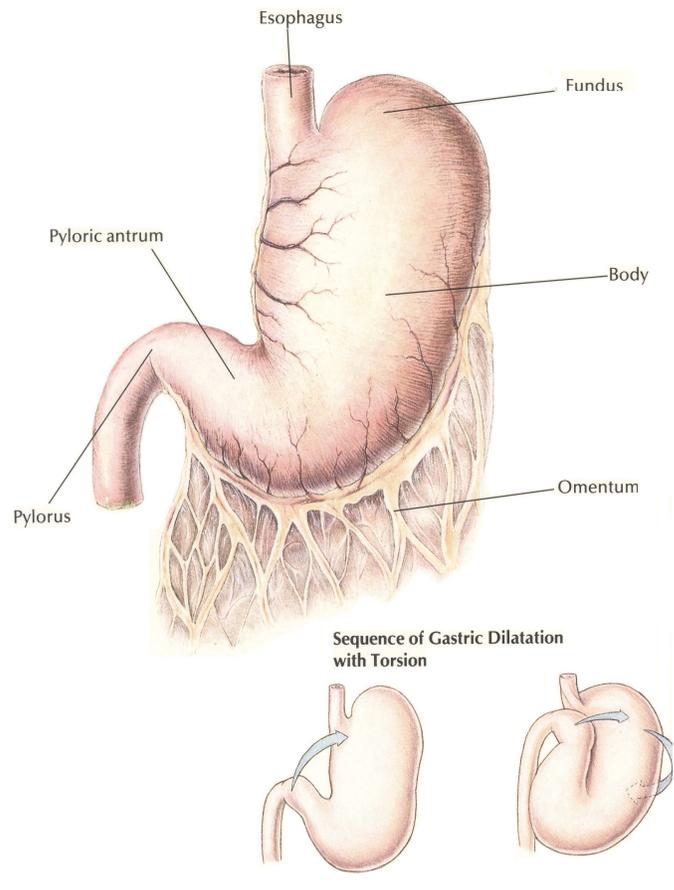
WHAT IS MEANT BY THE TERM "CANINE BLOAT"?

This is a term that is synonymous with the more scientific term "Gastric Dilatation/Volvulus." It is often called GDV. That means that a dog's stomach twists on its long axis and distends with air to the point where 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 (has not twisted). *Volvulus* means that the distention is associated with a twisting of the stomach on its longitudinal axis.

How or why does this occur?

We really do not know the answer to either of those questions. Original theories suggested that it occurred when a dog ate a large meal of dry food and then drank a lot of water. The water caused the dry food to swell. At the same time, the dog was



supposed to be engaged in strenuous exercise that included running and jumping. That resulted in the dog's stomach twisting on itself as the heavy organ was jostled about in the abdomen.

Although that is the most common explanation given, there is no scientific evidence to support this theory. 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.

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How is it diagnosed?

The first step is to establish that the stomach is distended with air. An enlarged stomach will cause the body 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 very apparent. This occurs in dogs which 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 in pain or very depressed. It may lie in what is commonly called a "praying position" with the front legs drawn fully forward. This should occur quickly, within two to three hours at the most.

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

Some dogs experience a chronic form of the disease in which the stomach is partially twisted. Distention with air does not occur because the partial twist permits air that accumulates to be expelled out the mouth or into the small intestines. Repeated vomiting is the most common sign. It is diagnosed with radiographs (x-rays) of the stomach which will show an abnormal shape to the stomach.

What happens when the stomach is distended with air?

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 is diminished, and the tissues are deprived of blood and oxygen.

The reduced blood output from the heart and the 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 and 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 which cause inflammation, and the toxins are absorbed into circulation. 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.

What is done to save the dog's life?

There are several important steps that 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 line.
- 2) Pressure must be removed from within the stomach. In some cases, this may be done with a tube that is passed from the mouth to the stomach. However, if the stomach is twisted, the tube

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cannot enter it. 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, which can be risky because of the dog's condition.

4) The stomach wall must 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 surgically removed.

5) The stomach must be attached to the abdominal wall (gastropexy) to prevent recurrence of GDV. This procedure greatly reduces the likelihood of recurrence.

6) 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 after surgery. An electrocardiogram (ECG) is the best method for monitoring the heart's rhythm.

What is the survival rate?

This will largely be determined by the severity of the distention, the degree of shock, how quickly treatment is begun, and the presence of other diseases, especially those involving the heart. Unfortunately, less than 50% of dogs presenting with this problem will survive.

What can be done to prevent it from occurring again?

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