

**MEDVET CLINICAL REVIEW****GASTRIC DILATATION-VOLVULUS  
SYNDROME****Matthew Barnhart DVM MS DACVS**

Gastric dilatation-volvulus (GDV) is a well-recognized syndrome and a significant source of sickness and mortality in large dogs. It occurs when the stomach fills with gas and liquid (gastric dilatation or "bloat") and then flips over on itself (volvulus or "twisting"). This process causes a life-threatening disruption to the cardiovascular and gastrointestinal systems. The exact cause of GDV is not known but there are recognized risk factors including: stress, breed-type (large/giant), increased age, body weight, familial history, nervous personality, increased speed of eating, and chest conformation ("deep chests"). Anecdotal reports of measures to prevent GDV are largely unsubstantiated. Frequent small feedings, moistening food, and avoiding activity around meal times all appear to be of no benefit. Avoiding stressful situations (dog shows, boarding, traveling, etc.) in at-risk dogs may be the best advice.

Recent estimates suggest that the lifetime risk for large or giant breed dog to develop GDV is 24-26%. While treatment success for GDV has improved over the years mortality can still range from 10-50% depending on the condition of the patient. Successful management of GDV patients requires aggressive emergency care, surgical intervention, and postoperative treatment.

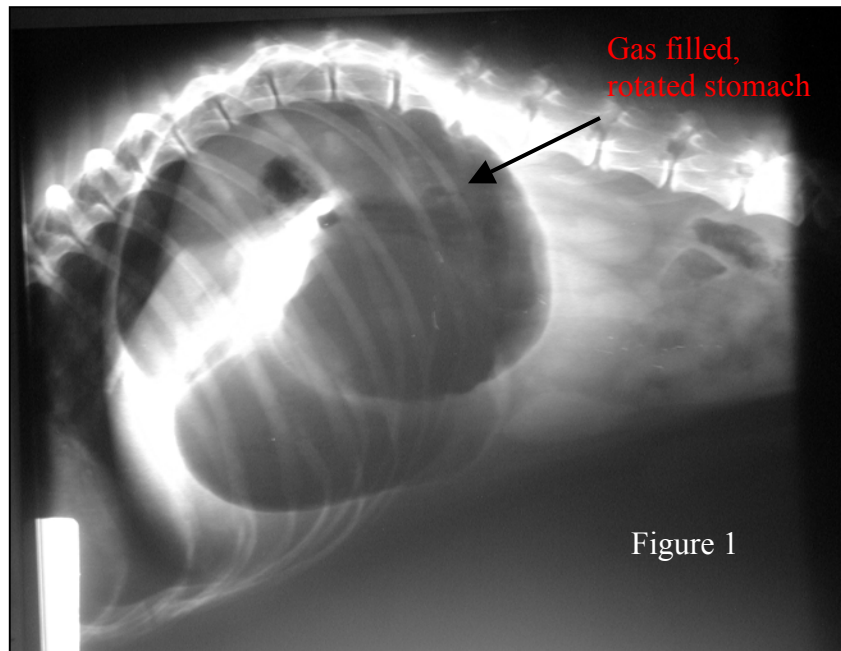
The most common symptoms of GDV are retching without vomiting, increased salivation, restlessness, and an enlarged or bloated appearance to abdomen.

Abdominal X-rays provide the definitive diagnosis for GDV. Stomach rotation to the left side produces the characteristic "double bubble" or "Popeye arm" stomach gas pattern (Figure 1).

**Emergency Treatment**

Emergency care should be instituted immediately in GDV cases in order to effectively manage the condition. Time is of the essence. The main goal of treatment is to enhance the return of blood flow to

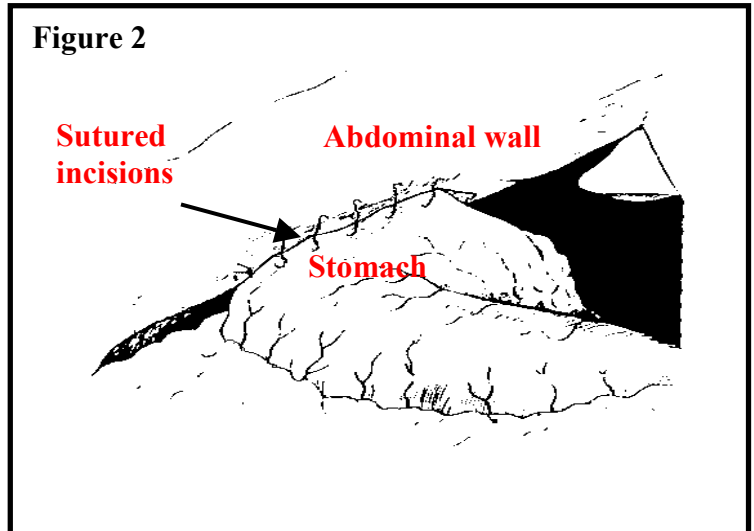
the heart by administering intravenous fluids and removing as much gas as possible from the stomach. Additional drugs that may be administered include pain medication, broad-spectrum intravenous antibiotics, and corticosteroids. Complete removal of stomach gas is usually impossible until surgery is performed because of how the

**Figure 1**

stomach is twisted. We can remove some gas by placing a needle through the skin into the stomach, thus relieving pressure.

### **Surgery**

The goals of surgery are to fully remove the stomach gas, reposition the stomach, and to prevent future recurrence of GDV. First, the stomach is returned to its normal position and then a tube passed down the throat into the stomach to remove the gas. During surgery, the stomach is closely inspected for any areas of dead tissue. Tissue death results from the twisting and subsequent loss of blood supply to the stomach. If present, the dead area must be removed. The spleen is also evaluated because its shared blood supply with the stomach can be compromised too. If this has happened then removal of the spleen is necessary. Fortunately, dogs can live normal lives without their spleens. Finally, the stomach is fixed to the abdominal wall so it cannot rotate in the future. This is called a gastropexy and can be accomplished a number of ways. An incisional gastropexy is a popular technique, which involves creating an incision in the stomach wall and in the adjacent abdominal wall. The 2 incisions are sutured to each other, ultimately forming a scar that adheres them together (**Figure 2**). Gastropexy decreases the chance of future GDV recurrence by 94%.



Proper postoperative critical care is essential for recovery. Patients at MedVet are monitored 24 hours a day in our intensive care unit. Patient comfort, vital signs, heart electrical activity, and other parameters are recorded and evaluated around the clock. MedVet treats more cases of GDV than any other facility in Ohio. We have developed protocols that greatly increase the chance of treatment success.

### **Prognosis**

With proper care, overall mortality in dogs with GDV is 18%. Prognosis is poorest in dogs that have both damaged spleens and stomachs. The majority of dogs however have a good prognosis, especially when treated quickly and aggressively. In addition, older patients can do as well as younger ones. Given the incidence of GDV in large and giant breed dogs prophylactic gastropexy merits consideration. This is especially true in high-risk breeds (Great Danes, German shepherds, etc.) or dogs with genetic relatives that have experienced GDV. Prophylactic gastropexy is the only way to effectively prevent GDV. It is a relatively minor procedure and is much less involved and much less expensive than treating a GDV case.



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