



Theresa W. Fossum  
DVM, MS, PhD, Diplomate  
ACVS

Professor of Veterinary  
Surgery, Vice President for  
Research and Strategic  
Initiatives  
Midwestern University,  
Glendale, AZ USA

[tfossum@midwestern.edu](mailto:tfossum@midwestern.edu)

## GASTRIC DILATATION-VOLVULUS: WHAT'S NEW?

### GENERAL CONSIDERATIONS AND CLINICALLY RELEVANT PATHOPHYSIOLOGY

Classically, GDV syndrome is an acute condition with a mortality rate of 20% to 45% in treated animals. The stomach becomes enlarged as gas or fluid or both accumulate in the lumen. The gas probably comes from aerophagia, although bacterial fermentation of carbohydrates, diffusion from the bloodstream, and metabolic reactions may contribute. Normal gastric secretion and transudation of fluids into the gastric lumen secondary to venous congestion contribute to fluid accumulation. The cause of GDV is unknown, but exercise after ingestion of large meals of highly processed food or water has been suggested to contribute to it. Epidemiologic studies have not supported a causal relationship between feeding soy-based or cereal-based dry dog food and GDV. However, Irish setters fed a single feed type appear to have an increased risk of GDV compared to those fed a mixture of feed types. Likewise, adding table food or canned food to the diet of large and giant breed dogs is associated with a decreased incidence of GDV. One study suggested that dogs fed a larger volume of food per meal were at significantly increased risk of GDV, regardless of the number of meals fed daily. In the aforementioned study, the risk of GDV was highest for dogs fed a larger volume of food once daily. Feeding dry dog foods in which one of the first four ingredients are oils or fats may also increase the risk of GDV. Having a deeper and narrower thorax may change the anatomic relationship between the stomach and esophagus such that the dog's ability to eructate is impaired. Feeding dogs from a raised feed bowl may increase the risk of GDV because it may promote aerophagia.

### Medical management

Stabilizing the patient's condition is the initial objective. One or more large-bore intravenous catheters should be placed in either a jugular or both cephalic veins. Either isotonic fluids (90 ml/kg/hour), hypertonic 7% saline (4 to 5 ml/kg over 5 to 15 minutes), hetastarch (5 to 10 ml/kg over 10 to 15 minutes) or a mixture of 7.5% saline and hetastarch.

Gastric decompression should be performed while shock therapy is initiated. The stomach may be decompressed percutaneously with several large-bore intravenous catheters or a small trocar, or (preferably) a stomach tube may be passed. The stomach tube should be measured from the point of the nose to the xiphoid process and a piece of tape applied to the tube to mark the correct length. A roll of tape can be placed between the incisors and the tube passed through the center hole. Attempts should be made to pass the tube to the measured point. Placing the animal in different positions (i.e., sitting, reclining on a tilt-table) may help if it is difficult to advance the tube into the stomach. Do not perforate the esophagus with overly vigorous attempts to pass the tube. If these attempts fail, percutaneous decompression of the stomach should be attempted. This may relieve pressure on the cardia and allow the tube to enter the stomach. Once the air has been removed, the stomach should be flushed with warm water. Failure to lavage the stomach usually results in rapid re-dilatation after the tube is withdrawn. If blood is seen in the fluid from the stomach, prompt surgical intervention is warranted because this may indicate gastric necrosis. If the stomach tube still cannot be passed and immediate surgical correction is not possible, temporary decompression may be achieved by performing a temporary gastrostomy. A Foley catheter should not be placed in the stomach percutaneously unless the stomach is simultaneously tacked to the body wall because of the high risk of peritonitis if the stomach pulls away from the tube. The disadvantages of a temporary gastrostomy are that the stomach must be closed when the permanent gastropexy is performed, and there is a high risk of peritoneal contamination. However, a temporary gastrostomy maintains gastric decompression if the animal is being referred or if surgery is delayed. If immediate surgery is not possible in an animal in which a stomach tube was passed but that dilates rapidly after decompression, the stomach tube can be exteriorized through a pharyngostomy approach. This prevents the animal from chewing on the tube until definitive surgery can be performed. Radiographs may be taken after the patient has been decompressed and is stable.

# COMPANION ANIMAL

## GASTRO-INTESTINAL SURGERY

### Surgical technique

The goals of surgical treatment are threefold: (1) to inspect the stomach and spleen so as to identify and remove damaged or necrotic tissues; (2) to decompress the stomach and correct any malpositioning; and (3) to adhere the stomach to the body wall to prevent subsequent malpositioning. Upon entering the abdominal cavity of a dog with GDV, the first structure noted is the greater omentum, which usually covers the dilated stomach.

*Decompress the stomach before repositioning by using a large-bore needle (i.e., 14 or 16 gauge) attached to suction. If the needle becomes occluded with ingesta, have an assistant pass an orogastric stomach tube and perform gastric lavage.*

*For a clockwise rotation, once the stomach has been decompressed, rotate it counterclockwise by grasping the pylorus (usually found below the esophagus) with the right hand and the greater curvature with the left. Push the greater curvature, or fundus, of the stomach toward the table while simultaneously elevating the pylorus towards the incision. Check to make sure the spleen is normally positioned in the left abdominal quadrant. If there is splenic necrosis or significant infarction, perform a partial or complete splenectomy. Remove or invaginate necrotic gastric tissues. Avoid entering the gastric lumen if possible. If you are uncertain whether gastric tissue will remain viable, invaginate the abnormal tissue. Verify that the gastrosplenic ligament is not torsed, and before closure palpate the intraabdominal esophagus to ensure that the stomach is derotated.*

Perform a permanent gastropexy. Gastropexy usually is curative for dogs with partial or chronic GDV.

