

Gastric Dilation/Volvulus –a veterinary emergency

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What is GD/V?

Gastric dilation/volvulus (GD/V) , also known as bloat, is a life threatening condition that is most commonly diagnosed in large and giant breed dogs. Dogs suffering from gastric dilation (GD) have distension of their stomach with air. Whilst the stomach remains in a normal position and there is no obstruction of the inflow or outflow of the stomach this air may be expelled by belching, or it may pass on through the intestines. In these circumstances, whilst the distension of the stomach may cause marked temporary discomfort the dog will recover uneventfully from that episode of bloat. However, in many dogs with gaseous gastric dilation, the gas may remain in the stomach and not be expelled and, unfortunately, in some dogs the stomach will actually rotate on its axis so that it becomes twisted. This is gastric dilation/volvulus (GD/V), also known as gastric torsion. When this happens the consequences of having a distended and twisted stomach are very serious and have life threatening effects on many other body systems. Failure to recognise and treat this condition will lead to death of that patient.

Why does it occur?

The underlying cause of GD/V is still unknown. It used to be thought that GD/V was due to bacterial fermentation of food in the stomach resulting in gas production. It was thought that this gas distended the stomach, the stomach then rotated but it is now known that this theory is incorrect because the gas which accumulates in the stomach of dogs with GD/V is actually air which has been swallowed via the oesophagus rather than gas that has been produced in the abdomen. To add to this, it is also debated whether in fact it is rotation of the stomach that actually occurs first followed by gas accumulation and further twisting of the stomach.

What breeds are typically affected?

Certain large and giant breeds of dog are known to be at increased risk of the condition, including Great Danes, Irish Wolf Hounds, Irish Setters, Newfoundlands, Saint Bernards and many owners and/or breeders of these dogs are very aware of GD/V and are very vigilant for the signs of the condition, and will seek prompt veterinary care if they are concerned that their dog may be suffering this condition. These breeds of dog have very deep chests and the front of their abdomen, where the stomach is located, is also very deep. This seems to be an important risk factor for the development of GD/V. There are many medium to large breeds of dog with this conformation that are at risk of developing GD/V.

Are there any other known risk factors?

It is sometimes difficult to rely on information obtained from small studies within the veterinary literature, questionnaires, etc. but it is known that dogs are at increased risk of GD/V if they have a first degree relative (parent, sibling or offspring) that has suffered a GD/V. The risk increases as dogs get older, and if they are underweight. The following are also risk factors:

- Exercise and stress after feeding
- Eating behaviour (fast eating style)
- Feeding from a bowl that has been raised off the floor
- Feeding only one meal a day
- Feeding only a dry diet

What signs might I see if my dog has a GD/V?

The clinical signs of GD/V are typically seen as restlessness, and affected dogs seem anxious, unable to settle and appear to be uncomfortable. This often occurs within several hours of eating a main meal in the first instance. Dogs will usually attempt to vomit and retch repeatedly in an attempt to empty their stomach and relieve the distension, but will not actually be able to expel any stomach contents. Instead, they may drool saliva or regurgitate small pools of white frothy saliva that has accumulated in their oesophagus because it cannot reach the stomach. Often, their owners may recognise that their dog's abdomen appears distended. However, the stomach is located at the front of the abdomen, within the rib cage (although not actually within the chest) and sometimes this distension may not easily be seen in dogs that have a long hair coat or have a very deep rib cage. Dogs with GD/V will show an increased effort to breathe because the distended stomach pushes the diaphragm forwards into the chest and prevents the lungs from expanding properly. The distended stomach also prevents blood returning along the major abdominal veins to the heart so that the dog's circulation of blood around the body is reduced and the dog becomes weaker. As the condition progresses, affected dogs become weaker and sicker, and show more signs of increasing difficulty in breathing. The deterioration occurs over several hours, depending on the degree of distension of the stomach, and if untreated affected dogs will collapse as they go into shock.

The consequences of a GD/V being unrecognised and untreated will result in the death of that dog due to the cardiovascular and respiratory compromise having a "domino" effect and causing other very serious consequences in many other body systems.

What should I do if I am concerned by dog may have a GD/V?

If a dog is showing any of the above clinical signs then immediate veterinary advice should be sought. There are other conditions that can present with similar signs as a GD/V but, regardless of the underlying condition that the dog is suffering, the continued presence or a deterioration of the dog's condition could signify a serious problem requiring veterinary assessment and treatment. All veterinary surgeons should react promptly if you/they consider your dog might be suffering from a GD/V, as this is an emergency situation.

How will my vet make a diagnosis?

In many cases there is little doubt for the veterinary surgeon as to the diagnosis, particularly if the dog is a large or giant breed dog with a history of sudden onset of distress and abdominal distension after feeding, and on examination the patient has signs of cardiovascular and respiratory compromise and abdominal pain and distension. The diagnosis is confirmed by taking a radiograph of the abdomen which will show a large gas filled stomach if the patient has a GD/V. Usually it is possible to distinguish between gastric dilation alone, and GD/V where the stomach is twisted from the abdominal radiograph.

What will my vet do once a diagnosis of GD/V has been made?

The dog must be hospitalised and treatment must be started immediately, and includes the release of air from the stomach, treatment of the shock with intravenous fluid and provision of oxygen. Supportive treatment must be aggressive and the dog should be re-evaluated frequently to ensure that they are responding to supportive treatment. Abdominal surgery is recommended in all dogs with GD/V to ensure that there is no obstruction to outflow from the stomach and to attach ("pexy") the stomach in place so that the dog cannot develop a GD/V again in the future. In some dogs it may not be possible to release the air from the stomach adequately and so early progression to surgery is required, although all dogs will require a period of stabilisation with supportive treatment of their shock before they can safely be anaesthetised to undergo surgery. The timing of surgery is in debate amongst veterinary surgeons. Some prefer to operate as soon as the dog has showed an improvement to medical treatment, other veterinary surgeons would prefer a longer period of stabilisation. Regardless of the recommendation on the timing of surgery, it is accepted that without a gastropexy (surgical procedure to attach the stomach in a normal location to the body wall so that it cannot twist again) dogs that have survived one episode of GD/V are likely to suffer the condition again.

What are the chances that my dog will recover from a GD/V?

There are many possible complications that can occur during the recovery of dogs from their surgical treatment of GD/V and most dogs that have undergone this surgery require at least several days of supportive treatment and very close monitoring before that can be discharged from the hospital. Thirty years ago the survival rates for dogs being treated for

GD/V was approximately 50%. Now, with advances anaesthetic drugs and techniques, supportive and critical care, etc. survival rates of 90% are reported in several recent studies. The survival rates are not as good in dogs that have heart rhythm disturbances before and/or after surgical treatment of the GD/V, and in dogs that have undergone removal of their spleen or a portion of their stomach at the time of their surgical treatment.

Summary

GD/V is a life threatening condition that typically occurs in large and giant breeds of dogs and many breeders and owners are aware of this condition and are vigilant for it occurring in their dog but it can also occur in many other dog breeds and pet owners may be unaware of the condition and what clinical signs should cause their concern.

Owners should seek prompt veterinary advice if they are concerned that their dog is showing any signs that could suggest a GD/V as it is a true veterinary emergency that requires immediate and aggressive treatment to maximise the chance of a successful outcome. To prevent the condition from recurring following successful management of an episode of GD/V a gastropexy should be performed to prevent the stomach from rotating again in the future. If an owner is concerned that their dog is an "at risk" breed, or has a close relative that has suffered a GD/V it might be worthwhile considering that dog undergoing a gastropexy to prevent a GD/V from happening. This is termed a "prophylactic gastropexy". Advice regarding whether this might be recommended should be sought from a veterinary surgeon.