**HEMORRHAGIC GASTROENTERITIS (HGE)**

Hemorrhagic gastroenteritis, or HGE, is a very serious condition that can affect males and female pets of all breeds and ages, however, it’s most often seen in 2- to 4-year-old toy and small breed dogs, especially miniature Poodles, **Miniature Schnauzers**, Dachshunds, [Yorkshire Terriers](https://healthypets.mercola.com/sites/healthypets/archive/2015/09/18/yorkshire-terrier.aspx), the Pekingese, the Cavalier King Charles Spaniel, the Shetland Sheepdog … and standard Poodles.

Hemorrhagic gastroenteritis, often abbreviated HGE, is a fancy way of describing inflammation of the gastrointestinal tract that results in bloody diarrhea. Despite its fancy name, know that HGE can result in severe clinical signs. Untreated, HGE can quickly be life threatening as it progresses to hypoglycemia (i.e., low blood sugar), electrolyte imbalances, severe dehydration, hypovolemic shock, and even sepsis.

With HGE, there are a few unique clinical features that make it different from gastroenteritis alone. These include:

* An elevated packed cell volume (see the diagnostic section below)
* An acute nature (signs occurring within just a few hours)
* Bloody diarrhea

Interestingly, dogs described as high-strung, hyperactive or stressed seem to have a higher incidence of HGE as well. HGE isn’t thought to be contagious from dog to dog, however, dogs living together have been reported to develop the condition at the same time, which is suspicious. Also, there have been outbreaks reported in some areas of the country, which is also suspicious.

**CAUSES**

In dogs with HGE, the lining of the intestinal tract becomes suddenly very leaky, even though no inflammation is present. The leakiness allows fluids, proteins and red blood cells to seep out of vessels within the intestinal wall and into the lumen or opening of the intestine. The dog’s body responds with what we call splenic contractions. The spleen serves as sort of a blood bank. It’s a holding tank for red blood cells, and when the body senses blood loss and the need for more red cells, the spleen releases its reserve into circulation.

The cause of HGE is a mystery. Theories include indiscriminate eating and immune-mediated disease. HGE has even developed after vaccines were given. Other potential causes include toxin exposure, pancreatitis, stress, anxiety, hyperactivity, an allergic reaction to food or an inhalant, internal parasites and bacterial infection in the gastrointestinal (GI) tract.

A small study of 10 dogs with HGE found mucosal lesions in the intestines, but not the stomachs of the dogs, and all 10 had clostridium bacteria in the small intestine. The study authors recommended renaming the condition “acute hemorrhagic diarrhea syndrome,” because they found no evidence of gastritis or inflammation of the stomach itself.

It has been assumed the stomach is involved in HGE because vomiting is almost always present, however, that wasn’t the case with this study. In addition, the small and large intestines showed necrosis rather than inflammation.

The exact cause of HGE remains unknown (idiopathic). It may be related to dietary indiscretion (ingesting non-food items or even dramatically different foods than what the dog is accustomed to), immune-mediated disease, toxins, or pancreatitis. Stress, anxiety, and hyperactivity are thought to be possible contributing factors in many cases. Recent research indicates that HGE may be an allergic reaction (food or inhaled). Intestinal parasites and bacteria may also be causes. Dogs who experience HGE may be more prone to developing HGE in the future.

**SYMPTOMS and DIAGNOSIS**

Clinical signs of HGE can occur very quickly, within just a few hours. Symptoms include:

* Malaise
* Not eating
* Vomiting
* Bloody stool
* “Raspberry jam” appearance to the feces
* Drippings of blood-tinged fluid on the rear legs, feathers, or perineal area
* Painful abdomen
* Not moving
* Weakness/lethargy
* Dehydration
* Collapse
* Fever

Despite large amounts of water being lost into the intestinal tract, dogs with HGE often do not appear to be clinically dehydrated. This finding is a red herring, however. Hypovolemic shock can quickly develop.

The combination of splenic contraction and a leaky bowel produce the laboratory values that are typically seen with HGE:

* Elevated red blood cell counts; a dog’s packed cell volume is often 60% or more (37-55% is considered normal)
* Normal or low blood protein levels

Combine these findings with a history of acute onset of “raspberry jam” diarrhea in an otherwise healthy dog, and HGE is the most likely diagnosis

Most cases of HGE are acute, meaning they come on suddenly without warning in otherwise healthy dogs. The primary symptom of hemorrhagic gastroenteritis is either dark or bright red **bloody diarrhea that resembles raspberry jam**, along with **sudden and profound vomiting** that starts out as mucus or bile, but eventually becomes bloody. Some dogs may also have decreased appetite, **a painful abdomen**, lethargy and a fever.

HGE can be fatal, so immediate veterinary care is essential. Strangely, dogs are usually not yet dehydrated when first examined, however, it can develop quickly and result in a drop in blood pressure, elevated red cell count, problems with blood clotting, shock and kidney failure.

A diagnosis of HGE is typically based on a dog’s symptoms (sudden onset of vomiting and bloody diarrhea), along with an elevated packed-cell volume (PCV) of greater than 60 percent in most cases, which is seen in the red blood cell count, and normal or low blood protein levels. A positive culture for C. perfringens can also be helpful for diagnostic purposes.

The diagnosis of HGE is typically based on ruling out other medical causes. Blood work should be performed to rule out underlying problems and to monitor for the severity of dehydration. With HGE, the packed cell volume (PCV) – the number that represents the amount of red blood cells in the body - is typically very elevated. **Normal PCV ranges from 35-45%, and for dogs with HGE, the PCV is typically > 60%. This finding is classic for HGE**.

Diagnostic tests to rule out other issues, such as parvo, ingestion of rat poison, intestinal parasites, Addison’s disease and others are sometimes necessary. Diagnosis is often a process of eliminating other causes of bloody stools and gastrointestinal distress.

There are other disease conditions that exhibit similar symptoms to HGE. Canine parvovirus, a gastrointestinal foreign body, an intestinal intussusception or an intestinal volvulus (twisting of the intestines) may cause similar symptoms and should be considered if the dog doesn't respond to therapy for HGE in 24-48 hours.

Other tests that may need to be assessed include:

* A complete blood count to evaluate the red and white blood cell count, along with the platelet count
* A biochemistry panel to evaluate the protein, electrolytes, kidney function and liver enzymes
* A fecal sample to rule out parasitic infections or abnormal bacterial overgrowth
* A urinalysis to evaluate kidney function
* Abdominal x-rays to rule out a foreign body, obstruction, or abnormal fluid in the intestines or abdomen

**TREATMENT**

Treatment for HGE is primarily supportive, but it must be started immediately and aggressively to give your dog the very best chance for survival. Intravenous (IV) fluids will be given to prevent shock. Anti-microbials are often given to combat an acute bacterial infection, and for dogs with vomiting, anti-nausea medications may be administered. On rare occasions, blood transfusions may be required if the dog has lost a tremendous amount of blood. Transfusions of plasma may be required if the dog has very low plasma protein levels.

Once a dog’s condition improves and he’s no longer vomiting, water by mouth and small bland meals can be instituted. IV fluids will be tapered off over time to make sure he can maintain his hydration, and oral meds are discontinued. In most cases, HGE runs its course in a few days in dogs given immediate treatment and appropriate supportive care.

About 10 percent of dogs who have one episode of HGE tend to have more in the future. While preventing HGE is difficult because we still don’t know what causes it, it’s important to ensure that your dog’s immune system remains strong and resilient. Hemorrhagic gastroenteritis is potentially life-threatening because it progresses so rapidly, so again, if you recognize symptoms in your pet that could be HGE, it’s important to act on your hunch and get your pet to your veterinarian immediately.

Thankfully, the prognosis for HGE is quite good with aggressive supportive care and treatment. Typically, this requires hospitalization for a minimum of 24 hours, depending on how severe the clinical signs are. As HGE can result in severe dehydration, treatment focuses primarily on re-hydration with aggressive intravenous (IV) fluids. Anti-vomiting medication (e.g., Cerenia™), anti-diarrhea medication (e.g., metronidazole), a bland diet, and repeat blood work (to make sure that the PCV is improving).

**Dogs with HGE will appear severely ill and, if left untreated, may die**. In most cases, the disorder appears to run its course in a few days **if** the dog is given appropriate supportive care. Intravenous fluid therapy with potassium and electrolyte supplementation provides the foundation of HGE therapy. Subcutaneous fluids (given under the skin) are not usually considered adequate to meet the significant fluid requirements of most dogs with HGE. Most dogs are not fed during the first 24 hours of treatment and are often given antibiotics (such as ampicillin, enrofloxacin, or metronidazole) to combat potential secondary intestinal infection. Additional therapy for HGE may include gastrointestinal protectants (sucralfate) and anti-vomiting medications. In severe cases, plasma or colloids may be needed to correct severely low blood protein levels.

If intravenous fluid therapy is not given, the dog’s red blood cell count will continue to elevate because of dehydration. In this situation, the dog is at risk for a potentially fatal clotting disorder called disseminated intravascular coagulation (DIC). Once DIC has begun, it is often irreversible and may result in death.

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