

Hemorrhagic Gastroenteritis in Dog

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Introduction

Hemorrhagic gastroenteritis (HGE) is a disorder of the gastrointestinal tract that is characterized by acute vomiting and bloody diarrhea. It is most commonly seen in every breed of dogs. It is believed to involve a combination of factors, including bacterial infections, viral infections, dietary factors, stress, and immune system responses but it is often related with Parvo virus which belongs to paramyxoviridae family of viruses. HGE* can progress rapidly, and some cases can be severe which can be life-threatening if not treated promptly.

It is important to recognize the signs of HGE in order to provide prompt treatment. Common signs include vomiting, bloody diarrhea, lethargy, anorexia, and abdominal pain. If left untreated, HGE can lead to severe dehydration, electrolyte imbalance, and shock.

Etiology

The etiology and pathogenesis are unclear but HGE* may be the result of infection from Clostridium perfringens type A, Parvovirus, E.Coli (serotype O157, O26), and Autoimmune response.

Clinical Signs and Symptoms

Clinical signs are variable in both the course and severity of the disease

- Now and then, a fever that can reach soaring heights (over 102 F), but more often, the body temperature maintains an elusive normalcy or dips below the usual.
- The illness bursts onto the scene with a suddenness akin to a lightning strike, catching everyone off guard, and brings with it the shockwaves of "hypovolemic shock," a fancy term for a plummeting blood volume.
- Unsuspecting pups, who were in the pink of health, find themselves in the clutches of this

enigmatic ailment, one that doesn't seem related to any prior stomach or intestinal troubles.

- It all starts with an abrupt overture of vomiting, a loss of appetite so complete it's dubbed "anorexia," and a heavy curtain of melancholy that's swiftly lifted to reveal a cascade of watery diarrhea, eventually taking on a crimson hue.
- The performance marches forward at a breakneck pace, reaching a crescendo within a handful of hours (typically 8 to 12), all orchestrated by the master conductor known as shock.
- The once lively pet turns into a shadow of its former self – downcast, feeble, bearing the telltale signs of a sluggish capillary refill (watch those gums slowly blush back to pink after being pressed) and a faint pulse that struggles to make itself felt.
- The belly becomes a tender territory, yielding discomfort upon a gentle touch, while the belly's internal waters create a strange symphony beneath the skin.
- A discreet rectal inspection reveals the presence of bloody turmoil within, later in the disease's performance, evolving into a stool resembling raspberry jam – a rather unexpected transformation.

Diagnosis

- Embarking on a journey through the pet's history and conducting a thorough physical exploration.
- Unveiling the secrets hidden within the Complete Blood Count, where vital clues are etched - watch for signs of concentrated blood (PCV >60%), dwindling red blood cells (<4.95 $10^{12}/L$), diminishing hemoglobin levels (<11.9 g/dl), and a lowered count of vigilant leukocytes (<510³/mcL).

- When neutropenia makes its entrance, the stage gets set for concerns involving sepsis and the formidable parvovirus enteritis.
- The serum biochemical profile might appear unremarkable, or it could divulge subtle hints such as a mild panhypoproteinemia (<5.5g/dL) and an array of electrolyte irregularities that echo the tale of gastrointestinal losses and dwindling intake – be on the lookout for hypokalemia (<4mEq/L), hyponatremia (<9mg/dL), and hypochloremia (<106mEq/L).
- As we delve into the visual realm, keep an eye out for radiographic and ultrasound anomalies that should be confined to a realm of diffuse ileus and the graceful dance of fluid-filled twists of bowel.

Differential Diagnosis

- An intricate web of disruptions that radiate system-wide, eventually entangling the gastrointestinal realm as a secondary player (think hypoadrenocorticism's dramatic entrance).
- The blood's delicate balance veering into chaos, as scenarios like rodenticide toxicosis, plummeting platelet numbers (thrombocytopenia), and platelet dysfunction (thrombocytopathia) steal the spotlight.
- A scene of grave gastrointestinal ulceration, where the plot thickens and takes a darker turn.
- Enter the enigmatic character, neoplasia, a word whispered with both curiosity and trepidation.
- The climax, where the gastrointestinal curtain is punctured dramatically, be it due to any cause.

Treatment

- Emerging as the stalwart of the treatment stage, swift intravenous fluid therapy takes the spotlight. The rhythm of administering isotonic fluids takes its cues from the patient's perfusion, the depth of dehydration, and the unceasing losses that unfold. Dogs grappling with profound hypoproteinemia or caught in the clutches of shock might find solace in synthetic or natural colloid interventions (cue stored or freshly frozen plasma) to mend the tides.
- As the narrative progresses, the option of parenteral antibiotics enters the scene, a potential remedy against the elusive *Clostridium* spp. Think of ampicillin, dosed at 10–50 mg/kg, IV, every 6–8 hours, or the enigmatic metronidazole, ranging from 10–44 mg/kg, IV, every 12 hours –

a choice tinged with uncertainty, leaving us pondering its necessity in every twist of the plot.

- Enter the secondary protagonist, Cefotaxime, gracing the stage at a dose of 30 mg/kg, offering an additional layer of antibiotic coverage.
- The serum potassium concentration holds the key to the next phase, where the maintenance fluids gain a potassium chloride infusion, a gesture aimed at thwarting the rise of hypokalemia. For the hypoglycemic souls, a touch of dextrose (2.5%–5%) comes to their aid. In this evolving drama, supporting actors make their entrance – antiemetic therapy and the delicate choreography of dietary management, much akin to the playbooks of canine parvovirus and acute gastritis.
- When the scene turns dire, and bleeding takes center stage, hemostat marvels like ethamsylate and zakshot (tranexamic acid) make their grand debut, ready to halt the crimson tide.
- And just when the fever of uncertainty grips the storyline, enter the NSAID hero, meloxicam, poised at a dose of 0.3 mg/kg bwt, a soothing balm to quell the flames of pyrexia.

Diet

- A resounding decree echoes through the halls of acute affliction – "NPO," a succinct command that forbids any morsel or sip to pass the lips during the turbulent times of active vomiting.
- As the tides of recovery gently roll in, a culinary transition awaits. The spotlight shines on a gentle ensemble - a diet of bland charm, boasting low fat and gentle fibers, ready to grace the palate for several days before the triumphant return to the familiar fare of normalcy. Hints of dietary fiber and the allure of probiotics join the ensemble, their cameo roles hinting at a potential to curtail recurrences, a twist that might unravel later in the narrative.

Prevention

Shielding your furry companion from the enigma of HGE* unfolds through a tapestry of precautions. First in line, the sentinel of vaccinations and parasite protection stands vigilant, an impervious armor against potential threats. The culinary realm plays its part too – a diet of utmost quality serves as a cornerstone, while shunning tainted foods, those carrying the hidden burdens of bacteria and toxins, emerges as a strategic maneuver.

Yet, the veil of uncertainty remains unlifted, for the very heart of HGE's origins remains shrouded in mystery. No playbook for prevention has been penned, no definitive route to avert its enigmatic grasp uncovered. In this realm of unknowns, the wisest course is one of preparedness, guided by the known safeguards, while acknowledging that some secrets of affliction still elude our grasp.

Prognosis

- The outlook is generally positive, with most pets recovering complication-free.
- Less than 10% of treated dogs succumb, and 10-15% may see recurrences.
- For untreated dogs, mortality rates are notably high.
 - Sudden death is infrequent, offering some reassurance.

*HGE- (HEMORRHAGIC GASTROENTERITIS)