



# Lymphoplasmacytic-Plasmacytic Gastroenteritis

(Inflammation of the Stomach and Intestines, Characterized by the Presence of Lymphocytes and Plasmacytes [Types of White Blood Cell])

## Basics

### OVERVIEW

- An inflammatory disease of the stomach and intestine (generally known as “gastroenteritis”), characterized by infiltration of lymphocytes (a type of white blood cell) and plasma cells or plasmacytes (a specialized type of white blood cell; plasma cells are lymphocytes that have been altered to produce immunoglobulin, an immune protein or antibody, necessary for fighting disease); the lymphocytes and plasma cells usually infiltrate into the lamina propria (the layer just under the lining), but occasionally involve deeper tissues, known as the “submucosa” (the layer of tissue between the lining and the muscular layer of a tubular organ) and “muscularis” (the muscular layer of a tubular organ)
- Most common form of inflammatory bowel disease (IBD) affecting dogs and cats; “inflammatory bowel disease” is a group of disorders or diseases characterized by inflammation of the intestines

### GENETICS

- Basenjis, Norwegian Lundehunds, and soft-coated Wheaten terriers have familial (runs in certain families or lines of animals) forms of inflammatory bowel disease
- Certain genes may make an individual susceptible to development of IBD

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Dogs
- Cats

#### Breed Predispositions

- Basenjis and Norwegian Lundehunds have unique forms of inflammatory bowel disease; gluten-sensitive enteropathy (specific type of intestinal disease related to the presence of wheat gluten in the diet) affects Irish setters; protein-losing enteropathy and nephropathy (conditions in which proteins are lost from the body through the intestines [enteropathy] or kidneys [nephropathy]) affects soft-coated Wheaten terriers
- German shepherd dogs and Chinese shar-peis reportedly are susceptible to lymphocytic-plasmacytic

gastroenteritis

- Pure-breed cats (Asian breeds) may be more likely to have lymphocytic-plasmacytic gastroenteritis than other cats

### **Mean Age and Range**

- Most common in middle-aged and older pets
- Dogs as young as 8 months and cats as young as 5 months of age have been reported to have lymphocytic-plasmacytic gastroenteritis

## **SIGNS/OBSERVED CHANGES IN THE PET**

- Signs associated with lymphocytic-plasmacytic inflammation of the stomach (known as “gastritis”) with or without inflammation of the intestines (known as “enteritis”) can vary in type, severity, and frequency
- Generally have an intermittent or cyclical, long-term (chronic) course
- Cats—intermittent, chronic vomiting is the most common sign; long-term (chronic) small-bowel diarrhea is second most common sign
- Dogs—long-term (chronic) small-bowel diarrhea is the most common sign; if only the stomach is involved, vomiting is the most common sign
- Dogs and cats—lack of appetite (known as “anorexia”) and long-term (chronic) weight loss are common; while blood in the stool (known as “hematochezia”); vomiting blood (known as “hematemesis”); and dark, tarry stools (known as “melena”) due to the presence of digested blood in the bowel movement are noted occasionally
- Pet may have normal body-fluid status (that is, normal hydration) or may have low body-fluid status (that is, dehydration); may have extreme weight loss with muscle wasting (known as “cachexia”), and may show signs of depression, depending on the disease severity and organ(s) affected

## **CAUSES**

- Probably many factors cause lymphocytic-plasmacytic gastroenteritis; involves complex interactions between genetic factors, the immune response, and the bacterial environment found in the intestinal tract

### **Infectious Agents**

- *Giardia*, *Salmonella*, *Campylobacter*, and normal gastrointestinal bacteria have been implicated in causing lymphocytic-plasmacytic gastroenteritis

### **Dietary Agents**

- Meat proteins, food additives, artificial coloring, preservatives, milk proteins, and gluten (wheat) may contribute to the development of long-term (chronic) inflammation of the lining of the intestinal tract

### **Genetic Factors**

- Certain forms of inflammatory bowel disease are more common in some breeds of dogs
- Certain genes may make an individual susceptible to development of IBD

# **Treatment**

## **HEALTH CARE**

- Outpatient, unless the pet is debilitated from dehydration, has low levels of protein in the blood (known as “hypoproteinemia”), or has extreme weight loss with muscle wasting (cachexia)
- Monitor response to treatment using the Canine Inflammatory Bowel Disease Activity Index (CIBDAI)—a tool to assess disease severity
- If the pet is dehydrated or must have food and water withheld because of severe vomiting, fluid therapy (such as lactated Ringer’s solution) should be administered; additional supplementation of certain compounds (known as “electrolytes,” such as potassium chloride, magnesium sulfate) may be necessary if abnormalities in levels in the blood are detected
- Colloids (dextrans or hetastarch) should be given if severely low levels of albumin (a protein) are present in the blood (known as “hypoalbuminemia”) from protein-losing enteropathy (condition in which proteins are lost from the body through the intestines) is present; colloids are fluids that contain larger molecules that stay within the circulating blood to help maintain circulating blood volume

## **ACTIVITY**

- No restrictions

## DIET

- Dietary therapy with an elimination diet is an essential component of patient management; an “elimination diet” is a diet that does not contain substances that the animal normally eats and is free of additives
- Pets with severe intestinal involvement and protein-losing enteropathy (condition in which proteins are lost from the body through the intestines) may require intravenous feeding (known as “total parenteral nutrition” or TPN) until stable
- Highly digestible, antigen-restricted (so-called “low-allergy”) diets, containing a single protein source, should be fed to minimize the possibility of food allergy or reaction to food
- Highly digestible diets decrease the intestinal antigenic load, thus helping to reduce inflammation of the lining of the intestines; appropriate diet therapy can contribute to remission of signs and can be used as a maintenance diet
- Modification of the n-3 to n-6 fatty-acid ratio may help to modulate the inflammatory response
- Injectable cobalamin (vitamin B12) supplementation is essential if serum levels are subnormal, as deficiencies in cobalamin can contribute to clinical signs and limit the effectiveness of dietary and medical therapy
- Numerous commercial elimination diets (diets that eliminates or excludes the food ingredient(s) to which the pet is allergic or intolerant) are available for dogs and cats; home-cooked diets also are an excellent option, but are more time consuming for owners
- Use fiber supplements in dogs and cats with inflammation of the large bowel or colon (known as “colitis”)

## Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Steroids—mainstay of treatment for lymphocytic-plasmacytic inflammation of the intestines of unknown cause (known as “idiopathic lymphocytic-plasmacytic enteritis”); prednisone or prednisolone is used most frequently in dogs and cats; cats may require higher dosages to control their disease and may respond better to prednisolone than to prednisone
- Budesonide, a locally active steroid, may be used in pets that cannot tolerate the systemic side effects of prednisone, such as excessive thirst (known as “polydipsia”) and excessive urination (known as “polyuria”)
- Injectable steroids may be needed in severe cases, in which absorption of the drug following dosage by mouth may be limited
- Gradually taper dose of steroids, following your pet's veterinarian's recommendations; relapses are more common in pets that are taken off steroids too quickly; maintenance dosages of steroids, administered every 48–72 hours may be necessary in some pets
- Occasionally other drugs that suppress or decrease the immune response (known as “immunosuppressive drugs”) can be used to allow a reduction in steroid dose and avoid some of the adverse effects of steroid therapy
- Azathioprine—an immunosuppressive drug that can be used to allow a reduction in steroid dose; delayed onset of activity (up to three weeks) limits effectiveness in sudden (acute) disease
- Chlorambucil is an effective alternative to azathioprine
- Metronidazole—has antibacterial and antiprotozoal properties; some evidence that it also has immune-modulating effects
- Cyclosporine—may be useful in the therapy of pets that do not respond or respond poorly to dietary modification and other medications; dosage is very individualized, so monitoring is recommended; cost prohibits routine use of this drug
- Sulfasalazine—a sulfa analog that is broken down by intestinal bacteria into sulfapyridine and 5-aminosalicylic acid, the latter of which provides anti-inflammatory effects in the colon or large bowel

## Follow-Up Care

### PATIENT MONITORING

- Severely affected pets on bone-marrow suppressive medications require frequent monitoring; adjust medications during these visits based on bloodwork and clinical signs

- Pets receiving azathioprine or chlorambucil—complete blood count (CBC) should be performed every 10–14 days after the start of treatment, with rechecks monthly and then bimonthly thereafter for the entire treatment period; bone-marrow suppression, leading to low red-blood cell and low white blood cell counts, can be seen at any time during treatment and generally is reversible with drug discontinuation
- Check pets with less severe disease 2–3 weeks after their initial evaluation, and then monthly to bimonthly until medications are tapered and clinical signs are resolved

## PREVENTIONS AND AVOIDANCE

- If a food allergy or intolerance is suspected or documented, avoid feeding that particular nutrient and adhere strictly to dietary changes recommended by your pet's veterinarian

## POSSIBLE COMPLICATIONS

- Weight loss and debilitation in pets that do not respond or respond poorly to dietary manipulation or medication
- Excessive levels of medication-related steroids in the body lead to signs of hyperadrenocorticism or Cushing's syndrome; when these signs are caused by medication, the disease is known as “iatrogenic hyperadrenocorticism”
- Steroid side effects, such as excessive thirst (known as “polydipsia”) and excessive urination (known as “polyuria”)
- Bone-marrow suppression (leading to low red-blood cell and low white blood cell counts); inflammation of the pancreas (known as “pancreatitis”); inflammation of the liver (known as “hepatitis”); or lack of appetite (anorexia) caused by azathioprine and/or chlorambucil
- Vomiting, diarrhea, and lack of appetite (anorexia) with cyclosporine; temporarily decreasing the dosage typically will result in resolution of gastrointestinal signs
- “Dry eye” (known as “keratoconjunctivitis sicca” or KCS) with sulfasalazine

## EXPECTED COURSE AND PROGNOSIS

- Dogs and cats with mild-to-moderate inflammation have a good-to-excellent prognosis for full recovery
- Pets with severe disease, particularly if other portions of the gastrointestinal tract are involved, have a more-guarded prognosis
- Other indicators of a poor long-term outcome include low cobalamin levels in the blood (known as “hypocobalaminemia”), low albumin levels in the blood (hypoalbuminemia) and severe lesions on the intestinal lining as seen by endoscopy, using a special lighted instrument called an “endoscope” that is passed through the mouth into the esophagus, stomach, and intestines (general term for procedure is “endoscopy”)
- Often the initial response to therapy sets the tone for a given individual's ability to recover

## Key Points

- Inflammatory bowel disease is more likely to be controlled, rather than cured, as relapses are common
- Patience is required during the various food and medication trials that often are necessary

# Notes

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