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Colitis ... inflammation of the colon.

The chief feature of colitis is a goeey diarrhea, featuring mucus, fresh blood or both.

The stool may start normal then finish soft or may seem goeey throughout.

There is often accompanying cramping, gas, and a sense of immediate urgency (the sudden need to run for a "bathroom").

Vomiting can be a feature of this condition though it is the characteristic diarrhea that is the hallmark.

Colitis may be acute (lasting only a few days) or chronic (lasting weeks or months on end). Even in chronic case, weight loss is usually not a feature of this condition.

What and where is the colon?

The colon is another term for the large or lower intestine.

For those who do not know the lower intestine from the upper intestine, a short tour is in order:

Food is chewed up in the mouth and swallowed.

At this point, the goal is to convert the food from the kibble or whatever you feed in the feed pan to a liquid slurry that will flow evenly through the intestinal tract bathing the vast absorption surfaces lower down.

Liquefying the food by chewing begins this process.

Adding saliva adds some enzymes to begin the breakdown of food structure.

The breakdown of food into the liquid slurry is called digestion.

From the mouth and throat food travels through the chest via a tube called the esophagus.

This is a well-coordinated muscular movement rather than just the natural flow of gravity.

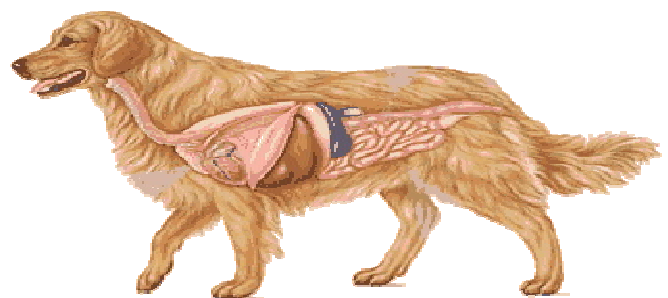


The esophagus connects to the stomach where the food continues its breakdown process.

The stomach intensively grinds the food while secreting strong acid into the mix to further digestion.

Gradually the food mixture is squirted out of the stomach into the small intestine.

At the end of this process, only the most indigestible material is left in



the stomach.

It is either vomited up or a single large stomach contraction (called a "house keeper contraction") moves this material into the small intestine as well.

The small intestine is divided into 3 parts: the duodenum, jejunum and ileum.

The food at this point is in the duodenum where digestion is completed.

The duodenum is where the bile duct and pancreatic duct are located.

As food enters the duodenum, bile is squirted into the mixture to neutralize the stomach acid and help dissolve the dietary fats in the mixture.

Pancreatic enzymes squirt in to digest the starches.

From here on in, the name of the game switches from digestion to absorption.

The food mixture flows along the small intestine where it is absorbed into the body.

Bacteria live in the small intestine symbiotically, producing vitamins and assisting in food breakdown as the food passes by.

After the long journey through the small intestine, most of what is left in the tract is indigestible fiber and any material that was not absorbed earlier.

Now the food enter the the colon.

The colon has three functions: absorption of water, storage of stool, and further digestion of unabsorbed nutrients.

The bacterial population in the



colon is about 10 times more dense than that of the small intestine. These bacteria take fibers indigestible to the host and actually digest some into the three biochemicals: acetate, propionate, and butyrate (in addition, they produce assorted gases and pigments to create stool as we know it).

These biochemicals nourish the colon cells (which only live about a week anyway) and control colon pH so that excreted toxins will not be reabsorbed.

These bacteria are sometimes referred to as "good" bacteria or "helpful" bacteria because of this symbiotic relationship the dog has with them.

The digestive system gives them a home and food and they give the dog a healthy colon environment.

Symptoms of colitis.

In classifying diarrhea, it is important to determine whether the problem relates to the small intestine (diarrheas originating here are more serious) or large intestine.

Diarrheas of the large intestine have the following common characteristics:

They are not associated with weight loss.

They are associated with straining and sense of sudden urgency.

They often involve fresh blood in the stool.

They often involve slime or mucus in the stool.

They often involve a stool that starts normal and finishes loose.

They involve stool quality that is more goeey or slimy than watery.

A diagnosis of colitis is generally straight forward given the above classic findings though how one should proceed depends on the course of the signs.

Is the problem acute (i.e. suddenly there) or chronic (been happening for several weeks regularly) or episodic (happens then goes away then happens again).

Colitis suddenly – acute colitis.

A dog that has sudden symptoms of colitis probably has a stress-related colitis (common after boarding, moving, severe weather or other change) or a dietary indiscretion-related colitis (related to treats or raiding the garbage).

These episodes are generally minor and can be cleared with a short course of medication such as [metronidazole](#) or [sulfasalazine](#) and/or dietary therapy.

Parasites, especially [giardia](#) and [whipworms](#), can also cause colitis and may have to be ruled out as well with testing.

In general, a few days of medication and bland diet should resolve the problem and the dog will be back to normal quickly.

During recovery it is common to find the dog has no stool at all for a couple of days.

This is normal and not a sign of constipation.

If, however, the dog's diarrhea is not clearly improved in 2-3 days, the owner should contact the veterinarian's office with an update to see if further testing is needed.

Colitis chronically or episodically.

If your dog has had symptoms of colitis for one month or more, a more complete search for the actual cause of the colitis should be performed.

The first step is to run a basic database.

This should include blood chemistry, a white and red cell profile (a CBC), and at least one fecal test for parasites.

A test for pancreatic ability to produce digestive enzymes may also be in order. ([Exocrine pancreatic insufficiency](#) is a disease of the small intestine producing a diarrhea very heavy in fat, which can be confused with the mucous diarrhea of colitis.)

A fecal "smear" or "cytology" test where the bacteria of the stool sample (as opposed to worm content) may be examined microscopically can help rule out pathogenic bacteria that can cause colitis ([Clostridial organisms](#) especially).

In the dog, [whipworms](#) are difficult to confirm by fecal floatation testing (this test detects worm eggs and whipworms only periodically release their eggs).

It may be prudent to deworm the dog for whipworms and see if the problem resolves. In addition or instead of deworming, a course of [metronidazole](#), [sulfasalazine](#), or [tylosin](#) may be prescribed and/or a new diet may be recommended as a trial.

If response to a short course of simple treatment is short-lived and if blood testing reveals no explanation, then colonoscopy with biopsies will probably be necessary to reach a diagnosis.

At this point common underlying causes may include infiltration of the lining of the colon with inflammatory cells as in [inflammatory bowel disease](#) or the entire problem may turn out to be more psychosomatic as in [irritable bowel syndrome](#).

The colon biopsy readily distinguishes these conditions by showing the inflammatory infiltrate in the former and normal tissue in the latter. It should be emphasized that the abbreviations "IBD" and "IBS" are often incorrectly used interchangeably.

In fact, these are two completely different conditions. Please see their respective links for more details.

Management.

Colitis is best managed when its cause is known and specific therapy can be instituted.

When this is not possible, symptomatic management is often attempted.

The following are therapeutic medications and strategies that can be helpful in the treatment of colitis.

[Metronidazole](#) and [Tylosin](#): These medications have anti-inflammatory properties in the large intestine as well as ability to kill harmful organisms.

For more information on this medication, see the links

Sulfasalazine: This medication consists of a sulfa antibiotic bound to a salicylate anti-inflammatory.

The sulfa bond protects the anti-inflammatory medication until it gets to the large intestine thus saving the anti-inflammatory effect for the disease of the large intestine.

This is a very effective medication but is typically given three times a day which is an inconvenience.

Dietary fiber: The role of fiber in colitis is confusing as there are an assortment of fiber preparations (soluble fibers, insoluble fibers, and mixtures).

In general, colitis is felt to be a "fiber-responsive" disease.

Fibers are broken down into nutrients for colon cells and also for food for beneficial colon bacteria.

Fructooligosaccharides (FOS): FOS's are carbohydrates involving fructose (fruit sugar) units attached to glucose (starch sugar) units. Most carbohydrates are digested by the bacteria of the small intestine leaving only the undigested fibers and other dregs for the teeming masses of the large intestine.

FOS's are not fibers but they are digested in the large intestine (not the small intestine) in the same way that fibers are, yielding the same biochemical that fibers do.

Why is this good?

Diets that contain FOS's may be helpful in the management of colitis.

Probiotics: A probiotic is a protected culture of live "helpful" bacteria that can colonize the patient's intestine.

The bacteria must be protected from the acid of the stomach so as to survive to the lower intestine.

Once there the bacteria make a home and produce by-products that are nourishing to the intestinal and local immune system cells.

There are numerous products on the market for both humans and animals.

If you want to add a probiotic to a dog's regimen, we recommend

sticking to well-established companies. E.g. "Protexin Soluble"

Probiotics have excellent viability and efficacy.

Elimination diet: Colitis can result from a food intolerance (an example would be lactose intolerance).

Intolerances can result from dyes, preservatives, contaminants or even natural proteins in the food.

Similarly, colitis can result from an actual [food allergy](#).

The solution for these intolerances is the feeding a "pure" diet, ideally a home cooked food made with carbohydrates and proteins that are novel or new to the patient.

An 8-10 week diet course is typically needed and no other chews or treats can be offered during the time of the trial.

Food allergy cannot be diagnosed by blood test or skin test.

At this time, response to elimination diet is the only test for food allergy or intolerance.

Most people are not in a position to home cook an appropriate food for the dog.

Fortunately, several novel protein diets and hydrolyzed protein diets have been developed.

For more details on using an elimination diet, please visit our [food allergy](#) page.

Treating for [Clostridium](#):

Clostridial organisms are a group of anaerobic bacteria responsible for such unpleasant conditions as tetanus, botulism, and gangrene.

There are Clostridial organisms that normally live in the large intestine but they do not cause any trouble unless some stressful event or diet change allows them to over grow.

Once they are present in large numbers the toxins that they produce become significant and can cause colitis.

The diagnosis of Clostridial disease is complicated.

A fecal smear may show the presence of Clostridial organisms but that does not mean they are producing toxin.

Further tests (the "reverse passive latex antigen test" and the "ELISA"

test) may be needed but the accuracy of these tests is in dispute. Often a course of a Clostridium-killing antibiotic can be used as a test. Such antibiotics include: [amoxicillin](#), [tylosin](#), [metronidazole](#) (which has other colitis-helping properties as well), and [clindamycin](#).

[Prednisone](#): Prednisone is the cornerstone of treatment for [Inflammatory Bowel Disease](#) and inflammatory bowel disease must be diagnosed by biopsy.

Sometimes a trial course of this medication is suggested for colitis.

Histiocytic ulcerative colitis.

This condition is also called "Boxer Colitis" because the Boxer breed seems predisposed.

This form of colitis is particularly ulcerative and involves infiltration of the tender colon lining with cells called "histiocytes."

These cells are the cells that are normally called into the scene of inflammation relatively late so that they can absorb the dead cells and debris that have been created by the inflammatory event.

Dogs with this condition typically show symptoms at an early age (less than 2 years) and become more debilitated by their symptoms than the usual colitis patients do.

It is currently believed that this condition results from an inappropriate immune response against the common bacteria of the colon.

Dogs with this form of colitis do not respond well to the usual remedies listed above but instead seem to show an excellent response to the antibiotic [enrofloxacin](#).

This antibiotic is particularly effective against gram negative bacteria (so classified because their cell wall's staining properties when tested). It has thus been inferred that these bacteria are at the root of the problem.

Histiocytic ulcerative colitis can be confirmed by biopsy though signs of colitis in a young Boxer are highly suggestive of this condition.