

# INFLAMMATORY BOWEL DISEASE



## What is Inflammatory Bowel Disease?

Inflammatory Bowel Disease, or IBD, is a chronic (ongoing, long term) problem seen in both dogs and cats, similar to Crohn's disease in humans. The similar-sounding "Irritable Bowel Syndrome" of people is usually a milder condition than IBD in pets. IBD results from a profound disorder of the immune system of the gastrointestinal tract, and can involve the stomach, small intestines, large intestine or all three. When an animal has IBD, the lining of the stomach or intestines is invaded by inflammatory, or immune system, cells.

We don't yet understand the exact cause of inflammatory bowel disease. Genetic factors are involved, as some breeds of dogs, namely Basenjis, wheaten terriers and Shar peis, are much more prone to it than others. For some reason, pets with IBD have a hyper-reactive immune system in the intestinal tract. The body's own immune system, in other words, causes the disease. It becomes overly sensitive to certain foods, bacteria, intestinal parasites or even the body's own cells.

The normal intestinal immune system consists of several different types of cells whose jobs are to scavenge up and destroy foreign cells, such as bacteria, which invade beyond the intestinal lining. They also destroy toxins and foreign materials. They are sort of like a police force that travels up and down within the intestinal wall, keeping order.

In inflammatory bowel disease, the immune system over reacts, sending too many cells into the lining of the intestines. These cells release histamines and other substances which cause inflammation, and there are so many of these cells present they clog the tissues so the intestinal lining can't function properly. Food and water absorption are impaired, leading to vomiting, diarrhea, weight loss or abdominal pain. Chronic inflammation also becomes self-perpetuating - the damaged intestinal lining becomes leaky, allowing further bacteria and food proteins to enter past the lining, which further stimulates the immune system.

In the normal dog or cat, a simple case of illness from a parasite or sensitivity to a certain food substance is just an intestinal irritation, not a full blown immune system disease. Parasite treatment or a diet change is curative. Most cases of food allergy or intestinal parasites are not IBD. In IBD, the hair-trigger immune response is very abnormal. Even after the original substance or infection that was the trigger is gone, the immune system is still over-reactive. Treatment is aimed at controlling this hair-trigger response.

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## Diagnosis of IBD

Quite a few diseases other than inflammatory bowel disease can cause the same symptoms. Diagnosis of IBD can be made in a number of ways. For dogs, we now have a very accurate blood test available. It checks for 5 different substances in the bloodstream that increase or decrease when the intestine is chronically inflamed.

Another set of blood tests we may recommend for patients with chronic GI disease is called a GI Panel. This set of tests looks at the cobalamin (vitamin B12) level, which is often low with IBD. It measures folate (vitamin B6) as well, which increases when there is an overgrowth of harmful intestinal bacteria. It also includes a PLI test, which is a marker for pancreatitis, and TLI, which tells us whether the pancreas is making enough enzymes to digest food properly.

An abdominal ultrasound can also suggest that IBD is present. The ultrasound lets us measure the thickness of the stomach and intestinal walls. Thickening means disease is present. Lymphoma, a type of intestinal cancer, also causes intestinal thickening but the appearance is different, with loss of the normal layering pattern of the intestinal walls. Enlarged abdominal lymph nodes are common with intestinal cancer, so that can be another clue. Ultrasound lets us look beyond the intestines to the entire abdomen. We are more likely to recommend ultrasound for senior pets with GI symptoms because it lets us look for signs of cancer, not just in the intestines but also in the spleen, liver, kidneys, bladder and elsewhere. Cancer is less likely in younger pets, so we often do blood testing first for these patients, instead of ultrasound first.

There are several different kinds of IBD, each involving a different type, or mix of types, of inflammatory cells. The best way to tell whether an animal has IBD and what type is to biopsy the intestines or stomach. The biopsy involves removing small pieces of intestine and stomach, under general anesthesia, and examining them under a microscope to see what abnormal cells are present. Biopsy samples can be obtained via a fiberoptic endoscope slid into the stomach and intestinal tract through the mouth and/or rectum, or with an incision into the abdomen.

Biopsies don't only tell us which type of IBD a pet has. Other diseases diagnosed via biopsy include lymphangectasia, *Helicobacter pylori* infection in the stomach or intestinal cancer.

The two main types of IBD are eosinophilic and lymphoplasmacytic. Eosinophils are a type of white blood cell that helps our immune systems cope with allergens and parasites. If the biopsies show eosinophilic IBD the patient is likely overreacting to food substances or parasites. Lymphocytes are a different type of white blood cell that indicates it is more likely the immune system is overreacting to bacteria or the body's own cells. Knowing which type a pet has helps us to choose the best path for treatment.

## Treatment of IBD

If we don't have biopsies to go by, we don't know which type of IBD we are dealing with. The first steps to treatment in these cases are to eliminate any parasites or food substances which may be triggering eosinophilic IBD. If we are lucky, symptoms of

GI distress decrease markedly. These are also the first steps when we have biopsy results that tell us this is what we are dealing with.

The most common parasites involved are Giardia, a one celled protozoa, and whipworms, which are tiny, hair fine worms too small to see without a microscope. Both of these parasites are difficult to detect on routine stool checks. New antigen tests allow us to find these parasites even if eggs are not present in a given stool sample.

Another standard treatment is the hypoallergenic diet trial. Many IBD patients have developed allergies to certain ingredients in their food. Food allergies develop slowly over time, with repeated exposure to the substance that eventually becomes the "allergen". Proteins are the most common allergens - beef, dairy products, chicken, soy, etc. However, grains, artificial colors and flavors, or preservatives may also be the problem.

There are no accurate tests yet to determine what food ingredients a pet is allergic to - we can't just send a blood sample to a laboratory and get a result of beef allergy, for instance. What we do is put the pet on a diet that has been specially formulated for food allergies. If symptoms improve on the new food, we know something in the old food was triggering the disease.

In order to avoid the common food ingredients most pets are allergic to, we occasionally reach for a diet containing novel ingredients not usually found in pet food - venison, duck, lamb, fish, potato or oats, for example. Newer, more effective hypoallergenic diets contain hydrolyzed protein instead of novel or unusual ingredients. In these diets the food has been processed so that the proteins in the food are broken up into pieces smaller than the minimum size required to produce an allergic reaction by the immune system. Hydrolyzed diets are far more effective than the older style "novel protein" diets at both diagnosing and controlling food allergy.

Not only is hydrolyzed protein unlikely to trigger an allergic reaction but breaking the proteins down into smaller molecules also makes them easier to digest and absorb. This is an important benefit, since most IBD patients are often underweight and have difficulty absorbing nutrients through their inflamed intestines.

Lamb used to be the standard hypoallergenic diet for food allergies. Many manufacturers now include lamb meal in their pet foods, however, so it's a standard ingredient in diets eaten by many pets. The manufacturers advertised, and many people mistakenly believed, that lamb in and of itself is hypoallergenic. This is not true. The body can become allergic to any food. As more foods included lamb, we saw more and more lamb allergies. Now the same is happening with duck, salmon, pork, potato, rice and many other ingredients that are now popular in pet food. None of these is superior to any other ingredient as far as allergies are concerned and all are so common now that switching to a diet that contains one of these hoping that the pet will not be allergic to it rarely works.

Sadly, ingredient labels for pet food are often inaccurate. When tested, 70% of over-the-counter diets contain one or more meat proteins not listed on the label. You really have no idea what proteins your pet has been exposed to in the past and thus could be allergic to.

The hypoallergenic food we decide to feed the IBD patient must be the ONLY food that pet consumes for at least two weeks. During this time it is very important that

the pet is not given ANY treats, snacks or table food, since these foods may be triggering the IBD. It takes some time for the immune response to die down. If the food change does seem to be beneficial, the animal can stay on the special diet for the rest of its life, or we can reintroduce one food item at a time to try to determine what ingredients are the triggers. This can take many weeks or even months of experimentation, but if you have the patience to do it you may be able to feed a less expensive food for the long haul than the hydrolyzed prescription diets.

### **What if it's not eosinophilic IBD, or treating for parasites and food allergy doesn't help?**

Hydrolyzed diets are very easy to digest and absorb, so even if food allergy is not part of the cause of IBD we may have you feed it to your pet, at least until we have symptoms under control. Some pets do better on diets containing more soluble fiber, so if we haven't already tried one earlier we may try that as well.

The immune system can also overreact to bacteria present in the digestive tract. Antibiotics can be used to eliminate certain types of bacteria which may be triggering the disease. **Metronidazole** is the most common antibiotic used for this purpose, as it also has anti-inflammatory effects. We can both eliminate certain bacteria and reduce inflammation with one medication.

We balance the use of antibiotics against the risk of wiping out too many of the good bacteria normally present in the intestines. We want to maintain a healthy GI microbiome, too. Many times this means giving probiotics – good, friendly bacteria – at the same time we are giving antibiotics.

Several other medications are used to treat inflammatory bowel disease, in addition to the antibiotics and antiparasitic medications already mentioned. Corticosteroid drugs, usually **prednisone** in dogs and **prednisolone** in cats, suppress the immune system and decrease inflammation. They are usually very helpful, and are life-saving in severe cases of the disease, but they can also have many side effects, especially in dogs. Cats usually respond quickly to prednisolone and rarely have problems with side effects. It's much more difficult to treat cats with metronidazole because of its bitter taste. Dogs are more likely to take pills in treats or Pill Pockets but this doesn't work well in cats. So we start with metronidazole for dogs initially but usually go right to prednisolone in cats.

Other anti-inflammatory drugs are used as well, such as **sulfasalazine**, which works directly on the intestinal lining of the colon and has fewer side effects on the rest of the body than prednisone does. Sulfasalazine is a great help when IBD involves the colon, causing colitis. Medications to alleviate the symptoms of vomiting and diarrhea may be necessary. Sometimes a fiber supplement is helpful, or probiotics, or a special diet made for intestinal disease if a hypoallergenic diet trial does not prove helpful.

When the intestinal lining is thickened or inflamed it absorbs nutrients poorly, especially vitamin E. A portion of the small intestine is responsible for making **Cobalamin**, which is vitamin B12. Most pets with chronic GI disease no longer make enough cobalamin, which affects the entire body. Regular B12 injections or oral B12 supplementation is usually recommended. An oral **vitamin E supplement** may also be recommended.

Stress is a very important factor in inflammatory bowel disease. Patients will often flare up with symptoms during stressful times, such as with a move to a new home, the introduction into the household of a baby or a new pet, boarding at a kennel, or when

they suffer from any other physical disease. **Anti-anxiety medication** sometimes helps to ease the pet through these occasions, or an increase in the dose of the pet's regular IBD medications may be recommended at these times.

In dogs especially, it may take weeks or months to find the right combination of drugs and food to help control the disease. An accurate diagnosis with intestinal biopsy is the best way to ensure treatment will be successful. Even with an accurate diagnosis, though, IBD can be a frustrating and difficult disease. The goal is not to cure it, but to control it - to minimize the frequency and severity of flare-ups and to maximize the quality of the pet's life. In the case of the Basenjis, wheatens and Shar peis, the disease may progress despite all treatment. Intestinal lymphoma, a form of cancer, may also arise as a consequence of the chronic inflammation in the intestinal tract. This is common in cats,

Treatment requires a conscientious pet owner who is willing to hang in there during a lengthy period of diagnosis and drug trials. Laboratory testing, including intestinal or stomach biopsy, blood testing and repeated stool checks, is often necessary to rule out other causes of vomiting, weight loss and diarrhea. (There are dozens of different diseases that cause these symptoms.) The pet owner must have a good relationship with the veterinarian and veterinary hospital staff, as it takes a team effort and good communication to manage IBD.