

## **Inflammatory Bowel Disease**

### **What is inflammatory bowel disease?**

Inflammatory bowel disease (IBD) is a condition caused by the excessive infiltration of inflammatory cells (such as neutrophils, macrophages, and eosinophils) into the normal lining layers of the intestinal tract. These cells disrupt the normal architecture of the intestine, interfere with effective digestion and absorption of nutrients, and release signals (mediators) to the surrounding area that contributes to local inflammation in the intestinal tract. Various parts of the intestinal tract may be affected (such as the stomach, small intestine, and/or the large intestine). The clinical signs that each animal shows is very much individual depending on the extent of the inflammatory infiltrates as well as the location of the infiltrates.

### **What causes inflammatory bowel disease?**

The answer to this question is a bit complex in that there are quite a few causes and laboratory testing as well as intestinal biopsies are needed to try and identify the cause(s) in any given individual. Furthermore, it is not always possible to identify an exact cause in every patient. Some of the more common causes include allergic triggers (such as allergies to a dietary ingredient or an allergic response to intestinal parasites), infectious agents (such as bacterial, fungal, protozoal, or mycobacterial organisms), abnormalities or inflammation in the intestinal lymphatic system (lymphangiectasia), tumor infiltration (such as lymphosarcoma), breed predisposition in some (such as the Siamese, German shepherd, Basenji, Wheaten Terrier, and Shar Pei,) and immune-mediated cause. Immune-mediated inflammatory bowel disease is one of the more common (and unfortunately less well understood) causes of IBD in dogs and cats. In this condition, the body's immune system suddenly sees parts of the normal intestinal tract as "foreign" and launches a "self-attack" which is associated with the infiltration of inflammatory cells. In some cases, it is theorized that other underlying triggers (such as those mentioned above) may serve to alter the normal appearance of the intestinal cells such that they now appear as "foreign." In other cases, no such triggering cause is found despite a thorough history and diagnostics. If no triggering cause can be identified, the immune-mediated inflammatory bowel disease is called "idiopathic". Idiopathic inflammatory bowel disease accounts for a large percentage of cases diagnosed in the dog and cat.

### **What are common clinical signs?**

The clinical signs of inflammatory bowel disease are quite diverse. They depend in part on the severity of the infiltrates, the location of the inflammatory infiltrates, and the individual patient response to disease. Common clinical signs may include poor appetite, intermittent vomiting, diarrhea, and weight loss. Weight loss is more likely to occur with small bowel (duodenum, jejunum, ileum) infiltrates, as the main job of the small intestine is to allow for nutrient digestion and absorption. Diarrhea is also quite common with small bowel disease as the undigested and unabsorbed nutrients give rise to greater quantities of soft stool. With large bowel infiltrates (descending, transverse or ascending colon), weight loss is less common (as the large bowel does not play a major role in digestion and absorption). Significant infiltrates in the large bowel also result in diarrhea, but it tends to be less voluminous, and may contain mucus or flecks of fresh blood. Patients

with large bowel inflammatory bowel disease are also more likely to have increased frequency of defecation, and sometimes straining to defecate. In both cases, increased intestinal sounds (borborygmi) and flatulence may also be apparent. Secondary complications can also occur with IBD, such as vitamin B12 (cobalamin) and folate deficiency, loss of protein across the intestinal luminal barrier (with more severe forms of small bowel IBD), fat soluble vitamin deficiencies, and bacterial overgrowth or disruption of the normal bowel microflora. In cats, the inflammatory process in the intestinal tract may also concurrently involve the pancreas and/or the liver.

### **How is inflammatory bowel disease diagnosed?**

The diagnosis of inflammatory bowel disease involves a series of steps to look for underlying or triggering cause(s), as well as to reach a definitive diagnosis by obtaining biopsies. Common diagnostic tests that may be pursued include testing for fecal parasites, exploring for dietary triggers, performing screening labwork (CBC, biochemistry profile, urinalysis) to help gauge severity of disease as well as looking for common complications, abdominal radiographs, abdominal ultrasound (to evaluate the physical characteristics of the small and large bowel as well as to look for associated lymph node enlargement or other organ involvement), and ancillary tests as indicated by the preliminary results (vitamin B12 levels, folate levels, infectious disease screens, and other). Lastly, in order to obtain a definitive diagnosis of inflammatory bowel disease as well as to gauge severity and determine the best treatment course, tissue biopsy samples are necessary. This may be accomplished by endoscopy (use of a flexible tube containing a camera on the end that is introduced into the intestinal tract). With endoscopy, biopsy samples are obtained by a biopsy instrument that is introduced into a channel within the endoscope (biopsy samples can then be obtained from the “inside surface” of the intestinal tract under direct visualization). Other options for obtaining biopsy samples include laparoscopy (minimally invasive surgery into the abdominal cavity) and celiotomy (traditional surgical incision into the abdominal cavity). The latter two techniques allow the additional advantage of being able to readily biopsy other organs (such as associated lymph nodes, liver, and pancreas) that look abnormal at the time of evaluation. Each method has both strong and weak points in merit and the decision as to which method is best, is based on each patient’s unique circumstances.

### **How is inflammatory bowel disease treated?**

The answer to this question depends in large part on what has caused the IBD, what part(s) of the intestinal tract are affected (stomach, small intestine, large intestine), what clinical signs are present, the severity of disease (based on clinical signs as well as labwork), and the results of biopsy samples. In general, some of the more common therapeutic approaches that may be helpful include anthelmintic (deworming) medications to rule out intestinal parasites, dietary alterations (which may include the use of an hypoallergenic diet, a highly digestible diet, a diet lower in fat, or alternatively, a diet supplemented with fiber), vitamin supplementation, probiotic therapy, antibiotic therapy, antiprotozoal therapy, anti-inflammatory therapy, and lastly immunosuppressive therapy (with medications such as prednisone, imuran and others). Each patient represents a unique challenge when it comes to therapeutic management, and patience is often required to determine the best therapeutic course that is effective in each individual.

**What is the prognosis for dogs and cats diagnosed with inflammatory bowel disease?**

This is a very difficult question to answer. There are so many variables involved in this particular disease (different causes, variable severity, different portions of the intestinal tract affected, and variations in individual response to therapy). In general, each patient is somewhat unique in their response to therapy, some will respond completely to therapy and be “cured”, while others will require lifelong therapy to remain in clinical remission. Yet, others will go into remission only to experience flare-ups or recurrences later in life. This disease often requires patience in working through dietary and therapeutic trials as well as frequent rechecks and communication with your veterinarian to optimize control of disease.