Large Bowel Diarrhea – Feline

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Definition

Large bowel diarrhea is classically noted to be associated with increased tenesmus or urgency with defecation, increased frequency of defecation of usually smaller volumes, and hematochezia or increased mucus may be present – these characteristics differentiate large bowel diarrhea from that of small bowel character. Large bowel diarrhea can also be characterized by cause: infectious (clostridial colitis), parasitic (whipworm colitis), dietary (fiber-responsive colitis), inflammatory (lymphoplasmacytic colitis or inflammatory bowel disease [IBD]), and neoplasia. Conditions causing large bowel diarrhea often are associated with inflammation and thus termed ***colitis***.

Key Diagnostic Tools and Measures

Diagnosis of large bowel diarrhea begins with a complete history, including dietary history and drug therapy, and physical examination, including rectal examination. Fecal stream analysis (e.g., fecal flotation, cytology, enzyme-linked immunosorbent assay [ELISA]/polymerase chain reaction [PCR] analysis) or therapeutic deworming is important. In acute large bowel diarrhea: symptomatic or supportive therapy is often all that is needed (e.g., added dietary fiber, probiotics, or deworming). In cats with chronic (>2 weeks) large bowel diarrhea where symptomatic or supportive therapy is not effective, imaging (radiographs or ultrasound), more specific tests for gastrointestinal (GI) parasites or bacteria, or endoscopy (with biopsy) are indicated.

Pathophysiology

The clinical signs of large bowel diarrhea are a reflection of proximity of the disease to the end of the GI tract. As a result the clinical signs of colon diseases are all quite similar, while their inciting causes may be quite different. For example, hematochezia occurs instead of melena because the blood is not in the tract long enough to be digested by bacteria or enzymes, increased mucus is often present in the feces due to the increased number of mucous secreting glands in the colon which increase their production when the epithelium is disrupted, and the observation of increased straining or frequency of defecation occurs due to irritation of colonic epithelium or disrupted colonic motility reducing the storage time for feces to form normal sized, reduced water feces. Thus, while large bowel diarrhea can occur in cats due to a large variety of inciting causes, the response to the disruption of the mucosa in the colon is essentially the same.

Signalment

Acute large bowel diarrhea is more common in young or middle-aged cats due to the increased risk of dietary indiscretion (feathers, bones or other foreign objects), parasitic or protozoal (*Tritrichomonas*) infection, or infectious causes such as clostridial colitis. Long-haired breeds of cats have an increased incidence of hair-induced colitis – a condition that occurs presumably due to irritation of the colon from passage of large amounts of hair. Chronic large bowel diarrhea is most common in middle aged or older cats and may occur in any breed due to a variety of dietary, inflammatory or neoplastic causes including colonic IBD or various forms of colon cancer. Siamese cats appear to be at an increased risk of development of colonic adenocarcinoma.

Key Nutrient Modifications

The most important dietary modifications in cats with large bowel diarrhea are to provide highly digestible nutrients so that excess carbohydrates, fat and protein do not reach the colon undigested, and secondly, to increase the concentration of dietary fibers to maximize colonic epithelial and bacterial health.

The goal for providing a diet with highly digestible nutrients (> 85–90% digestible) is to maximize digestion and absorption of carbohydrates and fats in small bowel to prevent an exacerbation of large bowel diarrhea due to bacterial overgrowth or the osmotic effects of maldigestion of carbohydrates.

Protein becomes a concern when diarrhea is suspected to be due to a food allergy. The key to successful management of cats with diarrhea due to food allergy is identifying a novel protein source (or one that is less antigenic, such as a hydrolyzed protein diet). It is a rare occurrence for cats with food allergy to have only large bowel diarrhea, and no signs of small bowel disease (vomiting or diarrhea) or dermatologic signs of allergy.

In cats with large bowel diarrhea, the single most important dietary modification may be the addition of dietary fiber to the diet. Dietary fibers are complex carbohydrates primarily from plant sources that are not easily digested by mammalian digestive enzymes. Digestion of these foods is accomplished by the help of bacteria in the GI tract, and most efficiently occurs in the colon of cats. Because different types of dietary fiber are digested (also called solubility or fermentability) more or less efficiently by bacteria, they have often been classified by this characteristic. It is important, however, to realize that many dietary fibers have characteristics of both groups and thus are termed *mixed fiber*.

In general, soluble (or highly fermentable) fiber sources, which are those fibers that are readily broken down by bacteria to form short chain fatty acids, water and gases, are beneficial in cats with colonic disease for the same reasons that they are in dogs. The soluble fibers, however, must be added in small amounts to feline diets because the increased fecal bacteria results in increased flatus and fecal water content resulting in undesirable stool characteristics and odors.

Insoluble (or poorly fermentable) fiber sources are also beneficial in cats with colonic disease, but for very different reasons. Insoluble fibers increase fecal bulk and, as a result of the stretching and distention, improve motility (both normal segmentation as well as propulsion) in the colon. The result of adding insoluble fiber to diets is to decrease frequency and straining associated with aberrant motility in colitis and they are helpful in moving hair through the colon more effectively – reducing hair-induced colitis or obstruction. The disadvantage of insoluble fiber sources is that they do not provide a nutrient source for fecal bacteria or colonocytes – and in cats that do not consume enough water, may produce feces that is too dry and more difficult to pass – creating the possibility of development of constipation, which is a frequent complication of high insoluble fiber diets in cats.

Recommended Ranges of Key Nutrients

Nutrient	% DM	g/100 kcal	% DM	g/100 kcal
	Recommended dietary level		Minimum dietary requirement*	
Crude fiber#	2–8	0.5–2.5	n/a	n/a

Modified intake of these nutrients may help address metabolic alterations induced by disease states. The recommended dietary composition is shown as percent of dietary dry matter (DM) and as g or mg per 100 kcal metabolizable energy. All other essential nutrients should meet normal requirements adjusted for life stage, lifestyle, and energy intake.

*Nutrient requirement for adult animals as determined by the Association of American Feed Control Officials

#Sources should include both soluble and insoluble fibers. The crude fiber analysis includes most insoluble fibers, but does not include soluble fibers. Therefore, crude fiber has limited usefulness when evaluating the total fiber content of foods. The ingredient list should be evaluated for sources of soluble fiber.

Therapeutic Feeding Principles

- Key nutrients should be highly digestible (>90% digestibility) to minimize osmotic diarrhea, bacterial fermentation of undigested foods, and reduce intestinal gas.
- High quality, single source hydrolyzed protein if IBD or food sensitivity is likely, but in most cases of colitis this is not necessary.
- Moderate to increased amounts of insoluble fiber are indicated to improve colonic motility, unless constipation or colonic obstruction occurs due to cancer or stricture.
- The optimum ratio of soluble and insoluble fibers in diets for colon disease is debated, however, addition of small amounts both fiber sources is generally accepted to be ideal.
- Increased omega 3 fatty acids to help reduce eicosanoids associated with intestinal inflammation.
- Probiotic supplement to restore microflora balance.

■ **Treats –** In general, treats should be avoided in cats with intestinal disease until a definitive diagnosis is made. If treats are important for the cat's daily routine, treats made using the therapeutic diet or based on the principles above can be given.

■ **Tips for Increasing Palatability –** If the cat will not eat the suggested diet, a small amount of low sodium chicken broth can be added to the food. Alternatively, a small amount of the canned version of the dry food can be mixed with the food to increase interest. If the cat refuses to consume the therapeutic diet, a mixed fiber source such as psyllium mucocolloid (Metamucil®) can be added to the usual diet to increase the fiber content.

■ **Diet Recommendations –** Therapeutic diets suitable for cats with large bowel diarrhea may include diets that have highly digestible ingredients that reduce the amount of ingesta reaching the colon, or can include diets with increased insoluble dietary fibers present. Whether or not fiber will be an effective therapy depends on the individual situation, as some cats consuming high fiber diets develop hard, dry feces and constipation. In these situations, the diet should be changed to a low fiber diet, as development of this problem indicates fiber intolerance. A probiotic nutritional supplement has been shown to be effective in restoring normal intestinal health and balance.

Several OTC diets are potentially suitable for cats with large bowel diarrhea. These diets contain added insoluble fiber, and most are marketed as either formulas for management of weight or hairballs. Most cat formulas that contain added fiber have insoluble fiber as the primary fiber source; however, some foods contain mixed fiber sources, and the practitioner must examine the label to determine the fiber source.

Client Education Points

- Feed only the recommended foods for the time recommended.
- It may be helpful to feed small amounts of the food more frequently, 3 to 4 times a day, as with small bowel diarrhea, large amounts of food increase the workload of the GI tract and may contribute to clinical signs; however, this is not universally true for all cats.
- Make sure plenty of water is available at all times; adding fiber to the diet may cause feces to become too dry and hard to pass in some cats. The best way to increase water consumption in cats is to feed canned foods.
- Counsel owners on the effects of adding dietary fiber to the diet: insoluble fiber will increase fecal volume, while soluble fibers generally contribute to a softer, smaller stool, but may be associated with more flatus.

Common Comorbidities

Colonic IBD and bacterial overgrowth, and clostridial colitis and recent boarding or diet change, are common comorbidities in cats with large bowel diarrhea.

Interacting Medical Management Strategies

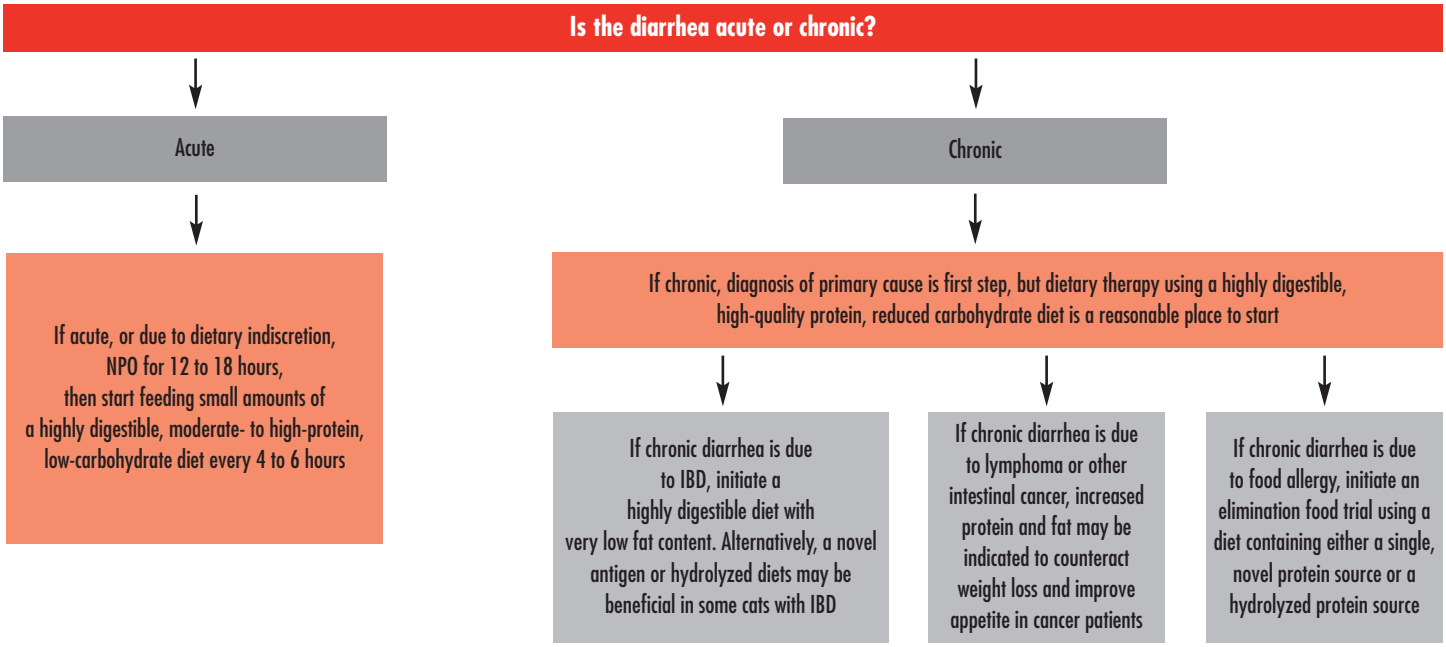
Steroid therapy in IBD will increase thirst and appetite and may result in unintended weight gain or hepatopathy. Immunosuppressive therapy for IBD or lymphoma may result in GI toxicity (common clinical signs can be vomiting or diarrhea). Antibiotic therapy may disrupt the bacterial flora and cause worsening diarrhea due to bacterial overgrowth

Monitoring

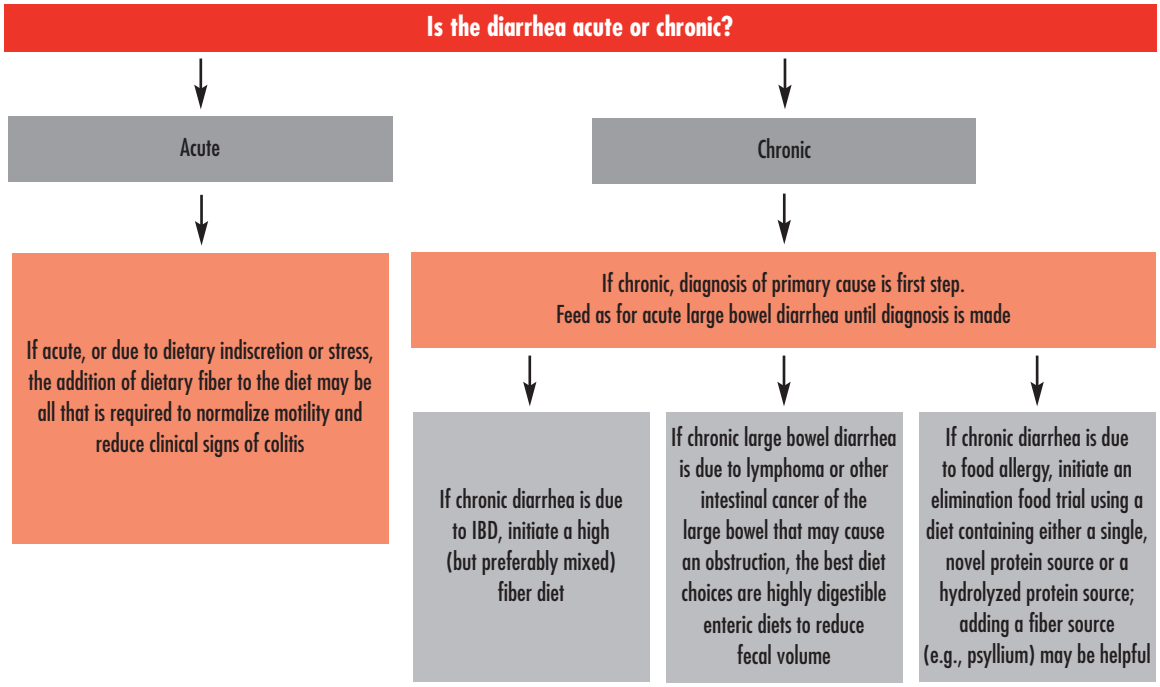
Fecal composition should be assessed to determine if normal stool character is returning or if new problems are developing. Assessment of clinical condition is essential to be sure the cat is not dehydrated and is continuing to eat, with no new signs of illness (e.g., lethargy, weight loss, reduced or no appetite, or vomiting). If the cat is losing weight or becoming dehydrated, the treatment should be reevaluated and adjusted to the needs of the particular patient.

See **Algorithm – Nutritional Management of Feline Large Bowel Diarrhea** on page 51.

Algorithm – Nutritional Management of Feline Small Bowel Diarrhea



Algorithm – Nutritional Management of Canine Large Bowel Diarrhea



Algorithm – Nutritional Management of Feline Large Bowel Diarrhea