

Medical and Nutritional Management of Constipation in Cats

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Chronic non-obstructive constipation is a common problem in geriatric cats. Infrequent or difficult evacuation of feces is termed constipation; it does not imply a permanent loss of function. Intractable constipation that has become refractory to control is referred to as obstipation, which implies a permanent loss of function. A cat is assumed to be obstipated only after consecutive treatment failures. Several reviews have emphasized the importance of considering an extensive list of differential diagnoses (e.g. neuromuscular, mechanical, inflammatory, metabolic/endocrine, pharmacologic, environmental, and behavioral causes) for the obstipated cat; most cases, however, are idiopathic, orthopedic, or neurologic in origin.

Recurring episodes of constipation or obstipation may culminate in the syndrome of megacolon. The pathogenesis of idiopathic megacolon is still incompletely understood. It appears to involve functional disturbances in colonic smooth muscle, which may begin in the descending colon and progress to involve the ascending colon over time. Permanent dilation of the colon is the end stage of idiopathic or acquired megacolon. The presence of hardened feces in the colon, termed colonic impaction, is a consequence of prolonged constipation, obstipation, or megacolon

At home management of chronic constipation

The causes of constipation in the cat are quite numerous, but often relate to inadequate intake of water or dehydration due to other causes resulting in dry feces. In fact, this is the most common reason for cats to become constipated and it is far and away the easiest to recognize and prevent. However, a number of other causes can be involved, including refusal to use the litter box, ingestion of feathers or bones resulting in abnormal stool, an obstructive process in the colon (internal causes include masses or neoplasia, and external causes include pelvic fractures), or ingestion of a high-fiber diet. In every case, an attempt should be made to determine the underlying cause.

1. Hydration

It is also important to ensure adequate water intake in geriatric cats with chronic constipation. Feeding canned food with added water, providing easy access to fresh, clean water bowls in different areas of the home, and a pet water fountain are strategies that can be easily implemented. Most water bowls designed for cats are too small; cats dislike having their whiskers touch the side of containers. Dog water bowls are larger and more appropriate. Other methods for increasing water intake include:

- Mix water with dry diets 1:1
- Flavor water with frozen cubes of meat or fish broth
- Try distilled or filtered water, especially if the tap water supply is heavy in minerals or chlorine
- Keep food and water bowls away from the litter box
- Feed multiple smaller meals instead of one or two larger meals

If these fail, intermittent administration of fluid subcutaneously may help maintain good hydration.

Litter box modification may be helpful for cats with arthritis. Most cat litter boxes are too small and have high sides. A winter boot tray or an under-the-bed type of storage box with low sides is a better alternative to make access easier. The litter box should also be in an accessible but private area, avoiding the need to navigate stairs, if possible.

2. Dietary therapy

Dietary management is an important long-term management tool in cats with constipation. Dietary therapy has, paradoxically, included the use of high fiber diets and low residue diets. Historically, attempts to manage feline constipation by dietary means involved the use of a high fiber diet (>20% on as fed basis). Increasing fecal bulk with dietary fiber of moderate or poor fermentability stimulates the defecation reflex and shortens transit time in cats with a healthy colon that are well hydrated. Increased dietary fiber increases the production of short-chain fatty acids which stimulate feline colonic smooth muscle contraction. As long as the cat is well hydrated, increasing insoluble fiber in the diet is an effective way of moving stool out of the colon. There are many diets containing insoluble fibers (such as Hill's w/d, Purina OM) that are designed for this purpose. Psyllium powder can be mixed with canned food at 1–4 tsp SID-BID. A moderate fiber, psyllium-enriched dry extruded diet was introduced for management of gastrointestinal conditions in cats (Royal Canin Gastro Intestinal Fiber Response). In an uncontrolled study by the manufacturer, 66 cats with recurrent constipation were successfully treated with the Fiber Response diet. The diet was well-tolerated and palatable. Most cats improved within 2 months and were either maintained on diet alone or with decreased doses of cisapride and lactulose than previously used.

In cats with normal hydration and a functional colon, a fiber-enhanced diet works well. However, in many cats (who tend to have too dry feces due to marginal dehydration) these diets may make the problem worse. In these situations, either the cat must consume more water for the diet to be effective, or other dietary approaches must be used. An alternative approach is to use a diet that is highly digestible (e.g., Hills i/d, Purina EN, Iams low residue). The author prefers this approach and routinely suggests feeding a canned,

highly digestible diet to geriatric cats with chronic constipation. If this is insufficient to control the problem, an osmotic laxative (lactulose) or colonic prokinetic agent (cisapride), or both, is added. In all cats with severe colonic muscle failure (obstipation or megacolon), high fiber diets should be avoided completely, and only diets that result in a minimal amount of feces should be used.

3. Laxatives

The next strategy to attempt is oral administration of a laxative. All cats should be well hydrated before receiving laxatives, as they inhibit water absorption in the colon and so can result in dehydration. There are several classes of laxatives:

- Lubricant laxatives, e.g., liquid paraffin, mineral oil, white petroleum). These laxatives lubricate the passage of feces. They may be beneficial for mild constipation as a short-term treatment; however, they can interfere with the absorption of nutrients if they are used long term. There is also a high risk of aspiration of mineral oil and liquid paraffin and so the use of these should be limited to rectal administration.
- Emollient laxatives, e.g., docusate sodium. These promote retention of water within the feces. They are often used in combination with another agent. Docusate should not be used with mineral oil since it can promote its absorption.
- Osmotic laxatives, e.g., lactulose, polyethylene glycol (PEG, MiraLax®). These consist of polysaccharides that are poorly absorbed and therefore result in osmotic retention of water in the colon. Lactulose is also fermented by the colonic microflora (like fermentable fiber), which increases fecal water content. The starting dose of lactulose solution is approximately 0.5 mL/kg, PO, BID-TID. Lactulose is also available as crystal meant to be mixed in liquids for human use (Kristalose). A suggested starting dose is dose is 1/8 to 1/4 tsp BID in food. Regardless of form, the dose is titrated upwards, as necessary, to produce a formed stool of sufficiently soft consistency to be passed without difficulty. PEG 3350 is available as a powder made to be mixed in liquids for human use (MiraLAX). A suggested dose for cats is 3/4 tsp BID.

4. Prokinetic therapy

Drugs acting on gastrointestinal 5-hydroxytryptamine (5-HT or serotonin) receptors have potent motility effects. Therapy with cisapride will increase colonic smooth muscle contractions, and is especially useful with in constipation non-responsive or partially responsive to dietary management and laxative supplementation. Cisapride is considered a fourth class of laxative, a stimulant laxative. A typical starting dose is 2.5 mg/cat BID, PO and it is better absorbed when given with food. The dose required may be up to 7.5 mg/cat, TID. Cisapride is a serotonergic drug that binds principally to 5-HT₄ receptors and stimulates smooth muscle contractions. The drug was withdrawn from the human market due to the occurrence of life-threatening arrhythmias (not known to occur in cats) because of its cross-reactivity with serotonergic receptors in the myocardium. In 2013, petitions from veterinarians to the manufacturer to continue to manufacture the drug for veterinary use were successful. The drug is only available from compounding pharmacies. Mosapride (PronamidTM) is a highly selective 5-HT₄ agonist that is available in Japan and Prucalopride (ResolorTM), another highly selective 5-HT₄ agonist, is available in Europe.

In-hospital management of the obstipated cat

Initial therapy is aimed at rehydration of the cat followed by removal of feces from the colon and rectum. In dehydrated animals (or even when dehydration is suspected, as judging hydration status can be challenging in geriatric cats), rehydration therapy is essential to help soften the stool. Intravenous fluid therapy is preferred to oral rehydration in most severe cases. One or two 5 mL microenemas containing sodium lauryl sulfoacetate (MicroLax) are easily administered and may produce results within 20–30 minutes in mildly affected cats. Multiple enemas are usually required to evacuate the colon in cats with more severe colonic impaction. The type of enema solution varies, but warm water should be used initially. Safe additions to the water include mineral oil (5–10 mL/cat), or docusate (5–10 mL/cat). Soaps or detergents may be irritating to an already compromised colonic mucosa. Lactulose solution can also be administered as an enema (5–10 mL/cat). Sodium-phosphate-containing enemas must not be used as they can induce life-threatening hypernatremia, hyperphosphatemia and hypocalcemia in cats.

Stool softeners such as MiraLAX may be added to the enema solution or given orally to help soften the fecal mass. Lactulose is another stool softener that can be used in the same way. Dioctyl sodium sulfosuccinate (DSS, ColaceTM) is an emollient that can be added to warm water solutions to help soften the stool; however, DSS can irritate to the colonic epithelium. Enema solutions should be administered slowly by gravity flow ((5–10 mL/kg; in most cats 30–60 ml per enema) using a lubricated 10–12 French feeding tube.

Manual evacuation of the colon and other therapies

In severe cases, manual manipulation of the feces via abdominal palpation or per rectum (manual evacuation or disimpaction) under general anesthesia with endotracheal intubation (manipulation of the colon sometimes induces vomiting) is also required. The cat is rehydrated with IV fluids, and the fecal mass softened with enemas before manual removal of feces. With very severe cases, manual removal may have to be performed as separate procedures spread over a few days, to prevent prolonged anesthesia and reduce the risk of colonic perforation. Other long-term treatments should be instituted once the feces have been removed. In cases requiring manual removal, opioids should be administered for pain relief.

A recently described alternative to multiple enemas (and hopefully manual evacuation) is administration of an oral polyethylene glycol (PEG 3350) solution (e.g., CoLyte, GoLyteLy). A nasoesophageal tube is placed and the solution is given as a slow trickle (6–10 mL/kg/hour). Defecation usually results in 6–12 hours. In a retrospective study of 9 cats, median time to defecation was 8 hours and the median total dose of PEG 3350 was 80 mL/kg (Carr 2010). No adverse effects were noted. This technique has come into wide use at the author's clinic.

The emollient and lubricant laxatives, such as DSS and petroleum jelly, result in a softer stool either via increasing fecal water or by simply lubricating the fecal mass. These laxatives are good for short-term management of mild constipation and in softening a fecal mass that contains hair, bones, etc., but are not effective for therapy of chronic constipation. Stimulant laxatives, such as bisacodyl, increase the propulsive contractions of the colon and decrease colonic water absorption. They are very effective laxatives for short-term use, but should not be used if the patient is unable to pass some fecal material.

Various surgical techniques have been described for the management of megacolon, the most common being subtotal colectomy. Referral for subtotal colectomy (95–98% excision, with preservation of the ileocolic junction) should be considered for cats refractory to medical and dietary therapy. Long-term outcome is considered excellent. Most patients will experience transient diarrhea in the immediate post-operative period (1–6 weeks). In a small number of patients, diarrhea will persist. Sub-total colectomy should only be used as a last resort.

Selected readings

Carr AP, Gaunt MC. Constipation resolution with administration of polyethylene glycol solution in cats (abstract). *J Vet Intern Med.* 2010;24:753.

Freiche V, Houston D, Weese H, et al. Uncontrolled study assessing the impact of a psyllium-enriched extruded dry diet on faecal consistency in cats with constipation. *J Feline Med Surg.* 2011;13:903.

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