Between a Rock and a Hard Place: Diagnosis and Management of Constipation

AAFP 2019

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Constipation is the infrequent and difficult evacuation of feces with retention of feces within the colon and rectum. Obstipation is intractable constipation. The typical feline patient is middle-aged and male.[1] Many cats have one or two episodes of constipation without any further problems. However, chronic constipation and obstipation may result in megacolon where a dilated large bowel is poorly responsive to therapy. Cats with idiopathic megacolon have generalized dysfunction of colonic smooth muscle.[2] Some of the more common underlying causes of constipation include certain drugs, stressors, and litter box aversion, difficulty in defecating (pain, neurologic problems), excessive fecal bulk, dehydration (e.g., associated with chronic renal disease), intra- or extra-luminal colon masses, narrowed pelvic canal, and idiopathic megacolon. Whenever possible, the underlying cause should be identified and corrected.

Clinical Signs and Diagnosis

The clinical signs of constipation are typically obvious to the owner, such as tenesmus, and scant hard dry feces, sometimes with blood. However, cats will also strain in the litter box due to lower urinary tract obstruction and owners may misinterpret this as due to constipation. Occasionally, constipated cats will have intermittent diarrhea as the colon is irritated due to hard dry fecal matter. Other clinical signs are non-specific, such as vomiting, inappetence, and lethargy.

Physical examination confirms the presence of large amounts of feces in the colon sometimes accompanied by abdominal pain. The colon often palpates as a long firm tube or feces may be palpated as discrete concretions. A careful evaluation (e.g., musculoskeletal system, caudal spinal cord function, anorectal area) should be made for underlying causes. A rectal exam should be performed, under sedation if necessary, for masses, pelvic fracture malunion and anal gland abnormalities. A minimum database (CBC, serum chemistries/electrolytes, urinalysis) should be assessed, especially to determine hydration and electrolyte status and identify underlying diseases such as chronic renal disease. Survey abdominal radiographs are useful to confirm the diagnosis and assess severity as well as to evaluate for potential underlying causes, such as previous pelvic trauma and arthritis. The diameter of the colon on a lateral view should be approximately the same length as the body of the 2nd lumbar vertebra.[3] Enlargement of the colon beyond 1.5 times the length of the body of the 5th or 7th lumbar vertebra has been proposed as indicating chronic dysfunction and megacolon.[3,4] One study of 11 cats with megacolon found the mean diameter of the colon was 2.7 times greater than the length of the 7th lumbar vertebra (median: 2.4, range 1.8–3.3).[5] In some cases, further diagnostics such as a barium enema or colonoscopy may be warranted.

Acute Management

The first step in management is correction of dehydration with intravenous fluid therapy followed by removal of obstructing feces. One or two doses of a 5 mL micro-enema containing sodium lauryl sulfoacetate (MicroLax) is easily administered and will usually produce results within 20–30 minutes in mildly affected cats. Obstipated cats will require warm water or isotonic saline enemas (5–10 mL/kg). Safe additions to the water include mineral oil (5–10 mL/cat), or docusate (5–10 mL/cat), but do not administer the two together. 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.[6] Enemas are administered slowly with a lubricated 10–12 French feeding tube. In severe cases, manual manipulation of the feces via abdominal palpation or per rectum (manual disimpaction) under general anesthesia with endotracheal intubation (in case of vomiting) is also required. In these cases, opioids should be administered for pain relief.

An alternative to enemas 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) over 4–18 hours. 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.[7] No adverse effects were noted.

Long-Term Management

In addition to management of any underlying conditions, long-term medical treatment involves a combination of prokinetic agents, laxatives, and dietary therapy. Cisapride stimulates contraction of feline colonic smooth muscle.[8] A typical starting dose is 2.5 mg/cat BID, PO and it is better absorbed when given with food. Doses up to 7.5 mg/cat, TID have been reported. The drug is only available from compounding pharmacies in most countries. It has been withdrawn from the human market due to the occurrence of life-threatening arrhythmias in predisposed individuals (not known to occur in cats). It may be prudent to advise clients handling cisapride to wear gloves. Hyperosmotic laxatives include lactulose and PEG 3350; they stimulate colonic fluid secretion and propulsive motility. The dose of lactulose solution is 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 dose is 3/4 tsp BID with food. PEG 3350 is available as a powder meant to be mixed in liquids for human use (MiraLAX). A suggested dose for cats is 1/8 to 1/4 tsp BID in food.

Dietary therapy has included the use of high fiber diets (>20% on as fed basis) and low residue diets. Increased dietary fiber increases the production of short chain fatty acids which stimulate feline colonic smooth muscle contraction.[9] Dietary fiber is also a bulk laxative and will increase fecal bulk, which will not be beneficial for all patients. Feeding a canned diet is often recommended to reduce fecal bulk and to ensure adequate water intake and hydration. Psyllium powder can be mixed with canned food at 1–4 tsp SID-BID. A certain amount of trial and error is necessary to determine the best diet type for an individual patient.

In one study carried out by a manufacturer, a moderate fiber, psyllium-enriched diet showed promise in an uncontrolled study of 66 cats with recurrent constipation.[10] 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.

It is also important to ensure adequate water intake by various methods, such as feeding canned diets. 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.
- Ensure water is fresh every day, and provide multiple water bowls.
- Ensure the water bowls are kept clean.
- Keep food and water bowls away from the litter box.
- Feed multiple smaller meals instead of one or two larger meals.
- Provide a moving source of water such as a pet water fountain.

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.

Subtotal Colectomy

Surgery can be considered for cats that are refractory to medical and dietary therapy.

The colon is divided into ascending, transverse, and descending portions and starts at the ileocolic sphincter. The ascending colon runs cranially, ending at the right colic flexure and continues as the transverse colon, which runs from right to left to the left colic flexure. The descending colon starts here and ends near the level of the pelvis, where the rectum begins. The cecum is a diverticulum of the proximal colon in the cat and is connected by the cecocolic orifice that lies just aboral to the ileocolic junction. The ascending and transverse colon receive its vascular supply from the ileocolic artery, a branch of the cranial mesenteric artery. The descending colon is supplied primarily by the left colic artery, the cranial branch of the caudal mesenteric artery.

There are various techniques available, including partial colectomy, subtotal colectomy, or the total colectomy. Partial colectomy is only used in cases with a distinct abnormality of part of the colon (like a diverticulum) but should not be performed in cases with generalized megacolon. A subtotal colectomy describes the removal of the majority of the colon, excluding the ileocolic sphincter and cecum. A total colectomy is performed by taking the distal ileum, ileocolic valve, cecum, and most of the colon. There is still a debate on which technique is most successful as both have advantages and disadvantages. Preservation of the ileocolic valve decreases the change of diarrhea caused by bacterial overgrowth and decreased water absorption. Leaving the ileocolic valve may increase the amount of diseased colon left in the animal although good scientific data showing that there is a higher recurrence rate in subtotal colectomies is lacking. The clear advantage of the total colectomy is that the anastomosis has less tension due to the maneuverability of the ileum, the clear disadvantage is the higher chance for lasting diarrhea/loose stool and the more complicated technique. Although a number of techniques have been described to do the anastomosis, I prefer an end-to-end colo- or ileocolostomy with small (4-0/5-0) absorbable suture material.

Complications are uncommon and include contamination of the surgical site, dehiscence of the anastomosis, which both are prevented by a proper surgical technique and lower GI signs including diarrhea, soft stools, and tenesmus. Diarrhea and/or soft stools normally disappear 4–6 weeks after surgery. In a minority of cats, the soft stools persist.

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