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Clinical nutritional management of constipation in six persian cats

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Abstract

Six Persian cats of various age groups were presented to the Veterinary clinical complex with constipation characterized by retention of hard feces within the colon and rectum with, infrequent, or difficult defecation. These symptoms progressed to obstipation as feces became excessively hard and impacted within the colon. These cats were treated for constipation and also nutritional changes were made to relieve the constipation and to manage the cats for preventing the recurrence of the constipation.

Keywords: Constipation cats, management, clinical nutrition

Introduction

Constipation has become a more increasing problem in pet cats in the recent days. The feeding habits which is not having a balance of enough fiber content has become the primary reason for the development of chronic constipation problem in cats. Constipation is defined as decreased frequency or difficulty in passing stool, while obstipation refers to a loss of function of the ability to defecate normally and, clinically, denotes multiple prior treatment failures (Washabau *et al.* 1999) [11]. The increasing confinement of the cats in small cages and restricted areas of movement is also considered to be the main management defect leading to the clinical problem of constipation. This has led to the incidence of constipation at 2.56% in the pet cats which were presented to the Veterinary clinical complex. Six cats of different age groups were presented to the Veterinary clinical complex with a complaint of constipation over a period of six months. The owners complained of sudden development to chronic nature of occurrence.

Signalment

Constipation can occur at any age, and has not been reported to have a breed or gender predilection. Increased frequency of megacolon, however, has been reported in middle-aged male cats, with domestic short-haired, domestic Siamese being the most commonly affected breeds. Although cats of all ages and both sexes can be affected, middle-aged to older male cats are over-represented (Benjamin and Drobatz, 2019; Rossi *et al.* 2018; German *et al.* 2017) [1, 8, 4].

Pathophysiology

Constipation can occur with any condition that impairs the movement of feces through the colon. When feces are retained within the colon for an extended period of time, water continues to be absorbed, resulting in a progressively harder and drier fecal mass. Constipation can occur secondary to rectocolonic obstruction (such as pelvic fracture, neoplasia, diverticulum), painful defecation (anal wounds, orthopedic disorders), environmental factors (dirty litter box, inactivity), medications (opioids, diuretics, others), neuromuscular dysfunction, fluid and electrolyte abnormalities, ingestion of hair or foreign material, or inadequate water intake. Obesity is also correlated with constipation in humans; however, a causative relationship has not been established (Ho and Spiegel, 2008) [5]. Hypokalemia, which alters gastrointestinal smooth muscle motility, can also be seen in cats with CKD and may be a contributing factor (Quimby, 2016) [6].

Materials and Methods

The cats presented to clinic and those referred from various hospitals in and around Warangal to Veterinary Clinical Complex, formed the basis for the present study. The detailed histories of the cases including the food habits were enumerated and the whole blood and serum samples of all the selected cats formed the clinical material for laboratory examination. Clinical samples were collected for hematology and biochemistry studies. In cats with constipation, blood and sera samples were collected before therapy. Similar samples were also collected from apparently healthy cats to establish normal values. Two ml of whole blood was withdrawn from cephalic or saphenous vein in vacutainer with KEDTA for estimation of hematological parameters. For separation of serum, 5ml of blood was collected in a vacutainer containing clot accelerator. Serum was separated immediately after clotting by centrifugation at 3000 rpm for 5 minutes and collected in ependorff tubes.

Results

Medical management was performed by eliminating or controlling any identified underlying conditions. A large fecal mass was present in four cats in which, enema treatment and manual extraction was done as per requirement. All the cats showed dehydration or electrolyte abnormalities in which proper fluid therapy with fluids like Normal saline or Ringers Lactate was administered. Dietary therapy with, oral laxative medications were administered. *In vivo* evidence supports efficacy of osmotic laxatives in cats with constipation (Tam *et al.* 2011) [9]. Mild

emollient laxative such as docusate sodium, or osmotic laxative such as lactulose were administered for all the suffering cats for a period of one week to help soften the stool. Promotility therapy such as cisapride, was also given to two cats with megacolon or decreased colonic motility. Intractable one case of megacolon required colectomy.

Nutrient Modifications treatment

Increased dietary fiber and moisture are the key nutrient modifications that were made to address constipation in cats. For the two cats with megacolon, a highly digestible diet to decrease fecal mass was recommended. Megacolon and obstruction or partial obstruction of the colon was ruled out prior to initiating a high-fiber diet or fiber supplementation.

Fiber is classified as soluble or insoluble. Soluble fiber has the ability to hold water, which helps to increase the moisture content of dry feces and normalize gastrointestinal transit time. Some soluble fibers are fermentable and support the growth of normal gastrointestinal flora and production of short chain fatty acids that provide energy to colonocytes and stimulate longitudinal colonic smooth muscle contractions. Insoluble fiber has a low ability to hold water and is not readily degraded by gastrointestinal bacteria. Insoluble fiber adds bulk to the feces which can help to stimulate colonic motility. All cats with constipation are dehydrated; therefore, increasing moisture in the diet helped to maintain appropriate hydration and helped to soften the stool. Fecal scoring can be used to define stool consistency at presentation and to gauge therapeutic response (Waltham, 2021) [10]

Recommended Ranges of Key Nutrients

Nutrient	% DM	g/100 kcal	% DM	g/100 kcal
	Recommended dietary level		Minimum dietary requirement	
Crude fiber	5-8	1.3-5.5	n/a	n/a

Modified intake of these nutrients helped to address metabolic alterations induced by the constipation condition. 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. Psyllium is a supplement that can be added to the diet in amounts of 1-4 teaspoons per day. If a source of insoluble fiber is needed, coarse wheat bran can be added to the diet in amounts of 1-4 teaspoons per day. The amount of supplementation needed to correct constipation varies in individual patients; therefore, it is generally recommended at the low end of the dosage range, and titrates to effect. Adjustments to fiber dosage should be made every 5 to 7 days as needed until the desired affect is achieved. Some fiber supplements are sweetened with fructose, sucrose (which contains fructose). Because fructose is poorly metabolized by cats, formulations containing fructose or sucrose should be avoided. Supplements that contain xylitol should also be avoided.

Treats: Pumpkin is commonly recommended for fiber supplementation in cats. The amount of fiber provided by canned pumpkin (0.4 g/tablespoon) is small compared with the levels that are provided by supplements such as psyllium (9 g/tablespoon). Therefore, pumpkin alone may not provide the amount of fiber needed to see a clinical response; but

may serve as a good supplemental treat. Ensure that clients select canned pumpkin. One tablespoon of canned pumpkin provides 5 kcal. Care should be taken to ensure that unbalanced treats are limited to 10% of the total daily calories.

Diet Recommendations

Slightly heat food to enhance food odor and texture. Add a low-sodium chicken or beef broth to the food to increase both moisture and palatability (limit to $\leq 10\%$ of the total daily calories, and avoid broths made with onion or garlic). If adding water to food to increase moisture, start by adding a small amount and then slowly increase over 1 to 2 weeks to allow the patient to become accustomed to the change in dietary moisture and texture. Canned foods and/or the addition of water to dry food are recommended. Foods should provide moderate dietary fiber with mixed soluble and insoluble fiber sources. Veterinary therapeutic foods designed for diabetes mellitus and weight loss may provide increased dietary fiber levels. In general, weight loss foods will provide a greater proportion of the fiber from an insoluble source. If megacolon is present a low-fiber/highly digestible diet, such as those designed for gastrointestinal disease, is recommended. Highly fermentable fibers also increase fecal water content via osmotic pull (Fekete *et al.* 2004) [3]. Findings of several *in vitro* studies suggest that a moderately soluble and fermentable fiber profile may result

in the best fecal environment (e.g., pH, water content, SCFA profile) (Pinna *et al.* 2014) ^[7].

Client Education Points

Proper hydration is key to the management of constipation. Free access to fresh water should be provided at all times. Water intake can also be enhanced by feeding canned foods or adding two to three parts water to one part dry kibble. Many cats will avoid using a dirty litter box, which can contribute to constipation; therefore, daily cleaning of the litter box (with thorough cleaning and replacement of litter weekly) is important in the management of constipation. Transitioning to a higher-fiber diet or adding a fiber supplement should be done slowly over 4 to 5 days. The level of fiber supplementation needed can vary from pet to pet, so adjustments may be required to achieve the desired response.

Common Comorbidities

Common comorbidities are generally predisposing factors of constipation. Conditions that cause pain on defecation (such as anorectal and orthopedic disorders), rectocolonic obstruction (such as pelvic fractures or neoplasia) or neuromuscular dysfunction (such as lumbosacral spinal cord disease, or dysautonomia), are commonly seen with constipation. For disease conditions associated with colonic obstruction or partial obstruction, feeding a high-fiber, fecal bulking diet may be contraindicated. Historically, constipation in cats has been associated with comorbidities that can lead to dehydration, such as chronic kidney disease (CKD), diabetes mellitus and hyperthyroidism (Bertoy, 2002) ^[2]. In these cases, feeding a highly digestible diet to decrease fecal mass is more appropriate. When constipation is seen with fluid or electrolyte abnormalities (such as hypokalemia or hypercalcemia) correction of the hydration status and electrolyte imbalances should take priority in the treatment plan.

Conclusion

In managing feline constipation, addressing underlying conditions and ensuring proper hydration are essential. Medical interventions such as enemas, fluid therapy, and laxatives help alleviate symptoms. Dietary modifications, including increased moisture and fiber, play a crucial role in stool softening and enhancing colonic motility. For cats with megacolon, a highly digestible, low-fiber diet is recommended. Client education on proper hydration, litter box maintenance, and gradual dietary transitions is key to effective management. Understanding comorbidities like chronic kidney disease or diabetes aids in tailoring the treatment, ensuring better outcomes for constipated cats.

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