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INTERVENTION OF PRO PLAN VETERINARY DIETS EN GASTROINTESTINAL ON MULTIAGENT FELINE ENTERITIS

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Abstract

Feline enteritis can be caused by any infectious or non-infectious agent. Dietary intervention has emerged as a supportive treatment in the management of feline enteritis caused by various agents. This study reviews the pathophysiology of multi-agent feline enteritis, evaluates current diagnostic approaches for identifying co-infections, and also synthesises evidence-based dietary protocols that optimize outcomes in affected cats. Four cats with clinical signs of diarrhea characterized by increased defecation frequency and/or decreased fecal consistency compared to normal, recognized within the past 3 months. Each cat was given an antiprotozoal treatment and PRO PLAN Veterinary Diet EN Gastrointestinal as a supportive treatment according to their daily respective needs. Clinical improvement was assessed by follow-up consultations on day 3, day 7, day 10, and day 14 post-treatment. Overall, cases showed consistent clinical improvement as a positive response to the treatment. Fecal scores in patients showed good progress to normal scores after two weeks of treatment. Body condition scores also showed an improvement, indicated by the patient's body weight monitoring. Comparing treatment trajectories across the cohort reveals that all four cats achieved stool normalization within 14 days. However, subtle variations observed based on dietary adherence within the cohort also highlighted the importance of strict dietary compliance. This reality underscores the vital role of dietary management in multimodal therapy.

Keywords: diet intervention; enteritis; feline; multiagent.

INTRODUCTION

Enteritis is a condition referring to inflammation of the intestine (Chigerwe and Heller, 2017). It can occur in any animal species. In felines, enteritis arises from multi-agent aetiologies, including viral (e.g., feline panleukopenia virus, feline coronavirus), bacterial (e.g., *Salmonella*, *Campylobacter*, *Clostridium* spp.), and parasitic pathogens (e.g., *Toxocara cati*, *Giardia*, *Trichostrongylus axei*). These conditions often act synergistically to exacerbate mucosal injury and dysbiosis (Xu *et al.*, 2026). It has also been demonstrated that this condition may induce different degrees of clinical signs (Sobeih *et al.*, 2024). In shelter and multi-cat

environments, co-detection of enteric viruses alongside secondary bacterial overgrowth and helminth or protozoal infections is increasingly recognised as a driver of severe, persistent diarrhoea and systemic compromise, particularly in kittens and immunocompromised adults (Sawitri *et al.*, 2024; Soe *et al.*, 2023). Other similar symptoms besides persistent diarrhoea and systemic compromise have been reported, such as anorexia and vomiting (Sobeih *et al.*, 2024). Fecal scores of this magnitude indicate a breakdown in the mucosal transport mechanisms necessary for water and electrolyte absorption in the colon (Xu *et al.*, 2026).

Dietary intervention has emerged as a cornerstone adjunctive strategy in the management of multi-agent feline enteritis, aiming to restore intestinal barrier function, modulate the gut microbiota, and support immune recovery while specific antimicrobial, antiviral, or antiparasitic therapies take effect. Evidence supports the use of highly digestible, limited-ingredient or hydrolysed-protein diets combined with prebiotic fibres (e.g., fructo-oligosaccharides, beet pulp) and targeted probiotics (e.g., *Enterococcus faecium* SF68, *Lactobacillus* spp.) to reduce clinical signs, shorten recovery time, and mitigate relapse in cats with infectious or inflammatory enteropathies (Makielski *et al.*, 2019; Rudinsky *et al.*, 2018). This article reviews the pathophysiology of multi-agent feline enteritis, evaluates current diagnostic approaches for identifying co-infections, and synthesises evidence-based dietary protocols that optimise outcomes in affected cats.

MATERIALS AND METHODS

Ethical Approval for Animal Subjects

Ethical approval is not required on this study.

Research Subjects

Cases were identified from any age of cats, male or female, neutered or intact, diagnosed with enteritis caused by multiagent (July 2026). Inclusion criteria included diarrhea characterized by increased frequency of defecation and/or decreased fecal consistency compared to normal, recognized within the past 3 months. Cats that qualified based on clinical manifestations were treated by the Department of Internal Veterinary Medicine of Udayana University after further examinations.

Research Methods

Experimental Design

The cat underwent outpatient treatment involving PRO PLAN Veterinary Diet EN Gastrointestinal as the primary diet. Supplementary feeding interventions could be implemented to stimulate appetite. Food intake, body weight, and clinical assessments of fecal consistency were monitored regularly.

Medical Records Review

Data were collected from the medical records of the study, including signalment, previous medical history, clinical signs at presentation, and fecal scores. Fecal scoring was done starting on the day of examination, the day of treatment, and continuing to the post-treatment. On the day of the examination, feces from each cat were collected for further examination. The examination was conducted using a fecal and rapid antigen test. Based on the results of the examination, each cat was given medication according to the findings. Each cat was also given a PRO PLAN Veterinary Diet EN Gastrointestinal according to their daily respective needs. Clinical improvement was assessed by follow-up consultations on day 3, day 7, day 10, and day 14 post-treatment. Owner perception of improvement of the cat's daily defecation behaviour was also taken into account.

Data Analysis

The study results are presented descriptively. Cats that have not shown any abnormalities in gastrointestinal issues, such as normal fecal score and defecation frequency, were classified as having successfully completed the therapy.

RESULTS AND DISCUSSION

Results

Data were collected from medical records, including anamnesis, physical examination, fecal laboratory examination, medical records, and clinical follow up of the patient owner. Two neutered males, one intact male, and one intact female were enrolled in this report. All patients were showing the same symptoms, such as high fecal score and increasing defecation frequency. Protozoan parasites were found in all cases, such as *Balantidium* sp. (3 of 4 cats) and *Giardia* sp. (1 of 4 cats). One of the patients also encountered a *Toxocara* sp. Eggs on microscopic findings from the fecal sample.

Table 1. Clinical assessment of patients

Cat	Signalement	BCS	Fecal Score		Wet Mount	Fecal Analysis		Giardia
			Pre	Post		Sediment	Fecal Float	
1	4 y, MI, MB	7/9	5/7	3/7	-	-	<i>Balantidium</i>	-
2	3 y, FI, MB	4/9	7/7	3/7	-	-	<i>Balantidium</i>	-
3	4 y, MS, DSH	2/9	7/7	2/7	-	<i>Toxocara</i>	-	+
4	4 y, MS, DSH	3/9	6/7	3/7	-	-	<i>Balantidium</i>	-

Table 2. Patient treatments

Cat	Antiprotozoal	Probiotic	Diets	Treats
1	✓	-	64 g	Often
2	✓	✓	46 g	Often
3	✓	✓	46 g	Once in a while
4	✓	-	46 g	Often

Notes: Often = More than thrice a day of treat; Once in a while = less than thrice a day of treat

All patients were treated using antiprotozoal as the primary treatment and PRO PLAN Veterinary Diet EN Gastrointestinal as the supportive treatment. In several cases, probiotics were given as a supportive agent. Overall, cases revealed consistent clinical improvement showing a positive response to the treatment. Fecal scores in patients showed a good progress onto normal scores after two weeks of treatment. Monitoring on the patient's body weight also showed an improvement from low body condition scores onto normal body condition scores.

Discussion

The findings of this case series highlight the clinical benefits of integrating targeted veterinary therapeutic nutrition alongside medical treatment in feline patients suffering from multiagent enteritis. Multiagent gastrointestinal infections in domestic cats present a diagnostic and therapeutic challenge due to the complex interaction between mechanical tissue injury, nutrient malabsorption, and microflora disruption. All four cases evaluated in this study presented with severe chronic diarrhea, characterized by fecal scores ranging from 5/7 to 7/7 in the Purina Fecal Scoring Chart. Fecal scores of this magnitude indicate a breakdown in the intestinal secretion and absorption stability that may affect the fecal water content (Xu *et al.*, 2026).

The prevalence and types of parasites infecting the feline gastrointestinal tract vary widely, with age being one of the primary distinguishing factors. The identification of protozoan organisms (*Balantidium* sp. and *Giardia* sp.) and helminth eggs (*Toxocara* sp.) underscores the frequent occurrence of polyparasitism in feline gastrointestinal disease. Young cats—particularly those under 6 months of age—exhibit higher prevalence rates than adult cats due to their immature immune systems (Symeonidou *et al.*, 2018; Lider *et al.*, 2025; Sawitri *et al.*, 2024). The risk of these gastrointestinal parasite infestations is further increased in cats kept in catteries or allowed to roam *outdoors* (Segura-Tinoco *et al.*, 2025; Soe *et al.*, 2023). Access to the outdoors significantly increases the risk of parasitic infections (including worms) in pet cats. Cats that spend a lot of time outdoors are more susceptible to exposure to sources of infection such as contaminated soil, prey, and contact with other infected animals, which increases the likelihood of contracting and spreading worms (Chalkowski *et al.*, 2019; Segura-Tinoco *et al.*, 2025). Furthermore, the failure to administer routine deworming medication adds to the risk factors for these parasitic infections (Soe *et al.*, 2023). While *Giardia* sp. is well-recognised globally as a major causative co-infection agent of feline diarrhea (Paris *et al.*, 2014), the detection of *Balantidium* sp. in three of the four cases reflects specific regional epidemiological patterns. Parasitic distribution is strongly influenced by geographic climate, management conditions, and environmental exposure. In tropical, high-humidity regions such as Southeast Asia support the development of these parasites, making *Toxocara* sp. and *Ancylostoma* sp. significantly has the higher prevalent species. It reflects the environmental persistence of other parasitic cysts and oocyst that are also high (Rabbani *et al.*, 2020; Soe *et al.*, 2023). Furthermore, factors such as free-roaming outdoor access, contact with contaminated soil or prey, and irregular deworming schedules markedly elevate the risk of heavy parasitic loads (Chalkowski *et al.*, 2019; Segura-Tinoco *et al.*, 2025).

From a pathophysiological standpoint, parasitic enteritis cannot be addressed purely as an isolated microbial or helminthic infection. Helminths such as *Toxocara* sp. inflict mechanical irritation on the intestinal epithelium, predisposing the animal to protein-losing enteropathy, mucosal inflammation, and secondary dysbiosis (Traversa, 2012; Xu *et al.*, 2026). Concurrently, protozoal trophozoites disrupt microvilli, blunting the brush border enzymes required for normal nutrient assimilation (Halliez & Buret, 2015). Consequently, relying exclusively on pharmacological agents (such as metronidazole or combination anthelmintics) often leaves the intestinal architecture compromised, prolonging recovery times or leading to persistent functional diarrhea.

Comparative Evaluation: Pharmacotherapy Alone vs. Multimodal Dietary Intervention

A critical point of clinical debate is whether antiparasitic and antimicrobial therapies alone are sufficient to achieve complete clinical and histological recovery. In conventional veterinary management without dietary intervention, pharmacological regimens (e.g., metronidazole, fenbendazole, or praziquantel) target pathogen eradication directly. While these agents effectively eliminate parasitic burdens, studies on feline enteropathy demonstrate that antiparasitic monotherapy often leaves behind a secondary microbial dysbiosis (Suchodolski, 2016). Without nutritional support, patients maintained on standard commercial diets or high-fat home foods frequently experience prolonged mucosal transit times, incomplete stool consolidation, or recurrent subclinical inflammation due to undigested nutrient fractions reaching the large intestine (Rudinsky *et al.*, 2018; Xu *et al.*, 2026).

In contrast, the multimodal strategy evaluated in this cohort—combining targeted antiparasitics with PRO PLAN Veterinary Diet EN Gastrointestinal—addresses both pathogen clearance and gut functional recovery simultaneously. Study has shown that highly digestible diets, novel or hydrolyzed proteins, cobalamin supplementation, dietary fiber, and probiotics are key

nutritional strategies for managing feline chronic diarrhea (Xu *et al.*, 2026). These nutrient components are provided in the current cohort diet strategy treatment. Highly digestible, moderate-fat formulations reduce the osmotic load delivered to the large intestine, thereby decreasing substrate availability for opportunistic colonic bacteria and mitigating fluid shifts into the lumen (Rudinsky *et al.*, 2018; Xu *et al.*, 2026). It is also known that providing supplemented food with bovine colostrum may strengthen the gut immune system and responses along with microbiota stability (Gore *et al.*, 2021). Cobalamin in the cohort diet—cannot be synthesized by cats—mitigate the decline of cobalamin due to gastrointestinal disease conditions (Siani *et al.*, 2023; Xu *et al.*, 2026). Furthermore, the inclusion of balanced soluble and insoluble fibers supports colonic mucosal repair and helps normalize transit times (Xu *et al.*, 2026). Prebiotics such as inulin, contained within cohort-prescribed diet, did not decrease plasma α -amino-nitrogen levels, so adequate levels of protein can still be received from the food while minimizing the reduction of fat digestibility (Flickinger *et al.*, 2003).

When comparing outcomes across the four cases, all cats demonstrated complete fecal score normalization (progressing to firm, formed stools) and improved Body Condition Scores (BCS) within 14 days post-treatment. Cats receiving consistent dietary management alongside occasional treats (e.g., Cat 3) maintained solid clinical recovery without digestive setbacks, whereas those given frequent treats required careful monitoring to ensure that non-therapeutic food items did not compromise diet digestibility. Comparing treatment trajectories across the cohort reveals that all four cats achieved stool normalization within 14 days—a markedly faster clinical resolution than typical non-dietary protocols, where functional diarrhea can persist for weeks post-deworming due to lingering enterocyte disruption (Makielski *et al.*, 2019; Suchodolski, 2016). However, subtle variations observed based on dietary adherence within the cohort also highlighted the importance of strict dietary compliance: Cat 3 (which received treats only occasionally) exhibited smooth clinical progression, whereas patients given frequent non-therapeutic treats required closer monitoring to prevent digestive fluctuations caused by unformulated protein sources. This reality underscores the vital role of dietary management in multimodal therapy. In this study, the transition to PRO PLAN Veterinary Diet EN Gastrointestinal provided essential nutritional support during active mucosal recovery.

CONCLUSIONS AND SUGGESTIONS

Conclusions

Intervention of dietary management in multimodal therapy has been shown to reduce clinical signs, shorten recovery time, and mitigate relapse in cats with infectious or inflammatory enteropathies.

Suggestions

Regular deworming and vaccination should be administered to avoid complex enteritis.

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