



This case report demonstrates the successful use of PURINA® PRO PLAN® VETERINARY DIETS Feline EN St/Ox Gastrointestinal in the management of recurrent diarrhoea with suspicion of irritable bowel syndrome.

# Recurrent diarrhoea with strong suspicion of irritable bowel syndrome

## Dr Anne-Claire Gagnon

DVM, Vice president of the French Society of Felinotechny (ISFM group),  
Ste Foy les Lyon, France

### Background

Algion lived in an apartment with two other non-pedigree domestic cats, Zoë and Watson. Algion was a timid, easily frightened cat who never wandered far when he had the possibility to do so. Algion was wormed every 3 months, and both he and his companion cats were treated for ectoparasites throughout the summer and during each trip to the secondary house of the owners, whether it was just for a weekend or a longer stay.

Approximately a year before developing diarrhoea, Algion had a single brief episode of cystitis that was accompanied by struvite crystalluria, and as a result his food was changed to a dry acidifying diet. (Hill's c/d®).

Algion's diarrhoea had been present for approximately a year. It was intermittent in nature, and appeared to be of a mixed (small and large intestinal) type. Neither blood nor mucous had been seen in the faeces. The faeces were very watery with no texture (score 7 on the PURINA® scoring system) during episodes of diarrhoea, and were formed and firm (scores 2 and 3) during normal times. Although faecal volume was normal, during episodes of diarrhoea the daily frequency of defaecation was increased 2-3 times. Although Algion had never been seen to vomit, he did sometimes regurgitate his kibbles.

In order to eliminate any underlying parasitic cause for the diarrhoea, Algion was wormed with milbemycin oxime, and then dosed with fenbendazole (50mg/kg daily for 5 days). The other cats were also treated at the same time, and while this initially appeared to relieve the diarrhoea, it returned again within 2 months.

### Clinical examination

On clinical examination, Algion appeared well and in good condition. No specific abnormalities were detected, his rectal temperature was 39°C, and he was his normal timid self.

### Differential diagnosis

The major differential diagnoses considered for Algion's diarrhoea included:

- Gastrointestinal parasites. In theory many of these should have been controlled by the regular broad-spectrum worming the cats received, and the treatment with fenbendazole for protozoa. However, no additional tests were conducted to rule out *Tritrichomonas foetus* as a potential cause.

- Dietary allergy or sensitivity
- Dietary indiscretion
- Inflammatory bowel disease
- Gastrointestinal neoplasia or other causes of partial obstruction
- Bacterial overgrowth
- Stress-related diarrhoea

### Therapy

Before embarking on ultrasound examinations, after discussions with the owners, it was decided that the possibility of a dietary sensitivity should be investigated by placing Algion on a controlled dry diet, namely PURINA® PRO PLAN® VETERINARY DIETS Feline EN St/Ox Gastrointestinal, which is formulated with restricted sources of proteins. During the initial 6 weeks of exclusive feeding with this diet, the owners noted and evaluated the quality, quantity and frequency of faeces passed each day. A clinical check-up was carried out at 3 and 6 weeks after the start of treatment, and during this time Algion received no additional medical treatment.

### Results

During the first three weeks of treatment, Algion enjoyed his new food and ate it exclusively, with just one tiny lapse when he stole the other cats' kibbles. The palatability of Feline EN St/Ox Gastrointestinal was considered to be very good.

The average faecal score during this period was 2 (firm but not too hard), with a very marked improvement in the quality of the faeces, which remained unchanged in volume and frequency throughout the three weeks. However, by the third week of treatment, what struck the owners most was the change in Algion's behaviour – he had developed boundless energy, was full of vitality and wanted to play all the time. This change in his attitude was first noticed at the end of the first week of treatment, with a level of activity the owners described as 'excellent'. In hindsight, they realised just how miserable Algion had become over the preceding few months, a situation that they had regarded as normal with its insidious onset and given the melancholy nature of many Maine Coon cats.

 **PURINA**<sup>®</sup>  
**PRO PLAN**<sup>®</sup>  
**VETERINARY**  
**DIETS**

Over the next 3 weeks, Algion twice suffered temporary setbacks, with a faecal score of 4 (very moist but shaped), a poor appetite and reduced activity. The owners noted that he was upset and vomited up some hairballs. After 6 weeks of treatment, the initial good results were confirmed – the average faecal score of 2 (firm but not too hard) had been maintained, along with no deterioration in frequency or volume of the faeces.

Algion did have a further short episode of diarrhoea after he and his owners had returned home from a weekend in the secondary house. Whilst it resolved very quickly, it also underscored how sensitive Algion remained to stress, such as that caused by travel and changes in his living environment.

Algion remained on Feline EN St/Ox Gastrointestinal diet, and 3 months after starting the treatment his condition remained greatly improved and stable. As an additional precaution to try to prevent recurrent episodes of stress-associated diarrhoea, the owners decided to add a probiotic supplement in the form of FortiFlora<sup>®</sup> to the diet, whenever they went on a trip to their secondary house.

## Discussion

Several possibilities exist for the underlying cause of the diarrhoea in Algion. Firstly, in susceptible cats, a link has been established, between the nature of the environment and increased development of stress-related diseases such as cystitis, digestive disorders (such as regurgitation, hairballs and diarrhoea), and behavioural changes.

Secondly, food sensitivities or genuine food allergies have been increasingly described in cats. In these complaints, gastrointestinal signs such as diarrhoea, together or not with pruritic dermatoses, can be commonly found.

Finally, irritable bowel syndrome has been described in the cat as well as in humans, showing, if there was any doubt, that there can be a link between the digestive system and stress.

Attention to diet is critical for managing gastrointestinal disease, and the starting point for all treatments related to problems with the gut-associated immune system. Chronic inflammation of the digestive tract (inflammatory bowel disease) that is concomitant with, or the cause of, diarrhoea has an impact on the animal's general condition, and may cause pain and discomfort being revealed as changes in mood and behaviour (see box).

Importantly, sickness behaviour associated with fever and behavioural changes has been described in both humans and many animal species, including the cat, as a result of stress and the history, response to therapy, and the nature of the occasional relapses seen with Algion suggest that this was at least a component of his disease<sup>1</sup>.

## Conclusion

Chronic intermittent diarrhoea is often a concern for the well-being of the cat and the cat-owner relationship.

Chronic inflammation of the digestive tract, even when low-grade, causes discomfort that can affect both the cat's mood and its general condition. The therapeutic trial with PURINA<sup>®</sup> PRO PLAN<sup>®</sup> VETERINARY DIETS Feline EN St/Ox Gastrointestinal in this case clearly demonstrated that, quite apart from the rapid therapeutic result on the faecal quality, the diet was able to restore a state of well-being, reflected in great improvement in the cat's demeanour, activity level and mood.

## Psychoneuroimmunology in feline medicine

The immune system acts as a sensory organ that sends signals to the brain and influences the activity of the neuroendocrine system, thereby allowing the central nervous system to participate in immunoregulation<sup>2</sup>.

There is thus permanent communication and information exchange between the brain and the immune system. Immune cells, such as activated macrophages, release pro-inflammatory cytokines. At the cerebral level, receptors have been identified for the interleukins, notably IL1, IL6 and the tumour growth factor TNF5. Neuropeptides produced at the cerebral level have both endocrine and behavioural actions, each being linked to different specific peptides. Moreover, the function of a neuropeptide can change depending on where it is produced. Thus, corticotropin-releasing factor modulates inflammation at the cerebral level, whilst promoting inflammatory responses at the level of the peripheral nervous system and macrophages<sup>3</sup>.

It has also been shown that biosynthesis of cytokines at the cerebral level occurs following stimulation of the vagus nerve at the level of the lymphoid organs<sup>2</sup>.

In feline medicine, the involvement of the brain and its interaction with the neuroendocrine system has implications for stress-related diseases of both the digestive tract, as well as the urinary tract.

## Further Reading

1. Stella JL, Lord LK, Buffington CAT (2010) Sickness Behaviors in Domestic Cats, *Journal of the American Veterinary Medical Association in press*
2. Arantza Azpiroz, Larraitz Garmendia, Eduardo Fano, Jose R. Sanchez-Martin (2003): Relations between aggressive behavior, immune activity, and disease susceptibility, *Aggression and Violent Behavior* 8(4), 433-453
3. Dantzer, R. (2004): Cytokine-induced sickness behaviour: a neuroimmune response to activation of innate immunity, *European Journal of Pharmacology*, 500(1-3), 399-411
4. Buffington CA (2002): External and internal influences on disease risk in cats, *Journal of American Veterinarian Medicine Association*, 220(7), 994-1002
5. 5 Robert Dantzer (2009): Cytokine, Sickness Behavior, and Depression, *Immunology and Allergy Clinics of North America*, 29(2), 247-264
6. Buffington CA, Westropp JL, Chew DJ, Bolus RR (2006): Clinical evaluation of multimodal environmental modification (MEMO) in the management of cats with idiopathic cystitis, *J Feline Med Surg*. 8(4):261-266