

Prevalence and Causes of Food Sensitivity in Cats with Chronic Pruritus, Vomiting or Diarrhea¹

W. Grant Guilford, Peter J. Markwell,^{*2} Boyd R. Jones,³ John G. Harte* and Josephine M. Wills*

Department of Veterinary Clinical Sciences, Massey University, Palmerston North, New Zealand and
*Waltham Centre for Pet Nutrition, Waltham-on-the-Wolds, Melton Mowbray, Leicestershire, UK

EXPANDED ABSTRACT

KEY WORDS: • cats • food sensitivity • pruritus • diarrhea • vomiting

The clinical manifestations of food sensitivity reported in cats are mainly dermatologic, namely, pruritus, miliary dermatitis, facial dermatitis, erythema and eosinophilic lesions (Carlotti et al. 1990, White and Sequoia 1989). However, food sensitivity is only one of a number of possible causes of these signs. The reported prevalence of food sensitivity varies from 1% (Walton 1967) to 11% (Scott 1987) of all feline dermatoses. No age, breed or sex predilections have been noted. In addition to dermatologic signs, gastrointestinal (GI) disease has also been reported occasionally in association with food sensitivity (Nelson et al. 1984, Stogdale et al. 1982, Walton et al. 1968). Rarely, there may be respiratory and neurological involvement (Scott 1980).

There have been few relatively large-scale studies of the causes of dietary sensitivity in cats. In those that have been conducted, beef, dairy products and fish have been the foods most commonly found to be responsible (Walton 1967, White and Sequoia 1989).

The objectives of this study were to determine the prevalence of food sensitivity in cats with pruritus, chronic vomiting or diarrhea, and to identify the foods, food components or food additives responsible for the sensitivities.

Materials and methods. A total of 128 cats presented to the Massey University Small Animal Clinic with the primary complaints of pruritus ($n = 61$), chronic vomiting ($n = 29$), diarrhea ($n = 26$), or concurrent pruritus and vomiting or diarrhea ($n = 12$) were entered into the study. The cats underwent standardized diagnostic protocols including the following:

Dermatologic cases. Cats underwent clinical examination, microscopy of coat brushings, fungal culture and a flea treatment plan including weekly spraying with a product contain-

ing methoprene, pyrethrins, piperonyl butoxide and *N*-octyl bicycloheptane (Vet-Kem Ovitrol, Bayer, Auckland, New Zealand). Cats without a diagnosis then underwent an elimination diet trial using a commercial canned diet with protein sources limited to chicken and rice (Whiskas® Feline Selected Protein Diet, Masterfoods, Bruck, Austria) or venison and rice (Waltham™ Veterinary Diet Feline Selected Protein, Effem Foods, Bolton, Canada). The latter diet was selected only if the cat had received chicken in the previous 6 mo. The diet trial was conducted for a minimum of 4 wk; cats whose signs resolved were then rechallenged with their original diets. If signs recurred, the cat was again given the elimination diet for 2–4 wk until signs resolved. Resolution of signs on this second occasion was considered diagnostic of food sensitivity. Oral challenge tests were then conducted to try to identify the offending food item or additive.

GI cases. Cats underwent clinical examination, fecal examination, hematology and biochemistry profiling, urinalysis, gastroduodenoscopy and biopsy, and colon biopsy. Breath hydrogen test, duodenal aspiration and quantitative culture were also conducted in diarrhea cases; abdominal radiography was conducted in vomiting cases. If no cause was apparent for the signs, an elimination diet trial was conducted as described above. Cats considered food sensitive then entered the oral challenge phase.

Oral challenge studies were conducted with a group of additives (colors, preservatives and gums) and approximately five individual food proteins (selected on the basis of dietary history). The protein sources and food additives were fed for a minimum of four consecutive days followed by a 3-d washout period. Most cats were hospitalized for the oral challenge studies to allow close observation of their clinical signs. Their degree of pruritus was assessed by viewing videotapes of the cats behavior after being fed the challenge food. Repeat challenge was conducted with any item causing an equivocal adverse response, to confirm its effect.

Results. Twenty-two (17%) of the 128 cats recruited to the study were confirmed as food sensitive (Table 1). Responsible foods included dry foods ($n = 6$), canned foods ($n = 4$),

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² To whom correspondence should be addressed.

³ Current address: Faculty of Veterinary Medicine, University College Dublin, Ireland.

beef ($n = 5$), lamb ($n = 3$), chicken ($n = 1$), milk ($n = 1$), fish ($n = 1$), viscera ($n = 2$), gluten ($n = 1$) and food additives ($n = 1$) (Fig. 1). Two of these sensitivities were transient. These were confirmed according to the diagnostic criteria listed above, but were found to resolve spontaneously over 2–3 mo. A relatively high number of additional cats ($n = 16$) went into remission while consuming the canned diet, but did not recrudescence on challenge with their original diet. Data from these cats are not included with those confirmed as food sensitive.

Discussion. This study confirmed that food sensitivity was a cause of clinical signs in 17% of this group of cats. This was a relatively high prevalence compared with some but not all previous reports of the condition in cats (O'Dair et al. 1996, Rosser 1993, Scott 1987, Walton 1967, White and Sequoia 1989). Close evaluation of North American studies that incorporated rechallenge revealed only 14 cases in 5 y drawn from three referral populations (White and Sequoia 1989), and 13 cases in 4 y from a referral hospital (Rosser 1993), an average of about three cases per year; a recent European study reported that in none of 20 cats were signs suggestive of allergic skin disease considered to be primarily associated with food hypersensitivity (O'Dair et al. 1996). The high prevalence of food sensitivity in the group of cats in this study compared with that of some other studies suggests that there are regional variations in the prevalence of food sensitivity. Alternatively, the high prevalence may represent more rigorous diagnostic effort or selection bias by the veterinarians that referred the cats for the study.

The reasons why a high number of cats went into remission on the elimination diet but did not show recrudescence when exposed to their original diet are unknown. Possible explanations include failure to identify the food to which they were allergic, inadequate time for the recurrence of signs, spontaneous resolution of their underlying condition or, for cats with skin disease, concurrent elimination of other allergens (e.g. fleas, inhaled allergens) that contributed subclinically to pruritus (the "allergy threshold"). Whatever the reasons, these results emphasize the need for rechallenge to confirm the diagnosis of food sensitivity.

The foods to which the cats were sensitive are of interest.

TABLE 1

Number (and percentage) of cats within each category of presenting signs confirmed as food sensitive

Presenting signs	<i>n</i>	Number (%) confirmed as food sensitive
Pruritus	61	10 (16)
Vomiting	29	3 (10)
Diarrhea	26	4 (15)
Pruritus and GI signs	12	5 (42)

GI, gastrointestinal

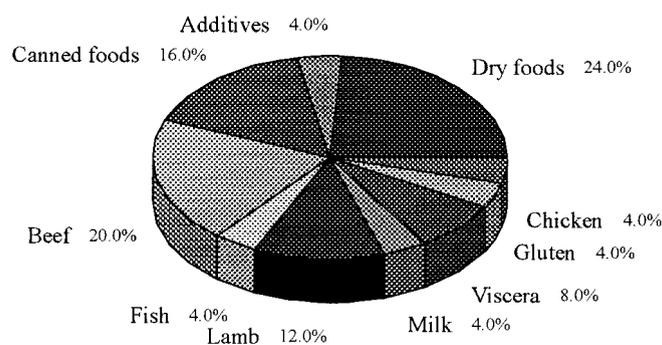


FIGURE 1 Foods found to be responsible for allergy in 22 cats confirmed as food sensitive. Notes: three cats had sensitivities to two foods; one cat was sensitive to a mixed panel of additives including colors, a preservative, gums and histamine but not to any single agent; viscera were mixed lung, testicle and liver from sheep.

Sequential challenges of the cat sensitive to gluten confirmed that this individual showed adverse responses to wheat, barley and gluten flour, but not to maize gluten (maize gluten is antigenically dissimilar to wheat gluten). The study indicates that additives were not a significant cause of dietary sensitivity in this group of cats. The one cat sensitive to additives appeared to respond adversely only to a mixture of compounds, and not to any single component. The observation that lamb was second in importance to beef as an individual food item responsible for sensitivity was perhaps not surprising, given that sheep meat is a common diet for cats in New Zealand.

In conclusion, food sensitivity was a significant cause of chronic dermatologic and gastroenteric complaints in this group of cats. Cats with concurrent pruritus and vomiting or diarrhea had the highest prevalence of food sensitivity. Rechallenge with the cat's original diet is essential to confirm a diagnosis of food sensitivity.

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