



## Diagnosis of cutaneous adverse food reactions in dogs using a hydrolysed soy and cornstarch diet

Ross Bond and Catherine Blackman, Department of Veterinary Clinical Sciences, Royal Veterinary College, Hatfield, UK

### Introduction

Pruritic skin disease associated with adverse reactions to food presents a considerable challenge for the veterinarian and the pet owner, both in its diagnosis and management. The diagnosis of an adverse food reaction is based on an improvement or resolution of clinical signs following the introduction of a novel diet, followed by relapse of those signs on purposeful re-challenge with the original diet, with subsequent improvement on re-introduction of the novel test diet. This process is obviously entirely dependent upon the full commitment and co-operation of the client.

The traditional diet trial consisted of single sources of protein and carbohydrate fed to the exclusion of all else for a period of 6 or more weeks. However, many owners find cooking for their pet time-consuming, and such diets are not nutritionally complete. Commercial limited ingredient diets are more convenient for most owners and are likely to contain all necessary nutrients, but some animals are sensitised to their components and fail to respond.

The latest concept in the diagnosis management of dogs and cats with adverse reactions to food is the use of hydrolysed diets. The allergenic properties of foods may be reduced by enzymatic hydrolysis of proteins that results in the destruction of allergenic epitopes. The use of a hydrolysed diet has a clear advantage over a traditional commercial limited ingredient product during the diagnostic trial and management phase; both dogs reactive to other food components absent from the hydrolysed diet, plus the majority of dogs sensitised to the original native protein(s), should respond favourably to the hydrolysed test diet.



*Bull Terrier with dietary sensitivity affected by a widespread erythematous, macular and papular eruption of the skin of the sternum, abdomen and medial thighs.*

During 2004, the owners of 62 dogs with signs of allergic skin disease possibly associated with cutaneous adverse food reaction attending the Royal Veterinary College's Queen Mother Hospital for Animals were invited to feed their dogs exclusively on a single, low molecular-weight protein (hydrolysed soy) and cornstarch hypoallergenic diet (Purina Veterinary Diets HypoAllergenic HA Canine formula, Nestlé Purina Petcare). A target diet trial duration of at least 6 weeks was recommended. Treatments used concurrently whilst on the diet trial were recorded. The level of pruritus and the nature, distribution and severity of any skin lesions were assessed before and after the trial. If the dog's skin signs resolved or significantly improved on the trial diet, the owners were asked to re-challenge the dog with its original diet and note whether its skin condition deteriorated or not. A diagnosis of cutaneous adverse food reaction was only made if the skin condition improved whilst on the diet and recurred when the dog was re-challenged with its original diet, and improved again on the hydrolysed diet.

Of the 62 dogs, eight were lost to follow-up and five dogs refused to eat the diet; these dogs were excluded from the study. Amongst the 49 dogs that re-visited the College, the mean duration of the diet trial was 5.0 weeks. The owners of 42 dogs considered the palatability of the product to be good. Thirty nine of the dogs were fed the diet exclusively but the owners of 10 dogs fed small amounts of other food during the trial period. Eight dogs showed a clear improvement when fed on the hydrolysed diet, relapsed on re-challenge with the original diet, and improved again with further dietary restriction; these dogs were diagnosed as having cutaneous adverse food reaction. The owners of a further 11 dogs that improved during the diet trial refused to re-challenge their dogs with the previous diet (most frequently because of fear of a relapse of severe pruritus), and consequently a diagnosis of cutaneous adverse food reaction was suspected but could not be confirmed.

Of the 8 confirmed cases, there were 3 Terriers, 2 Retrievers, 1 Boxer, 1 Bull Mastiff and 1 English Setter. The age at onset of pruritus ranged from 3 months to 2.5 years (median 11.5 months) and the duration prior to referral ranged from 3 months to 4.5 years (median 8 months). Affected regions included the trunk (7 cases), face (7 cases), ears (6 cases) and limbs (6 cases).

Five dogs were reported to have concurrent diarrhoea before starting the diet trial and 4 were reported to have increased frequency of defaecation; in each case, these signs resolved after feeding the Purina Veterinary Diets HypoAllergenic HA Canine formula diet.



*Interdigital erythema in a dog with dietary sensitivity.*

These data indicate that Purina Veterinary Diets HypoAllergenic HA Canine formula is a very useful product for the investigation and management of pruritus caused by adverse food reactions. The prevalence of confirmed adverse food reaction amongst the present study population compares favourably with that reported in previous studies at the RVC using home-cooked and other hydrolysed diets [1, 2], although additional cases may have been detected if it were not for the unwillingness of several owners to re-challenge their dog with the original diet. The frequent development of signs of adverse reaction to food in young dogs is in accordance with the results of previous surveys. Concurrent gastro-intestinal signs and a frequent but not a constant feature in dogs with pruritus associated with dietary sensitivity. Since many food-allergic dogs are reactive to meat products [3], the availability of a nutritionally-complete, hydrolysed vegetarian diet is a major advance. ■

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2. Loeffler A, Lloyd DH, Bond R, Kim JY, Pfeiffer DU. Dietary trials with a commercial chicken hydrolysate diet in 63 pruritic dogs. *Vet Rec* 2004; **154**: 519-22.
3. Roudebush P, Guilford WG, Shanley KJ. *Adverse reactions to food*. In: Hand MS, Thatcher CD, Remillard RL, Roudebush P, eds *Small Animal Clinician Nutrition*. 4<sup>th</sup> Edition. Topeka: Mark Morris Institute; 2000: 431-447.

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