

A complicated case of food intolerance



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Gizmo



- ▶ Norwegian forest cat, male
- ▶ 8 years old
- ▶ actual body weight 4.8 kg, ideal weight 5.0 kg
- ▶ general condition: calm, lethargic, often on his own
- ▶ Multiple cat household (6 cats)

- ▶ Problem: chronic diarrhea since 2011
→ since arriving in this household
(clinical history unknown)

History: Laboratory diagnostics

▶ 2011/11

- Analysis for Giarda faecal antigen: negative

▶ 2012/01

- Blood test (including specific pancreatic lipase): no abnormality detected
- Faecal analysis: no abnormality detected

Treatment history

- ▶ Regular worming treatment
- ▶ Probiotics
- ▶ Antibiotic treatment
- ▶ Supplementation of pancreatic enzymes
- ▶ Prednisolon

 no improvement

- ▶ Dietary fibre

 symptomatic improvement of faecal consistency

Nutrition history

- ▶ Different prepared foods
- ▶ Elimination diets^{1,2}:
 - Royal Canin™ Sensitivity Control Chicken & Rice (pouch)
 - Hills Prescription Diet™ Feline z/d™ Low Allergen (dry)
 - Hills Prescription Diet™ z/d™ Feline ULTRA Allergen-Free (canned)
 - Vet-Concept™ reindeer & potatoe (canned)
 - Vet-Concept™ kangaroo & parsnip (canned)

Our recommendation (2013/07)

- ▶ Raw minced beef exclusively as elimination diet³
 - ➡ Frequency of defaecation decreased immediately
 - ➡ Improvement of faecal consistency within a few days
 - ➡ Normal faecal consistency within 2 weeks (without any water-binding fibres)

Supplementation of raw minced beef diet (2013/08)

- ▶ Supplementation of minerals, micronutrients and vitamins with a complete mineral supplement (suitable for hypersensitive pets)

 well tolerated, then^{2,4}

- ▶ addition of oil (veg-oil or salmon oil) for essential fatty acids

 well tolerated, then

- ▶ addition of vegetables for crude fibre

 well tolerated

Gizmo now



- ▶ No more diarrhea
- ▶ Gained body weight
- ▶ More lively, walks around, accepts contact with other cats

Potential allergen or intolerable compound?

- ▶ Processed food was not tolerated (> 7 tries)
- ▶ Processing:
 - Reaction of amino acids and sugar molecules is accelerated (Maillard-reaction⁵)
 - Formation of chemical bonds between amino acids, peptides and carbohydrates

 modified protein structure can possibly cause food intolerance

 In Gizmo?

References

- ▶ ¹ ROUDEBUSH, P., GROSS, K. L. and LOWRY, S. R., Protein Characteristics of Commercial Canine and Feline Hypoallergenic Diets. *Veterinary Dermatology* 1994, 5: 69–74. doi: 10.1111/j.1365-3164.1994.tb00014.x
- ▶ ¹ LEISTRA, M. H.G., MARKWELL, P. J., WILLEMSE, T., Evaluation of selected-protein-source diets for management of dogs with adverse reactions to foods. *J Am Vet Med Assoc* 2001;219:1411–1414
- ▶ ¹ LEISTRA, M. H.G., MARKWELL, P. J., WILLEMSE, T., Double-Blind Evaluation of Two Commercial Hypoallergenic Diets in Cats with Adverse Food Reactions. *Journal of Feline Medicine and Surgery* December 2002 vol. 4 no. 4 185–188
- ▶ ² WILLS, J. and HARVEY, R., Diagnosis and management of food allergy and intolerance in dogs and cats. *Australian Veterinary Journal* 1994, 71: 322–326. doi: 10.1111/j.1751-0813.1994.tb00907.x
- ▶ ³ GUILFORD, W. G., JONES, B. R., MARKWELL, P. J., ARTHUR, D. G., COLLETT, M. G. and HARTE, J. G., Food Sensitivity in Cats with Chronic Idiopathic Gastrointestinal Problems. *Journal of Veterinary Internal Medicine* 2001, 15: 7–13. doi: 10.1111/j.1939-1676.2001.tb02291.x
- ▶ ⁴ HARVEY, R. G., Food allergy and dietary intolerance in dogs: A report of 25 cases. *Journal of Small Animal Practice* 1993, 34: 175–179. doi: 10.1111/j.1748-5827.1993.tb02647.x
- ▶ ⁵ HAND, THATCHER, REMILLARD, ROUDEBUSH; *Small Animal Clinical Nutrition*
- ▶ ⁵ MAILLARD, L. C., Action of amino acids on sugars. Formation of melanoidins in a methodical way. *Compt. Rend* 1912, 154, 66–68.
- ▶ ⁵ MAILLARD, L. C. and GAUTIER, M. A., The reaction of amino acids with sugars: Mechanisms of melanoid formation. *CR Seances Acad. Sci. III* 1912, 154, 66–68.
- ▶ ⁵ LEDL, F. and SCHLEICHER, E. (1990), Die Maillard-Reaktion in Lebensmitteln und im menschlichen Körper – neue Ergebnisse zu Chemie, Biochemie und Medizin. *Angew. Chem.*, 102: 597–626. doi: 10.1002/ange.19901020604



Study with food hypersensitive dogs⁶

- ▶ Canned lamb & rice caused clinical signs like pruritus, erythema, papules
- ▶ Rations with lamb and rice cooked separately was well tolerated by almost all dogs

⁶ WHITE SD., Food hypersensitivity in 30 dogs. Journal of the American Veterinary Medical Association 1986, 188(7): 695-8.

