

# Studi Kasus: Toksikasi Alergen Pakan pada Anjing

## *Case Report: Canine Toxication Food Allergic*

Albiruni Haryo<sup>1\*</sup>

<sup>1</sup>Faculty of Veterinary Medicine  
Brawijaya University

\*Corresponding author: [albiruni.haryo@gmail.com](mailto:albiruni.haryo@gmail.com)

### Abstrak

Alergi memiliki gejala yang paling umum terjadi seperti iritasi kulit: gatal, garukan, penggalan, dan menggerogoti kulit, seringkali sampai membuat luka terbuka di area tubuh yang luas. Untuk diagnosis konfirmasi, pasien harus diperiksa dengan pemeriksaan laboratorium. Berdasarkan anamnesa, pemeriksaan klinis dan laboratorium, masuk akal untuk menyimpulkan bahwa anjing yang bernama choky ini menderita alergi toksik karena akumulasi racun dari makanannya dan prognosinya adalah fausta. Perawatan yang diberikan untuk anjing adalah mengubah makanan anjing, mengurangi protein total dalam makanan setidaknya satu minggu, protein dietik dan meningkatkan olahraga, juga scalling untuk mengurangi tumpukan gigi anjing. Selain itu, Choky diberi suplemen transfer factor dan antihistamin dengan dosis rendah.

Kata kunci: anjing, toksikasi alergi, protein

### Abstract

*Canine allergies has a most common symptoms occur as skin irritations : itching, scratching, digging, and gnawing at the skin, often to the point of creating open raw wounds over large areas of the body. For the confirmation diagnosis, the patient has to be checked by laboratories examination. Based on anamneses, clinical examination and laboratories, it is logical to conclude that this dog which names choky suffers toxic allergic because of toxic accumulation from his food and the prognose was fausta. The treatments which were given for the dog are changing dog food, reducing the total protein in food at least one week, dietic protein and increasing exercise, also scalling for decreasing the plack in dog teeth. Moreover, Choky was given transfer factor supplement and antihistamin with low dosage.*

Key words: dog, toxic allergic, protein

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## INTRODUCTION

When a foreign material contacts a superior living being, an immunologic reactions cascade is triggered by molecular substances called antigens. At this contact several individuals develop a kind of response generally called sensitization, characterized by the synthesis of specific Immunoglobulin E. Those, IgE-inducing biological or merely chemical substances are designated allergens. Those, contacting mainly by the digestive mucosa are called food allergens (Martins *et al.*, 2008).

Furthermore, it has been estimated that more than 70 percent of all skin conditions in

dogs are allergy-related. Allergies can present as a variety of symptoms, but in the dog, the most common symptoms occur as skin irritations: itching, scratching, digging, and gnawing at the skin, often to the point of creating open raw wounds over large areas of the body (Sturgeon *et al.*, 2012).

## MATERIALS AND METHODS

This case report for reporting this case is an effort to provide the latest information and data to add scientific knowledge to the field (veterinarian). Patient data information, pomeranian breed, female, 11 years old, very

**Table 1.** Hematology and biochemical examination

Examination	Result	Unit	Normal Rate
<b>Hematology</b>			
White Blood Cell (WBC)	19.4	10 <sup>3</sup> /μL	6.0 - 17.0
Red Blood Cell (RBC)	8.23	10 <sup>6</sup> /μL	5.5 - 8.5
Hemoglobin (Hb)	14.7	g/dL	12.0 - 18.0
Hematocrit (HCT)	58.7	%	37.0 - 55.0
MCV	71.3	fL	60.0 - 77.0
MCH	17.9	Pg	19.5 - 24.5
MCHC	25.1	g/dL	32.0 - 36.0
Trombocytes (PLT)	375	10 <sup>3</sup> /μL	200 - 500
Limphocytes	10.9	%	12.0 - 30.0
Monocytes	1.9	%	3.0 - 10.0
Granulocytes	87.2	%	60.0 - 80.0
Limphocytes	2.1	10 <sup>3</sup> /μL	1.0 - 4.8
Monocytes	0.4	10 <sup>3</sup> /μL	0.15 - 1.35
Granulocytes	16.9	10 <sup>3</sup> /μL	3.5 - 14.0
RDW-CV	14.9	%	12.0 - 16.0
RDW-SD	45	fL	35 - 56
PCT	0.348	%	0.0 - 2.9
MPV	9.3	fL	6.7 - 11.0
PDW	6.6	%	0.0 - 50.0
P-LCR	38.9	%	13 - 43
<b>Blood Chemistry</b>			
ALT/SGPT	66	U/L	8.2 - 57.3
Ureum (BUN)	17	mg/dL	10 - 20
Creatinin	0.8	mg/dL	1 - 2
Total Protein	7.5	g/dL	5.4 - 7.5
Albumin	2.9	g/dL	2.6 - 4.0
Globulin	4.6	g/dL	2.7 - 4.4
Ratio A/G	0.63		0.6 - 1.1
Total Bilirubin	0.6	mg/dL	0.07 - 0.61
Alkalin Phosphatase (ALP)	61	U/L	10.6 - 100.7
Glucose	110	mg/dL	60 - 100
Amilase	817	U/L	269.5 - 1462.4
<b>Electrolite</b>			
Natrium/Sodium	145	Mmol/L	140 - 153
Kalium/Potasium	5	Mmol/L	3.8 - 5.6
Calcium	10.9	Mg/dL	8.7 - 11.8
Phospor	3.3	Mg/dL	2.6 - 6.8

active dog with no health problem before. Pom suffers caries, tartar on teeth, alopecia and itchy in several areas, given food with high protein and feed additive food, with snack for dog. The method for diagnosis, we checked the blood hematology and biochemicals to recover body condition and direct diagnosis.

## RESULTS AND DISCUSSION

On the middle of March 2019, A client who has a dog Pomeranian breed which is 11 years old came to Animal Hospital of Brawijaya University for checking health condition of his

dog. The name of the dog is Choky. According to the anamnesis, Choky was given the food with high protein and feed additive by his owner. Pom suffers caries, tartar on teeth, alopecia and itchy in several areas.

According to the hematology and biochemical examination (Table 1), it seems advisable that leucocytosis, granulocytosis, and lymphopenia indicates acute inflammation. Increasing the number of hematocrit indicates low dehydration. Increasing Alanine Aminotransferase without significantly indicates hepatic disorder and corticosteroid drug. Increasing the number of globulin without significantly indicates infection, autoimmune disease and dental disease because this anomaly was followed by increasing the total of glucose in blood.

Concerning food allergens in dogs, these are commonly glycoproteins with 15 to 50 kDa and, besides the molecular weight that may facilitate their absorption through the digestive mucosa, a good immunogenic capacity depends on the number of epitopes of antigenic molecules (Molokhou, 1995). The majority of food allergens are proteins with at least two IgE-recognized epitopes and the patterns of recognition by different individuals may vary with the replacement of a single amino acid, which may change IgE recognition (Lehrer *et al.*, 2002). In food allergy, beyond the intrinsic characteristic of protein, food treatment and digestibility are factors to be taken in account for the level of structural preservation and consequent availability of epitopes, while for aeroallergens, dimension and solubility should represent important characteristics (Gough *et al.*, 1999). Then some food protein characteristics based on susceptibility to denaturation and enzymatic degradation could determine whether an allergenic condition develops or not. In a wider context, adverse reactions to food are currently divided in toxic and non toxic. Non toxic reactions are divided into non immune mediated, such as enzymatic-caused and drug-caused reactions, and immune mediated such as IgE-mediated, non IgE-mediated and mixed-immune reactions (Bischoff and Sellge, 2003).

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In addition, Antihistamines can reduce the allergic reaction and strengthen the immune system to fight against the allergens. There are various antihistamines for each individual breed of dog, but there are a few which can be commonly used for all breeds (Bizikova *et al.*, 2008).

## CONCLUSION

Based on anamneses, clinical examination and laboratories, it is logical to conclude that this dog which names choky suffers toxic allergic because of toxic accumulation from his food and the prognosis is fausta. The treatments which are given for the dog are changing dog food, reducing the total protein in food at least one week, dietic protein and increasing exercise, given transfer factor supplement and antihistamin with low dosage.

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**REFERENCES**

- Bischoff, S.C., Sellge, G. 2003. Food Allergy: Adverse reactions to food and food additives 3rd ed. Blackwell Publishing, Massachussetts, USA, p14-27.
- Bizikova, P., Papich, M.G., Olivry, T. 2008. Hydroxyzine and cetirizine pharmacokinetics and pharmacodynamics after oral and intravenous administration hydroxyzine to healthy dogs. *Vet. Dermatol.*, 19(6).
- Gough, L., Schulz, O., Sewell, H.F., Shakib, F. 1999. The cysteine protein protease activity of the major dust mite allergen Der p 1 selectively enhances the immunoglobulin E antibody respose. *J. Exp. Med.*, 190, 1897-1902.
- Lehrer, S.B., Ayuso, R., Reese, G. 2002. Current Understanding of Food Allergens. *Annals of the New York Academy of Sciences*, 964, 69-85.
- Martins, L.M.L., Valdevira, A.G., Lopez, J.R. 2008. Allergy Diagnosis-An Application to Dog. *University of Evora, Portugal. Experimental Pathology and Health Sciences* 2(2).
- Molkhou, P. 1995. Allergenes alimentarius. *Institute UCBC de l'allergie – Section Francaise Divison S.A.UCB*, p26-38.
- Sturgeon, A., Costa, M., Weese, J.S. 2012. Preliminary evaluation of the bacterial microbime of the skin and ear in dogs. *Vet. Dermatol.*, 23, 68.

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