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“Simba” – cat with allergy & struvite urolithiasis

Case report

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“Simba” – anamnesis

8 years old

Male, neutered

Persian – ragdoll – shorthair – mix

Body weight: 6 kg; Ideal weight: 5.5 kg

Indoor cat

Eats nothing besides the prescribed diet



Picture: Prof. A. Liesegang



“Simba” – clinical history

Anamnestic struvite urolithiasis

- Therapy with Hill’s c/d
- Currently no apparent stones

Food allergy with symptoms of the skin

- Pruritus (scratching & licking), alopecia
- Treatment against ectoparasites
- Diagnosis: 8 weeks exclusion diet at the private veterinarian (Hill’s d/d venison & green peas) & provocation (Hill’s c/d)



Picture: Prof. A. Liesegang



Struvite urolithiasis

Part of the feline lower urinary tract disease

Ammonium magnesium phosphate = struvite

Pathophysiology:

- Likely combination of breed, sex and dietary factors
- struvite is soluble in slightly acidic urine (pH <6.8)
- Risk factors: excessive body weight, multiple cat households, indoor housing, reduced activity, dry food, reduced water intake

Unspecific symptoms:

- pollakiuria, stranguria, periuria, dysuria, hematuria



Picture: Prof. A. Liesegang

What Is the Evidence? P. Roudebush et al, 2010

Canine and feline urolithiasis: examination of over 50 000 urolith submissions to the Canadian veterinary urolith centre from 1998 to 2008. D. Houston, 2009

Analysis of 451,891 canine uroliths, feline uroliths, and feline urethral plugs from 1981 to 2007: perspectives from the Minnesota Urolith Center. C. Osborne, 2009





Struvite urolithiasis

High recurrence rates

Therapy:

- calculolytic diets (effect within 1 month)
- surgical removal of the stones

Prevention:

- keep urine pH below 6.8
- high moisture diet
- urine acidifiers only if measured pH is constantly >6.5



Picture: Prof. A. Liesegang

Influence of the feed base excess on urine parameters in cats Wagner et al, 2006
The effect of diet on lower urinary tract diseases in cats Markwell et al 1998
Textbook of Small Animal Medicine, 7th edition, Ettinger & Feldmann





Food allergy

Dermatologic and/ or gastrointestinal symptoms, unspecific

Diagnosis:

- rule out of other causes (skin symptoms: e.g. other allergies, ectoparasites)
- elimination diet



Picture: Prof. A. Liesegang

Therapy: adaption of the diet

Textbook of Small Animal Medicine, 7th edition, Ettinger & Feldmann

Diagnostic techniques in dermatology: the investigation and diagnosis of adverse food reactions in dogs and cats.

Jackson HA; Clin Tech Small Anim Pract; 2001 Nov;16(4):233-5.





„Simba“ – diet check

25 g/d Hill's d/d venison & green peas, dry

52 g/d Hill's d/d venison & green peas, canned



Picture: Prof. A. Liesegang

Cysteine & methionine / sulphur content? → calculation of urine pH is not possible; the company provides a predicted value of 6.4 for the pH of the urine



„Simba“ – diet recommendation I

195 g/d Hill's d/d version & green peas, canned

60 g/d horse meat



Picture: Prof. A. Liesegang

- Protein recommendations (NRC) are covered by additional horse meat



„Simba“ – diet recommendation II

210 g/d Hill's d/d venison & green peas, canned

70 g/d low fat curd cheese (sheep)



Picture: Prof. A. Liesegang

- Protein recommendations (NRC) are covered by additional low fat curd cheese from sheep
- Cysteine & methionine / sulfur content of the commercial diet?
 - Predictive calculation of urine pH is not possible
 - Find out if Simba likes one of the two protein sources (curd cheese & horse meat)
 - Any adverse effects on eating the new protein source?
 - Test urine pH as soon as possible





„Simba“ – diet recommendation III

The owner preferred to cook for the cat to make the urine pH predictable to prevent Simba from recurrent urolithiasis:

- 60 g/d lamb meat
- 50 g/d cooked rice
- 40 g/d low fat curd cheese (sheep)
- 30 g/d carrot
- 10 g/d safflower oil
- 1 g/d mix of vitamins & micronutrients
- 0.4 g/d eggshell



Picture: Prof. A. Liesegang

Calculation predicts a pH of 6.3 in the urine



„Simba“ – diet recommendation III

	Amount (g/d)	ME (MJ)	Rp (g)	Met (g)	Cys (g)	Ca (mg)	Phos(mg)	Mg (mg)	Pot (mg)	Sal (mg)	Cl (mg)	Vit A (IU)	Vit D (IU)	Vit E (mg)
Recommendation		1.1	18	0.11	0.11	185	164	26	334	44	62	214	18	3
Content		1.1	18	0.51	0.16	201	221	25	326	77	363	1466	21	9
Lamb meat	60	0.3	12	0.32	0.10	2	126	13	173	40	0	0	0	1
Cooked rice	50	0.2	1	0.02	0.01	1	19	2	17	1	346	0	0	0
Low fat curd cheese	40	0.1	5	0.17	0.05	37	64	5	38	16	0	0	0	0
Carrot	30	0.1	0	0	0	11	11	4	98	19	17	0	0	0
Safflower oil	10	0.4	0	0	0	2	0	0	0	0	14	1466	0	8
Vitamin & micronutrient mix	1	0	0	0	0	0	0	0	0	0	0	0	21	0
Eggshell	0.4	0	0	0	0	148	1	1	0	1	0	0	0	0





„Simba“- 1 month after dietary change

Simba accepts the new diet – as long as the components are mixed very well

Currently no stones detectable

No symptoms of an allergy

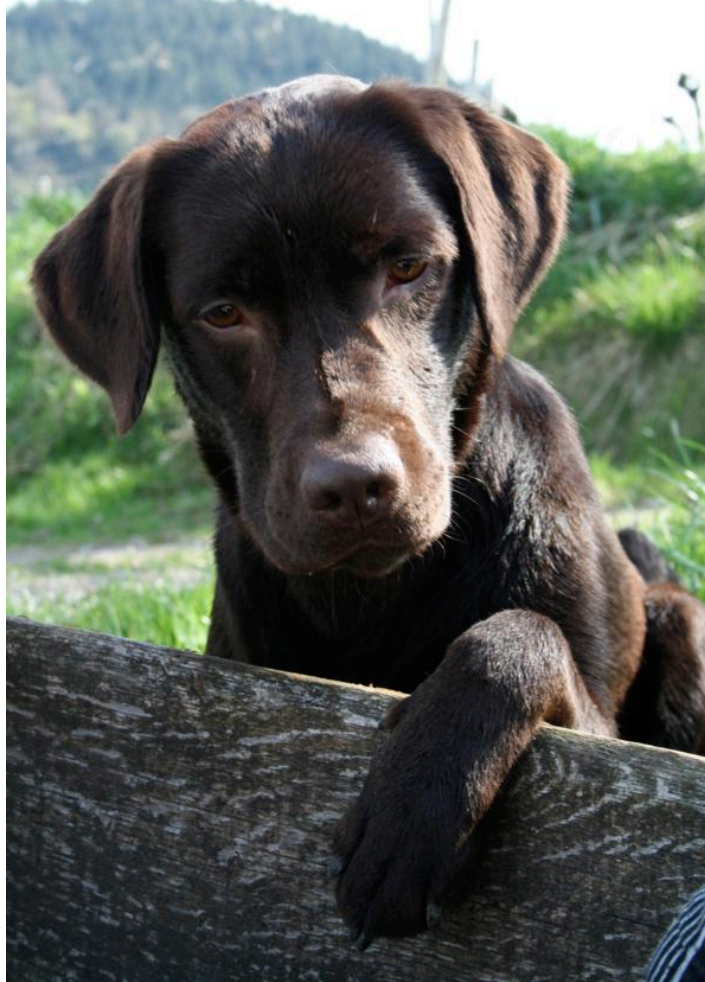
The urine pH tested with a ,Combur® stick‘ by the vet was 6.4



Picture: Prof. A. Liesegang



Thank you for your attention! Questions?





References

What Is the Evidence? Philip Roudebush, S. Dru Forrester, Tammy Padgelek; Journal of the American Veterinary Medical Association; May 1, 2010, Vol. 236, No. 9, Pages 965-966 doi: 10.2460/javma.236.9.965

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