Antinol®
Case Study
Contest

2017

Case Report :
Efficacy of oral PCSO-524® as an anti-inflammatory medicationin a Persian cat with pruritic skin disease.

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Abstract

This is a case report of a Persian cat with severe pruritus, which was not improved by topical external parasitic treatment, food trial and 2 months treatment with oral cyclosporine at the dose 5mg/kg. The cat developed corneal ulcer after the long-term treatment with oral cyclosporine. PCSO-524® (Antinol® Vetz Petz, New Zealand) was replaced cyclosporine as an anti-inflammation treatment and also was considered as a skin barrier support. The cause of pruritic in this case report was still inconclusive, but the skin lesions of this cat resolved after 2 months supplement with oral PCSO-524®and external parasitic treatment with oral f vluralaner (Bravecto®, MSD).

In conclusion, oral PCSO-524® (Antinol®, Vetz Petz), could be considered as an anti-inflammation and skin barrier support when the cats could not be treated with potent anti-inflammatory medications such as corticosteroid or cyclosporine. The underlying causes of pruritic skin lesions should be corrected in order to manage feline pruritic skin diseases.

Introduction

Feline pruritic skin diseases or feline hypersensitivity associated dermatoses can be manifested at least one of the following patterns: head and neck excoriations, symmetrical alopecia, eosinophilic granuloma complex, military dermatitis and scaling.[1-2] Some cats will manifest more than one clinical patterns. The underlying causes of feline pruritic skin diseases, which could be due to external parasites infestation, infections such as dermatophytes, and secondary bacterial and Malassezia infection, food allergy or atopic dermatitis (environmental allergy). The diagnosis should be made step by step by ruling out external parasites infestation first, follow by ruling out infections. If there is no improvement, the owner will be discussed about performing dietary trial with hydrolyzed protein or novel protein diets for 2-3 months. The diagnosis of feline atopic dermatitis is made by exclusion of other causes of pruritic skin diseases.[1-3]

Treatment of feline pruritic skin diseases consists of correcting the underlying causes, control 2nd infection, and use anti-inflammatory medications. The purpose of anti-inflammatory medications is to stop pruritus, which could be mild anti-inflammatory medication such as antihistamines and essential fatty acids. These two medications have synergistic effect to decrease mild to moderate pruritus.[1,2,4] Anti-inflammatory medications such as corticosteroids and cyclosporine are potent and are use for moderate to severe pruritus.[1,4] Side effects from long-term treatment with corticosteroid in cats are diabetic mellitus, cutaneous atrophy, congestive heart failure, and urinary tract infection[1,4]. Side effect from long-term use of oral cyclosporine are increased risk for viral and toxoplasmosis infection.[1,4] The benefit of skin barrier support of essential fatty acids also has been discussed as cats with defective skin barrier can predisposed to have atopic dermatitis.[1]

Antinol® (Vetz Petz, New Zealand) is a dietary fatty acid supplement made from New Zealand green-lipped mussel (Perna Canaliculus) which contains PCSO-524®. The main active ingredients are omega 3 fatty acids include eicosatetraenoic acid (ETA), eicosapentaenoic acid (EPA) and docosahexaenoic (DHA). It has anti-inflammatory effect due to these omega3 fatty acids can compete with arachidonic acid through lipooxygenase (LOX) and cyclooxygenase (COX) pathways resulting in decreasing inflammatory mediators: leukotrieneB4 and prostaglandin E2 and increasing less potent inflammatory mediator leukotrieneB5 and prostaglandin E3.[4,5] This medication is regularly used as an adjunct anti-inflammatory medication with non-steroid anti-inflammatory medications for arthritis.[5,6] This medication also has linoleic acid (omega6 fatty acid), which is the main ingredient of skin barrier.[4]

Case report
History:

An eight years old, male intact, Persian cat weight 4kg, presented for dermatology clinic for consultation. The cat was treated with the problem of pruritic skin disease with crusting lesions at face, both back legs, and lateral aspect of hips and entire tail for the past 3months. The referring vet found intracellular cocci bacteria and inflammatory cells with degenerated neutrophils and eosinophils from skin cytology. Trichogram was negative for demodectic mange. Dermatophyte culture was negative. The cat was tested for feline immunodeficiency and leukemia virus and was negative. His blood work was with in normal limits.The referring vet started treatments with topical external parasitic control with 10% imidacloprid and 1% moxidectin(Advocate®, Bayer) every 2weeks for 4 doses. The cat was given cefovecin (Convenia®, Zoetis) injection at the dose 8mg/kg every 2 weeks for 2 injections, then the systemic antibiotic was changed to oral doxycycline 5mg/kg daily for 6 weeks in order to control secondary bacterial infection. The last dose of oral doxycycline was finished 1 month before referral. The cat was fed hydrolyzed protein (Z/D®, Hill's prescription diet) for 3months with no improvement. Due to severe pruritic, after one month of food trial, the cat was given oral cyclosporine (Atopica®, Elanco) at the dose 5mg/kg daily for 2 month, with oral prednisolone at the dose .5mg/kg SID for the first 2 weeks when starting oral cyclosporine. Referring vet noticed that the skin lesions and pruritus of this cat were not improved during the period of 3 months with restricted dietary trial and the treatment with daily oral cyclosporine at the dose of 5mg/kg. The cat was suspected to have atopic dermatitis, and was referred to get intradermal or serology test in order to start allergen specific immunotherapy.

Physical examination:

On the first day at dermatology clinic, the cat had crusting lesions at forehead, back legs and tail and brown debris in both ears.

Diagnostic tests:
Skin biopsies:

were performed at face lesions and back legs in order to rule out another causes of crusting and pruritic skin diseases.

Skin cytology:

revealed degenerated neutrophils with nuclear streaming. There was no intracellular bacteria.

Ear cytology:

was positive for Malassezia organism.

Trichogram:

was negative for demodectic mange.

Ear cytology:

was negative for dermatophyte.

Treatment plan:

The owner was discussed about the differential diagnosis for feline pruritic skin diseases, which could be due to allergies (flea, food, environmental) or external parasites infestation. The cat was on dietary trial for 3moths with no improvement and was on topical 10% imidacloprid and 1% moxidectin (Advocate®, Bayer) every 2weeks for 4 doses. The owner agreed to get skin biopsied in order to rule out other causes of crusting skin lesions. During the pending period for histopathological result, the owner was recommended about the treatment with oral fluralaner (Bravecto®, MSD) 112.5mg at the dose of 28mg/kgin order to rule out Demodex gatoi. The owner was discussed about extra-label treatment for this medication.

In order to control secondary bacterial and Malassezia infection,the owner was instructed to use topical 3%chlohexidine, climbazole and phytosphygosine wipe (Douxo PS® wipe, Dechra) to clean crusty areas daily.

For the anti-inflammation, the cat was continued with oral cyclosporine at the dose 25mg (5mg/kg) daily.

One week later, the owner brought the cat to the ophthalmology clinic for severe inflammation of the left eye. The conjunctiva tissue was inflamed (chemosis) and there was a small corneal ulcer at right upper corner of the left eye. The cat was tested for herpes virus by conjunctiva swab, and was treated with systemic doxycycline 5mg/kg orally twice a day for 4 weeks with topical Terramycin eye ointment. Famciclovir was started with dose 125mg orally twice a day until getting the result of conjunctiva swab. Oral cyclosporine was discontinued for possible viral infection, and oral PCSO-524® (Antinol®, Vetz Petz) was added as anti-inflammatory medication and skin barrier support. The dose is one capsule per day. The cat was continued with daily topical cleaning with Douxo PS® wipe. The owner also discontinue feeding hydrolyzed protein® (Z/D diet,Hill's prescription diet) and the diet was changed to Hair and skin care diet®by Royal canin.

Skin biopsy result:

Chronic hyperplastic and perivascular dermatitis with suppurative epidermitis. Special stain for deep mycotic infection (PAS stain) was negative.

PCR test:

for herpes viral infection was negative.

One month recheck after discontinue oral cyclosporine and daily supplement with oral PCSO-524® (Antinol®, Vetz Petz), and 4 weeks of oral doxycycline 5mg/kg twice a day, the skin lesions was 50% improved with mild crusting lesion at forehead. Both ear canals had mild debris. The owner noticed 50% less of pruritus. The owner continued with oral daily supplement with PCSO-524® (Antinol®, Vetz Petz) and daily topical cleaning with Douxo PS® wipe.

Skin cytology:

found only small amount of degenerated neutrophils with no bacterial and ear smear did not find any organism.

Two month recheck after discontinue oral cyclosporine and daily supplement with oral PCSO-524® (Antinol®, Vetz Petz), the skin lesions of this cat was completely resolved with no pruritus. The cat did not come back for recheck at the dermatology clinic, and the owner brought the cat for recheck at the referring vet. After two month of daily dose, the owner decreased the dose of oral PCSO-524® (Antinol®, Vetz Petz) to one capsule every other day due to the difficulty of giving oral medication to this cat.

Discussion:

This case report demonstrated the efficacy of oral PCSO-524® (Antinol®, VetzPetz) as an anti-inflammatory medicationand skin barrier support in the cat with pruritic skin disease.

According to the referring vet, the crusting skin lesions and pruritus of this cat, which had clinical signs of face and neck excoriation and eosinophilic granuloma, were not improved with dietary trial, topical external parasitic treatment and daily oral cyclosporine at the dose 5mg/kg. Due to the development of corneal ulcer, the cat had to discontinue oral cyclosporine and oral PCSO-524® (Antinol®, Vetz Petz) was selected as an anti-inflammation and skin barrier support. The causes of corneal ulcer, which were possibly caused by face scratching from pruritus or long-term treatment with oral cyclosporine (2 months) and subsequently decreased immune system leading to herpes viral infection. But in this case, PCR test for herpes virus was negative.

The causes of pruritus in this reported case was still inconclusive. In order to completely rule out external parasite infestation, especially Demodex gatoi,the treatment for external parasite with oral fluralaner was recommended. There were two case reports of successful treatment for feline demodicosis with oral fluralaner.[7,8]

At 2 months recheck post oral fluralaner treatment, and supplement with daily oral PCSO-524® (Antinol®, Vetz Petz) together with topical Douxo PS® wipe, the skin lesions were significantly improved. The explanation for the improvement for this cat's skin lesions could be from the treatment of oral fluralaner in order to rule out Demodex gatoi, which could be the cause of pruritic skin disease in this cat.[7,9] According to the publication, there were 13 cats infected with Demodex gatoi, whichwere successful treated with topical 10% imidacloprid and 1% moxidectin (Advocate®, Bayer) weekly for 8-10 doses.9 For this case report, the cat was applied topical 10% imidacloprid and 1% moxidectin (Advocate®, Bayer) every 2 weeks for total of 4 doses, which was not be able to control the infestation of Demodex gatoi. However, the skin biopsy result of this case did not reveal Demodex gatoi, therefore the definitive diagnosis of Demodex gatoiinfection could not be confirmed in this case. The other possibility of the improvement of the skin could be from the supplement of oral PCSO-524® (Antinol®, Vetz Petz). The picture of two months post treatment showed that the skin lesions improved significantly. The clinical improvement from oral PCSO-524® (Antinol®, Vetz Petz) could be due to its anti-inflammatory effects, combination with the skin barrier support.

In conclusion, oral PCSO-524® (Antinol®, Vetz Petz), could be considered as an anti-inflammation and skin barrier support when the cats could not be treated with anti-inflammatory medications such as corticosteroid or cyclosporine. The underlying causes of pruritic skin lesions and 2nd bacterial infection should be controlled in order to manage the pruritus in cats.

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Table1: Chemistry profile during 3months treatment with oral cyclosporine

	Results			Units	Reference
	8/21/2017	9/11/2017	10/16/2017		
BUN	13	17	26	mg/dL	16 – 36
CREA	1.0	0.9	1.1	mg/dL	0.8 – 2.4
BUN/CREA	12	18	25		
ALT	36	45	57	U/L	12 – 130
AST	26	42	36	U/L	0 – 48
ALKP	27	25	32	U/L	14 - 111

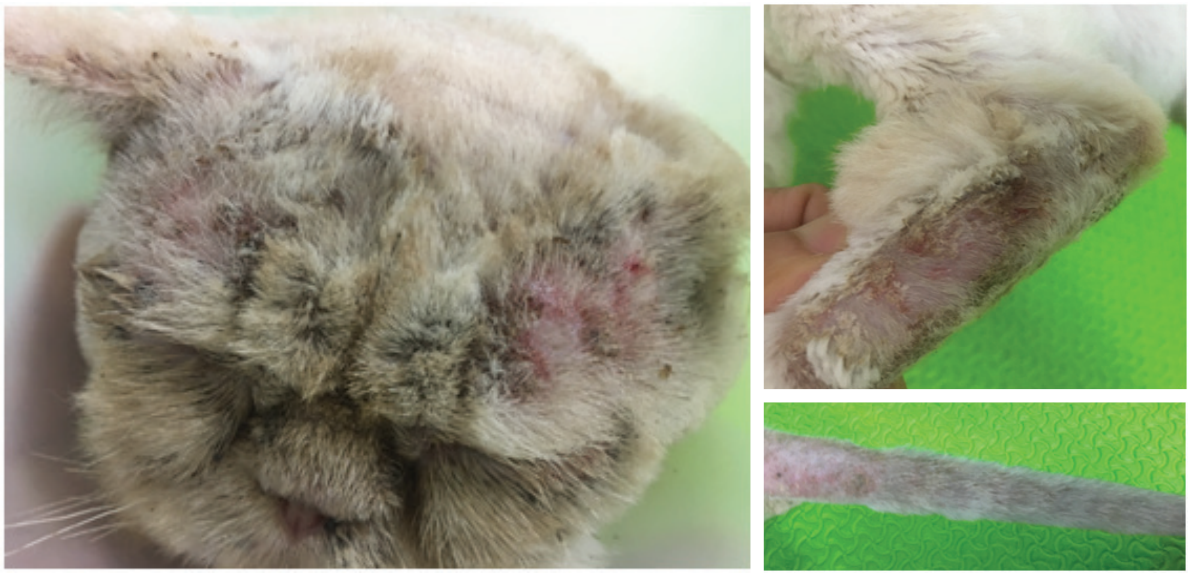
Table 2: Complete blood count during 3months treatment with oral cyclosporine

Lab Tests	Results				Units	Reference
	8/21/60	8/27/60	9/11/60	11/13/60		
Hematology						
WBC	22.0 H	16.0	14.2	17.0	x 10^3cell/mm^3	5.5 – 19.5
Neutrophil%	61.0	64.0	52.0	63.0	%	35 – 75
Band neutrophil%	2.0	0.0	0.0	0.0	%	0 – 2
Lymphocyte%	22.0	12.0 L	40.0	20.0	%	20 – 55
Monocyte%	1.0	1.0	5.0 H	1.0	%	1 – 4
Eosinophil%	14.0 H	23.0 H	3.0	16.0 H	%	2 – 12
RBC	6.89	7.28	6.38	7.11	10^6/uL	5.0 – 10.0
Hb	11.0	9.8	9.0	9.6	g/dL	8.0 – 15.0
Hct	32.9	30.0	28.1 L	29.9 L	%	30 – 45
MCV	47.1	41.2	44.0	42.0	fL	39 – 55
MCH	15.7	13.5	14.1	13.5	pg	13 – 17
MCHC	33.6	32.7	32.0	32.1	g/dL	30 – 36
RDW	16.6	17.1	17.9	17.9	%	14 – 18
PLT	256 L	350	268 L	400	x 10^3cell/mm^3	300 - 800

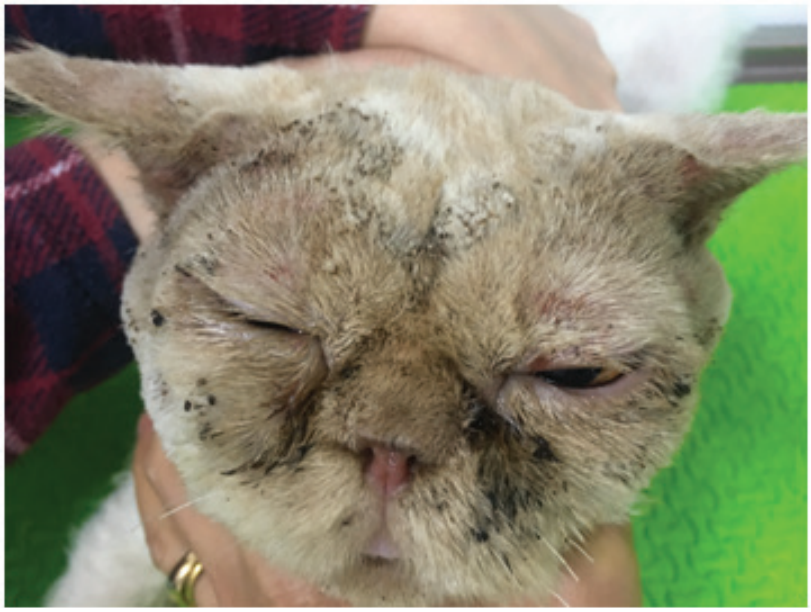
Morphology	Results				Units	Reference
	8/21/60	8/27/60	9/11/60	11/13/60		
Anisocytosis	Few	Few	Few	Few		
Macrocytic	Few	Few	Few	Few		
Microcytic	Few	Few	Few	Few		
Poikilocytosis	-	Few	-	-		
Schistocyte	-	Few	-	-		

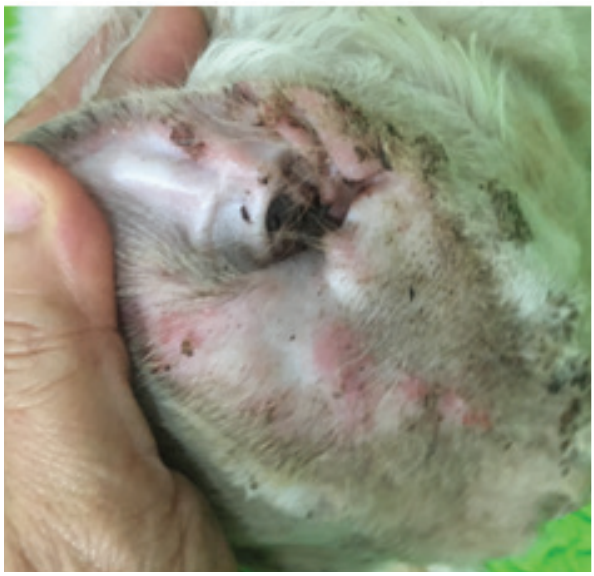
Blood parasite	Results				Units	Reference
	8/21/60	8/27/60	9/11/60	11/13/60		
Blood parasite	Not found	Not found	Not found	Not found		

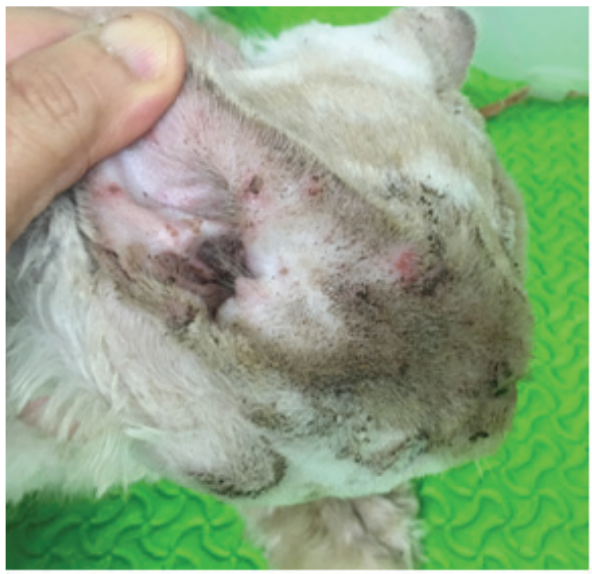
Pre treatment



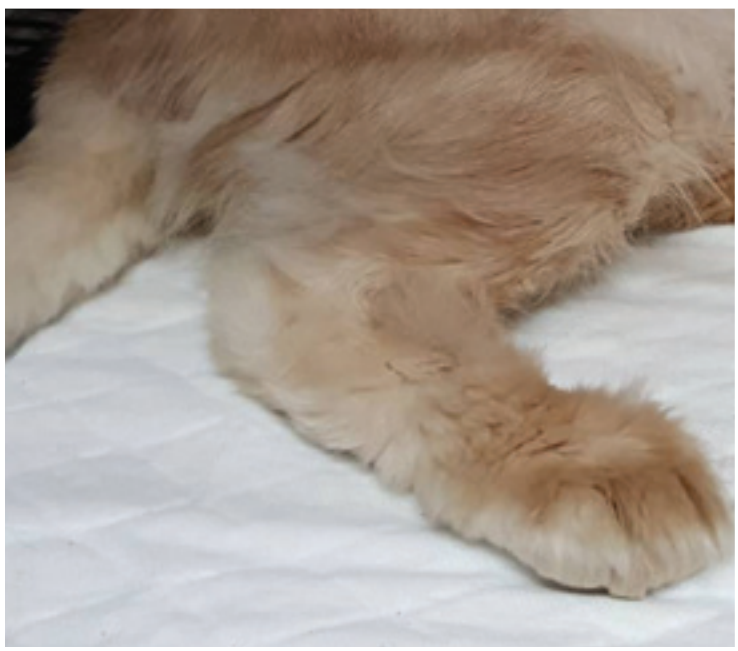
Post treatment: 1 month

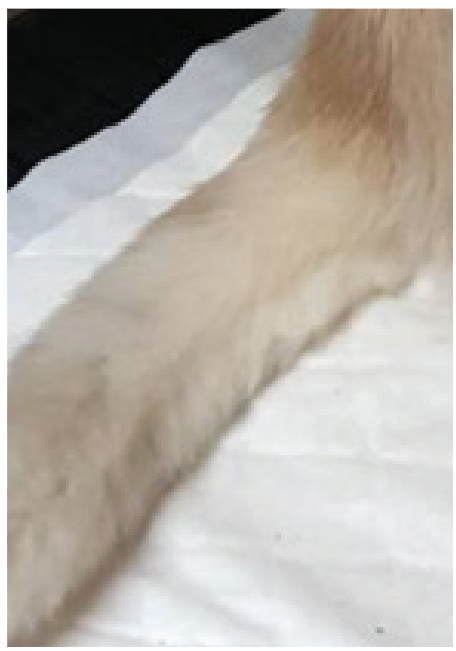


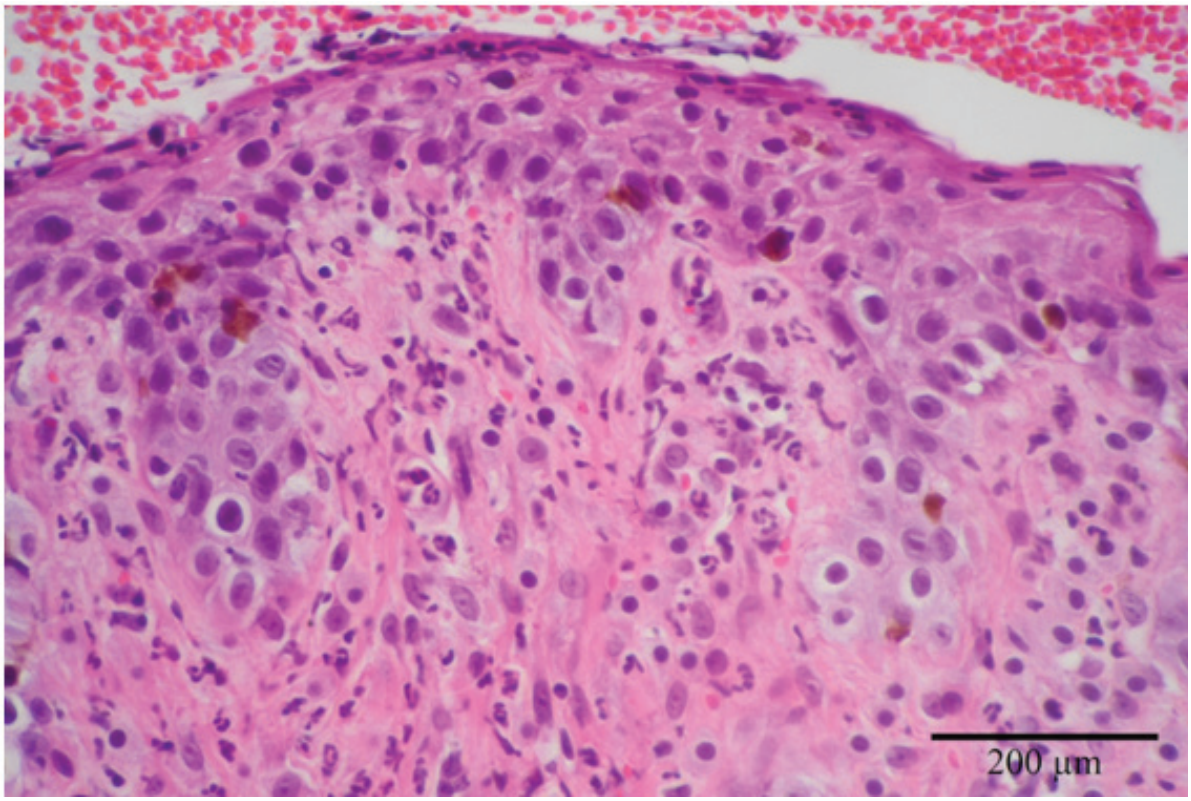




Post treatment: 2 months







Biopsy results: The epidermis was multi-focally ulcerated with excessive hemorrhage. Adjacent epidermis was acanthotic. Superficial dermis was diffusely infiltrated with neutrophils. Epidermal basal cells were vacuolar. Dermal blood vessels were congested with red blood cells and neutrophils. Lymphocytes were occasionally present surrounding the engorged dermal blood vessels. PAS stain did not reveal pathogenic fungi in hair follicles or in the suppurative dermal lesions.

Histipathological diagnosis: chronic hyperplastic and perivascular dermatitis with chronic suppurative and ulcerative epidermitis.

Microphotograph: Epidermis was slightly acanthotic with hemorrhage. Epidermal basal cells were vacuolated. Superficial dermis was infiltrated with neutrophils. Lymphocytes surrounded dermal blood vessels. H & E.

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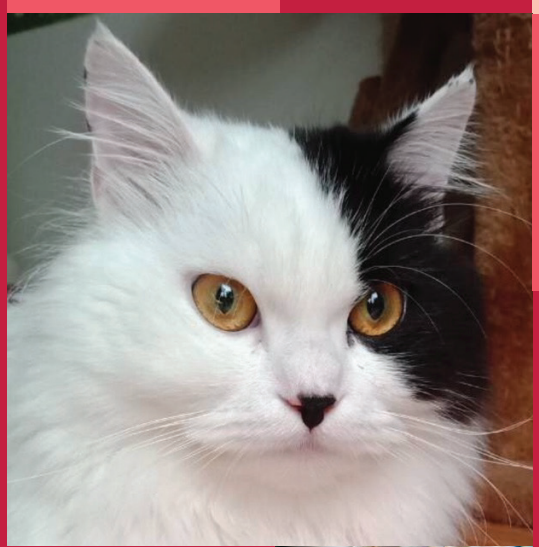

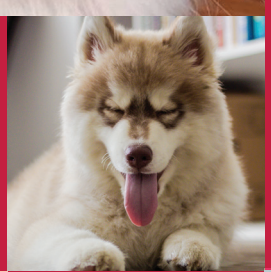

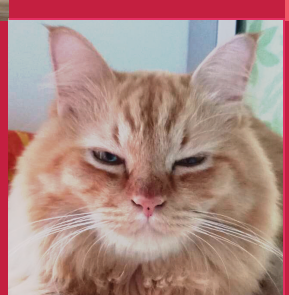

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