

Case Report

Acute Moist Dermatitis with Thrombocytopenia in Cat

Acute Moist Dermatitis dengan Trombositopenia pada Kucing

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Abstrak

Banyak penyebab kasus *Acute Moist Dermatitis* (AMD) atau disebut juga dengan *hotspot*. AMD dini disertai dengan gejala pruritus atau gatal yang ditandai dengan hewan sering menggaruk atau menjilat di area tubuh yang gatal. Penyebab pruritus pada kucing bermacam-macam, seperti dermatitis hipersensitivitas, ektoparasit, infeksi jamur, infeksi bakteri, atau reaksi kulit terhadap penyakit sistemik. Secara bertahap, gejala klinis AMD akan timbul alopecia dan eritema karena sangat gatal, lembab dan berbau pada permukaan kulitnya. Kucing Persia jantan berumur 1,6 tahun dan berat badan 3,4 kg datang dengan riwayat pruritus, alopecia, eritema dan kulitnya basah di beberapa lokasi kulit terutama di sekitar leher, dan sudah terjadi selama 3 bulan. Menurunnya nafsu makan dan minum karena kucing sibuk menggaruk serta menggigiti bulunya karena gatal yang berlebihan. Setelah dilakukan pemeriksaan klinis dan hasil pemeriksaan sampel secara mikroskopis, pemicu utama kasus ini adalah *furmite* pada kucing, *Lynxacarus radovskyi* dengan infeksi bakteri sekunder penyebab *Acute Moist Dermatitis* (AMD). Ektoparasit juga dapat menyebabkan penyakit sistemik lain seperti kecurigaan adanya parasit darah hingga menyebabkan trombositopenia yang dibuktikan dengan hasil hematologi *Complete Blood Count* (CBC), serta ditandai dengan gejala klinis hematuria dan epistaksis. Kucing dirawat intensif selama beberapa minggu dengan beberapa kombinasi obat seperti antiparasitik, antibiotik, antihistamin, NSID serta vitamin. Kucing ini berhasil sembuh, ditandai dengan kulit kembali normal setelah 40 hari perawatan.

Kata kunci: *Acute Moist Dermatitis* (AMD); kucing; *Lynxacarus radovskyi*; trombositopenia

Abstract

Many causes of the cases of *Acute Moist Dermatitis* (AMD) or also known as hotspots. Early AMD is accompanied by symptoms of pruritus or itching which is characterized by animal often scratching or licking the itchy areas of the body. There are various causes of pruritus in cats such as, hypersensitivity dermatitis, ectoparasites, fungal infections, bacterial infections, or skin reactions to systemic diseases. Gradually, clinical symptoms of alopecia and erythema will develop due to the highly itchy, moist and odorous skin surface. A male Persian cat, aged 1.6 years and weighing 3.4 kg, presented with a history of pruritus, alopecia, erythema and wet skin several skin locations, especially around the neck, and had occurred for 3 months. Decreased appetite to eat and drink because the cat is busy scratching and biting its fur due to excessive itching. After clinical examination and microscopic examination of samples, the main trigger of this case was feline furmite, *Lynxacarus radovskyi* with secondary bacterial infection causing *Acute Moist Dermatitis* (AMD). Ectoparasites can also cause other systemic diseases, namely suspicion of blood parasites that cause thrombocytopenia as evidenced by the results of a *Complete Blood Count* (CBC), and is characterized by clinical symptoms

of hematuria and epistaxis. This cat underwent intensive treatment for several weeks with a combinations of drugs such as antiparasitics, antibiotics, antihistamines, NSID and vitamins. The cat made a successful recovery, with skin returning to normal after 40 days of treatment

Key words: Acute Moist Dermatitis (AMD); cat; *Lynxacarus radovskyi*; thrombocytopenia

Introduction

Many causes of the case of Acute Moist Dermatitis (AMD) or also known as hotspot. Early AMD is accompanied by symptoms pruritus or different behaviours triggered by itch (e.g. scratching, licking). There are various causes of pruritus in cats, such as hypersensitivity dermatitis, ectoparasites, fungal infections, bacterial infections, or skin reactions to systemic diseases (Hobi *et al.*, 2011). Gradually, the clinical symptoms of alopecia and erythema will develop due to the highly itchy, moist and odorous skin surface (Kaoud, 2015). Itching can lead to inflammatory lesions leading to secondary infections, such as bacterial infiltration. Therefore, proper examination is needed to determine the main trigger of AMD in the skin

One of the primary causes by AMD is ectoparasites, furmite (*Lynxacarus radovskyi*). In taxonomy, *Lynxacarus radovskyi* belongs to the Phylum Arthropoda, Class Arachnida, Order Astigmata, Family Listrophoridae, Genus *Lynxacarus*, *Lynxacarus radovskyi* species. It is widely distributed parasite of cat (Jeffery *et al.*, 2012). Jayanthi *et al.* (2017) reported *L. radovskyi* for the first time in India in a Persian cat in Chennai. Macroscopically appearance of adult mites and eggs on the hair's animal like a "salt and peppered" so that, causing them to look dull, dry, dishevelled and easily epilated. And microscopically *Lynxacarus radovskyi* has a small size of less than 0.5 mm and is easily recognizable by its laterally flattened body shape, short legs and one-third of the body and attaches to the host hairs between the gnathostomes and parasitic pedipalpi (Lestari, 2019).

One of the diseases that can accompany the presence of ectoparasites in cats is blood parasites. Blood parasites are organisms that live in the blood of their host animal. These parasites can range from single-celled protozoa to more complex and rickettsial bacteria. Methods of

transmission vary depending on the parasite, but are often transmitted by tick or fly bites.

Case Presentation

Signalment

Persian cat, male, 1.6 years old, weight 3.4 kg. Examination was held on 7 July 2021.

Anamnesis and History

The cat experienced hair loss, baldness in several locations and itching, was presented with a history of 3-months of pruritus and there were wet sores in several locations. Cat was highly itchy. He has been examined and treated elsewhere, but no change has been seen. He has been given antibiotic and fungal medication and has been given a hypoallergenic diet, but no significant changes have been seen until he finally came to our place. Decreased appetite for eating and drinking, because the cat is busy scratching and biting its fur.

Physical Examination

Through a physical examination, the data obtained showed that the cat's body temperature had a slight fever of 39.5°C. Alopecia, erythema and moist especially around the neck and generalized pruritus. The score is 5 on an itching scale of 1-5 which is evidenced by the animal cannot stop scratching and licking its entire body even to the point of biting its body and hair. Pulsus and normal breathing, pink rose mucosa and CRT <2. After 1 month of treatment, hematuria and epistaxis were found.

Laboratory Test

Sampling for microscopic examination of the skin was carried out using the tricogram method and superficial scraping using liquid paraffin, scotch test and moist skin swab with diff quick (methanol-eosin 1% - methylene blue 1%). Hematology examination was carried out after 1 month of treatment (7 August 2021) using

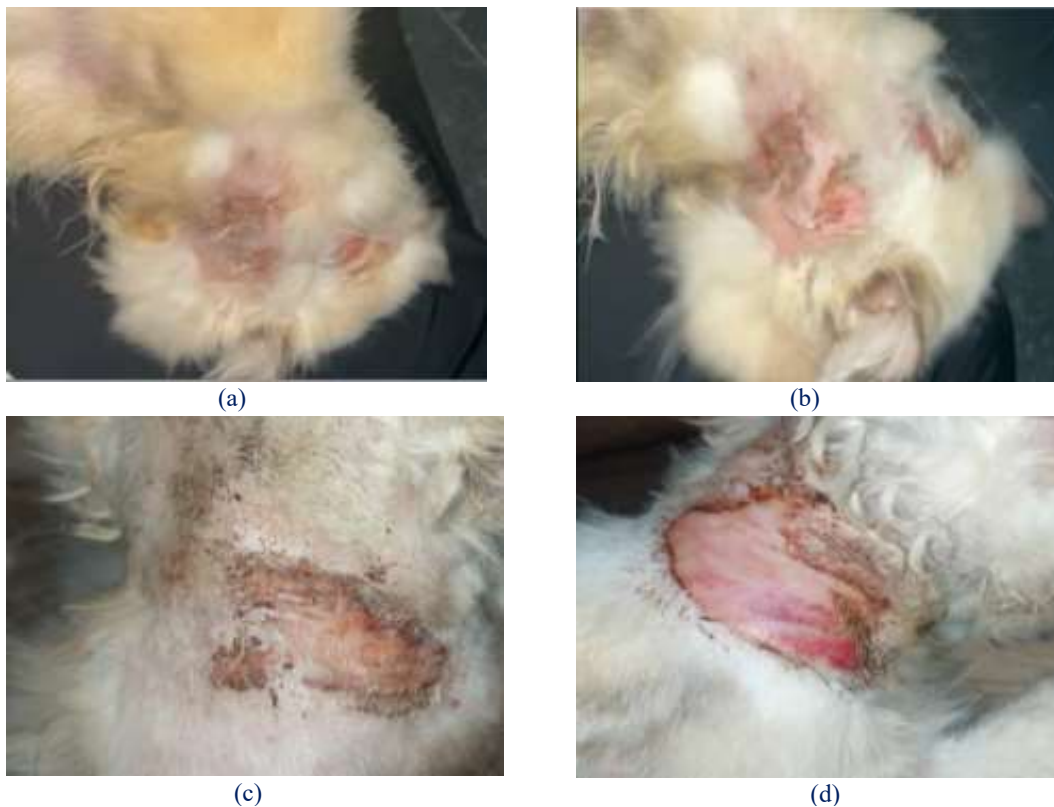


Figure 1.1. (a) and (b) Cat skin examination before shaving; (c) and (d) Cat skin examination after shaving and cleaning

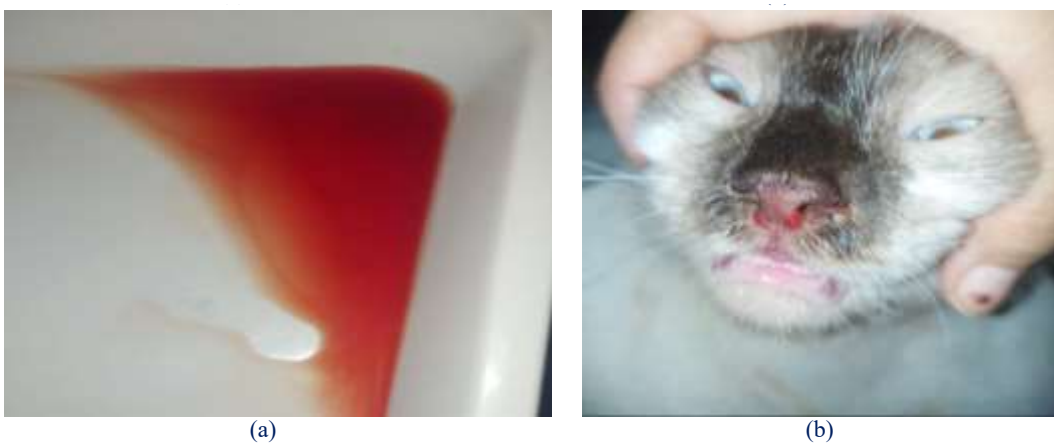


Figure 1.2. Cat has been hematuria (a) and epistaxis (b)

the VetScan HM5 v2.31 Abaxis hematology analyzer.

Results and Discussion

The results of microscopic examination of the cat's skin, found cat furmite *Lynxacarus radovskyi* on the tricogram test, superficial scraping and scotch test. For the results of the moist skin swab using the quick diff method, it was found that there was a bacterial infection of coccus and bacilli, accompanied by the presence of inflammatory cells. The results of microscopic examination are presented in table

1. The results of the hematology examination are presented in table 2

Diagnosis and Prognosis

Based on the history, clinical and laboratory examination, it can be concluded that this cat was diagnosed with Acute Moist Dermatitis, with the main trigger being *Lynxacarus radovskyi* cat furmite followed by secondary bacterial infection. In addition to the problem of acute moist dermatitis, this cat also has thrombocytopenia, so a blood parasite can be suspected. And the prognosis of this case is fausta.

Table 1. Microscopic Examination Results

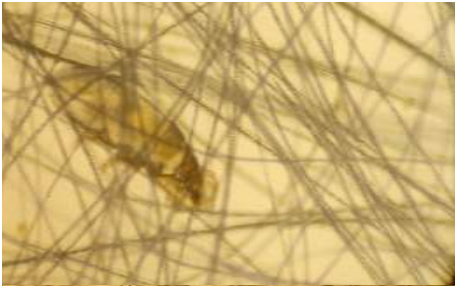


Method	Result	Notes
Tricogram		Fur mite: <i>Lynxacarus radovskyi</i>
Scotch test		Fur mite: <i>Lynxacarus radovskyi</i>
Superficial scraping		Fur mite: <i>Lynxacarus radovskyi</i>
Diff-Quik		Bacterial infection: Coccus, bacilli and inflammatory cells (neutrophils)

Table 2. Hematology Examination Results

Routine Hematology	Result	Units	Reference value	Notes
WBC	12.46	10 ⁹ /l	5.50 – 19.50	
Lymfosit (LYM)	1.80	10 ⁹ /l	1.5 – 7.00	
Monosit (MON)	0.76	10 ⁹ /l	0.00 – 1.50	
Neutrofil (NEU)	9.79	10 ⁹ /l	2.50 – 14.00	
Eosinofil (EOS)	0.11	10 ⁹ /l	0.00 – 1.00	
Basofil (BAS)	0.00	10 ⁹ /l	0.00 – 0.20	
LYM %	14.4	%	0.0 – 100.0	
MON %	6.1	%	0.0 – 100.0	
NEU %	78.6	%	0.0 – 100.0	
EOS %	0.8	%	0.0 – 100.0	
BAS %	0.0	%	0.0 – 100.0	
RBC	6.22	10 ¹² /l	5.00 – 10.00	
Hemoglobin (HGB)	9.5	g/dl	8.0 – 15.0	
Hematocrit (HCT)	21.60	%	24.00 – 45.00	Low
MCV	35	fl	39 – 55	Low
MCH	15.3	pg	12.5 – 17.5	
MCHC	44.1	g/dl	30.0 – 36.0	High
Platelet (PLT)	200	10 ⁹ /l	300 – 800	Low
MPV	8.4	fl	12.0 – 17.0	Low

Reference value by VetScan HM5 Abaxis Hematology Analyzer

Treatments

Table 3. Table of treatments

No.	Treatments	Dossage	Administration	Usage Time
7 July 2021				
1.	Viccillin [®] (Ampicillin)	10mg/kg BW	Sub cutan injection	Single dose
2.	Cefazolin [®]	10mg/kg BW	Sub cutan injection	Single dose
3.	Clavamox [®] (Amoxicillin+Clavulanat)	15mg/kg BW	Twice a day (per oral)	10 days
4.	Lixen [®] (Cephalexin)	15mg/kg BW	Twice a day (per oral)	3 weeks
5.	Ciproheptadine	1mg/kg BW	Twice a day (per oral)	5 days
6.	Meloxicam	0,1mg/kg	1 time a day (Oral suspension)	3 days
7.	Revolution [®] plus (Selamectin and Sarolaner spot on parasitic treatment)	Varian orange, for cats 5,6 – 11 Lbs (0,5ml)	Spot on	Every 2 weeks, Up to 3 times repetitions
8 Agustus 2021				
8.	Doxycycline	10mg/ kg BW		15 days (after stopping Clavamox [®])
9.	Vit. K1 / Phytomenadione [®]	2 mg/ kg BW	1 time a day (per oral)	5 days

Therapy was given according to the dose and method of use, from this treatment, the cat's skin seemed to improve with significant progress and also no longer experienced hematuria and epistaxis after treatment was completed. The cat was recovered successfully after 40 days of the treatment. The progress of this cat treatment can be seen in Figure 2.1 and Figure 2.2

Clinical signs such as alopecia, pruritus, erytrema and pyoderma are skin diseases with several differential diagnoses. Ectoparasites are one of the trigger factors that quite often cause these symptoms, causing acute moist dermatitis. Acute moist dermatitis, which is



Figure 2.1. Progress of acute moist dermatitis after treatment

often also called a hotspot, is characterized by the presence of wet and moist skin conditions and is usually localized. Various breeds, both dogs and cats, are most often affected by this acute moist dermatitis (Srivastava *et al.*, 2013).

One of the ectoparasites is *Lynxacarus radovsky* and known as Lynxacarosis is an important differential diagnosis for vet practitioners when cases presented with clinical signs alopecia in several spots, pruritus, dry lusterless with 'salt and pepper' appearance in cat's hair coat (Preena, *et al.*, 2018). Clinical signs of hypersensitivity and pruritus also have been reported in infected cats (Han, 2015). In this case, the treatment of ectoparasites as the main trigger of acute moist dermatitis is appropriate. The treatment of ectoparasites in this case is using Revolution[®] Plus spot on with the content selamectin and sorolaner. Selamectin has high efficacy, according to Six *et al.* (2000), it has 94-100% efficacy for eliminating lice. And according to Shanks *et al.* (2000) >93% (1 dose) and 100% (2 doses) eliminated mites (Shanks *et al.*, 2000). Meanwhile, spot on treatment is considered easier and safer.

In addition to treatment of ectoparasites as the main trigger, another problem caused in cases of acute moist dermatitis is secondary bacterial infection. When a cat starts scratching and biting due



Figure 2.2. (a) Cat's urine normally without hematuria after therapy. (b) Cat has recovered and no epistaxis

to itching caused by ectoparasites, it will be followed by infiltration of bacteria and inflammatory cells. Therefore, antibiotic treatment is needed in this case. The use of antibiotics Amoxicillin + Clavulanate and Cephalexin is the combination antibiotics used and there are broad spectrum antibacterial drug for skin infections and wound infections. In addition, cephalexin which is the first generation cephalosporin is highly recommended in cases of pyoderma and other skin infections (Papich, 2020).

In this case, the cat had hematuria and epistaxis, so it was decided to do a blood test as well. From hematology results, it is known the presence of thrombocytopenia. Although in Clare *et al.* (2004) in general clinical signs of cats suffering from *Lynxacarus radovsky* are visible salt-and-pepper appearance to a dull and opaque hair coat, alopecia, pruritus, papules and crust in several location, but in this case, it was proven that the hematological results showed a decrease in platelets. So that, the cat experienced hematuria and epistaxis. In cats, normal platelets are 300-800 ($10^9/l$) (references VetScan HM5). But this cat is only 200 ($10^9/l$). Platelets are associated with blood clotting factors. So it fits with the existing clinical symptoms, namely the occurrence of hematuria and epistaxis. There are several factors that cause thrombocytopenia in cats, such as the presence of blood parasites, splenomegaly and blood disorders. Blood parasites are spread by the bite of fleas, ticks, mites or other ectoparasites. In this case, *Lynxacarus radovsky* ectoparasites is too much and causes the cat to suffer alopecia and hemorrhage of the skin due to intense scratching and biting. In addition,

there is a possibility that other ectoparasites are not detected on the microscopic examination results which are the possible causes of blood parasites. Therefore, in this case, doxycycline and vitamin K1 adjunct therapy were used. Using doxycycline was given after stopping Clavamox[®], so the next combination of antibiotics that was used only with cephalexin. It was expected to minimize the use of antibiotics but can maximize the use of medicine functions for healing. The results of the case reported by Nandini *et al.* (2016), doxycycline gradually reduced the level of parasitemia. After 10 days of doxycycline treatment, the cat had no clinical signs of hematuria or epistaxis.

Conclusion

Ectoparasites are dangerous because they trigger Acute Moist Dermatitis, and causing animals to suffer from prolonged and highly itch, while also causing systemic diseases with clinical symptoms hematuria and epistaxis as a result of thrombocytopenia. After combination of treatments, as using antibiotics, antiparasite, and vitamin, the cat was recovered successfully after 40 days of the treatments.

References

- Clare, F., Mello, M.L.C., Bastos, T.V., Lessa, C., Conceico, L.G. (2004). Use of fipronil for treatment of *Lynxacarus radovskyi* in outdoor cats in Rio de Janeiro (Brazil). *Veterinary Dermatology*. 15(Suppl. 1): 41–69
- Han, H. S. (2015). A Survey of Prevalence of *Lynxacarus radovskyi* in Cats in Malaysia.

- Veterinary Dermatology Journal*. 26(1): 66-68.
- Hobi, S., Linek, M., Marignac, G., Olivry, T., Beco, L., Nett, C., Fontaine, J., Roosje, P., Bergvall, K., Belova, S., Koebrich, S., Pin, D., Kovalik, M., Meury, S., Wilhelm, S., Favrot, C. (2011). Clinical Characteristics and Causes of Pruritus in Cats: a Multicentre Study on Feline Hypersensitivity-Associated Dermatoses. *Veterinary Dermatology Journal*. 22(5): 406-13.
- Jayanthi, C., Nagarajan, B., Latha, B. R. (2017). Cat fur mite *Lynxacarus radovskyi* in India. *Journal of Parasitic Disease*. 41(4): 1102-04.
- Jeffery, J., Norhidayu, S., Zain, S. N. M., Hayati, N., Nurazila, B. (2012). The Cat Fur mite, *Lynxacarus radovskyi* Tenorio, 1974 (Acarina: Astigmata: Listrophoridae) from Cat, *Felis catus* in Peninsular Malaysia. *Tropical. Biomedicine*. 29(2): 308-310.
- Kaoud, H.A. (2015). New Trials for the Treatment of Hot Ppots in Dogs. *Journal of Pharmaceutical and Biomedical Sciences*. 5(2)1-3
- Lestari, A. I. (2019). Different Amount Of Thrombocytes On Blood Storage For 24 Hours In Room And Refrigerator. *Journal of Vocational Health Studies*. 3 (2): 59-62.
- Nandini, M.K., Vishwakarma, P., Kamran, C.A. (2016). New Therapeutic Protocol for Canine Babesiosis: A Case Report. *Journal of Dairy, Veteterinary & Animal Research*. 3(3): 112-113.
- Papich, M.G. (2020). Papich Handbook of Veterinary Drugs. 5th edition. Elsevier
- Preena, P., Dilna, K.P., Kumar, K.V.R., Padmaraj, P.K., Kumar, V.R.S., Muraleedharan, K., Gireesh, B., Mathew, D.P. (2018). Cat Fur Mite, *Lynxacarus radovskyi* in Persian cats of Kannur district, Kerala. *Journal of Veterinary Parasitology*. 32 (2): 92-94
- Shanks, D.J., McTier, T.L., Behan, S., Pengo, G., Genchi, C., Bowman, D.D., Holbert, M.S., Smith, D.G., Jernigan, A.D., Rowan, T.G. (2000). The Efficacy of Selamectin in the Treatment of Naturally acquired infestations of sarcoptes scabiei on dogs. *Veterinary Parasitology*. 23;91(3-4): 269-81.
- Six, R.H., Clemence, R.G., Thomas, C.A., Behan, S., Boy, M.G., Watson, P., Benchaoui, H.A., Clements, P.J., Rowan, T.G., Jernigan, A.D. (2000). Efficacy and Safety of Selamectin Against *Sarcoptes scabiei* on Dogs and *Otodectes cynotis* on Dogs and Cats Presented as Veterinary Patients. *Veterinary Parasitology*. 91 (3-4): 291-309.
- Srivastava, M., A. Anil., K. Subhash and S. Ankita. (2013). Management of Acute Moist Dermatitis in a Dog. *Intas Polivet*. 14 (2): 401-402