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TREATMENT OF *MALASSEZIA* DERMATITIS IN A DOMESTIC DOG

Pengobatan Dermatitis *Malassezia* pada Anjing Domestik

Erwin Satriawan[1]*, I Putu Gede Yudhi Arjentinia[2], Ida Ayu Dian Kusuma Dewi[2]

[1]Veterinary Medicine Profession Student, Faculty of Veterinary Medicine, Udayana University, Jl. P.B. Sudirman, Denpasar, Bali, 80234, Indonesia

[2]Laboratory of Veterinary Internal Medicine, Faculty of Veterinary Medicine, Udayana University, Jl. P.B. Sudirman, Denpasar, Bali, 80234, Indonesia

*Corresponding author email: erwinsatria@student.unud.ac.id

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Abstract

Malassezia dermatitis is a common skin disease in dogs caused by the overgrowth of *Malassezia* sp., a lipophilic yeast that normally inhabits the skin but may act as an opportunistic pathogen when skin homeostasis is disrupted. This yeast is commonly found in areas with active sebaceous glands and may cause pruritus, alopecia, hyperpigmentation, and chronic skin changes. This report describes a case of a 3-month-old female domestic puppy named Stella, weighing approximately 3 kg, presenting with chronic pruritus accompanied by generalized hair loss that had persisted for approximately one month. Dermatological examination revealed alopecia on the face, ears, neck, and extremities, along with hyperpigmentation, crust formation, and skin thickening consistent with lichenification. Supporting examinations using acetic acid tape preparation (ATP) cytology demonstrated a high number of *Malassezia* sp., while skin scraping and otic swab examinations did not reveal the presence of ectoparasites or other infectious agents, and trichogram analysis showed a predominance of hairs in the telogen phase, indicating chronic skin stress. The therapy administered consisted of bathing with Sebazole® shampoo as the primary treatment, topical application of apple cider vinegar and virgin coconut oil (VCO) as adjunct therapies to support skin barrier repair, and administration of diphenhydramine as symptomatic therapy to reduce pruritus. After four weeks of treatment, the clinical condition of the case animal showed significant improvement leading to complete recovery, characterized by the resolution of pruritus, skin lesions, and alopecia, along with hair regrowth.

Keywords: Dog, dermatitis, *malasseziosis*, fungi

Abstrak

Dermatitis *Malassezia* merupakan penyakit kulit pada anjing yang disebabkan oleh pertumbuhan berlebih jamur *Malassezia sp*., yaitu fungi lipofilik yang secara normal terdapat pada kulit namun dapat menjadi patogen oportunistik ketika terjadi gangguan keseimbangan lingkungan kulit. Jamur ini umumnya ditemukan pada area tubuh dengan kelenjar sebasea yang

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aktif dan dapat menimbulkan pruritus (rasa gatal), alopesia (kebotakan), hiperpigmentasi (penggelapan warna kulit), serta perubahan tekstur kulit. Laporan ini membahas tentang pasien anak anjing domestik betina bernama Stella berusia 3 bulan dengan bobot badan ±3 kg yang menunjukkan keluhan gatal kronis disertai kerontokan rambut menyeluruh yang telah berlangsung selama kurang lebih satu bulan. Lesi berupa alopesia tersebar pada bagian wajah, telinga, leher, dan ekstremitas, dan disertai hiperpigmentasi, crusta, serta penebalan kulit yang mengarah pada lichenifikasi. Hasil pemeriksaan penunjang berupa *Acetic Acid Tape Preparation* (ATP) sitologi menunjukkan keberadaan *Malassezia* sp. dalam jumlah berlebih, sementara pemeriksaan *skin scraping* dan *otic swab* tidak ditemukan adanya ektoparasit maupun agen infeksi lain, serta *trichogram* memperlihatkan dominasi rambut dalam fase telogen sebagai indikasi stres kulit kronis. Terapi yang diberikan yaitu dengan mandi menggunakan shampo Sebazole® sebagai terapi utama, aplikasi topikal cuka sari apel dan *virgin coconut oil* (VCO) sebagai terapi adjuvan untuk mendukung perbaikan *barrier* kulit, serta pemberian diphenhydramine sebagai terapi simptomatik untuk mengurangi pruritus. Setelah empat minggu terapi, kondisi klinis hewan kasus menunjukkan perbaikan signifikan hingga penyembuhan total, ditandai dengan hilangnya pruritus, lesi kulit, dan alopesia serta pertumbuhan rambut kembali.

Keywords: Anjing, dermatitis, malasseziosis, fungi

INTRODUCTION

Dog is a domestic animal with high social and economic value, both as companion animals, guard animals, and in professional dog breeding and husbandry activities. The selling price of a dog is highly influenced by its health condition, physical appearance, and the quality of its skin and hair, which are important indicators of overall health. Skin disorders, particularly dermatitis, are among the most common clinical problems encountered in dogs and can significantly reduce the animal's quality of life and aesthetic value (Bond *et al.*, 2020). Skin diseases in dogs generally show clinical symptoms such as pruritus, alopecia, hyperpigmentation, an unpleasant odor, and have the potential to cause secondary infections if not treated appropriately and continuously (Bajwa *et al.*, 2017). This condition not only impacts animal welfare but can also lower the owner's perception of the dog's health and performance value, making the management of skin diseases an important aspect in veterinary practice (Hobi *et al.*, 2024).

Dermatitis can be caused by various agents such as bacteria, fungi, and ectoparasites. Infectious agent-induced dermatitis is reported to have a high prevalence in companion animals, especially dogs, because the skin is easily exposed to pathogenic microorganisms such as bacteria and fungi which can develop into primary or secondary causes of dermatological disorders. Among many risk factors, one group susceptible to dermatitis is young dogs. A study by Wiryana *et al.* (2014) stated that dogs aged 9-12 weeks have a higher incidence rate of dermatitis compared to other age groups, reaching 45.8%. This is suspected because a puppy's immune system is not fully developed, making them susceptible to both single and mixed skin infections.

One of the common causative agents of dermatitis found in dogs is *Malassezia* spp. This lipophilic fungus (which grows easily in lipid-rich environments) lives physiologically as a commensal flora on dog skin, but can transform into an opportunistic pathogen when the balance of the skin environment is disrupted, including due to increased moisture, excessive sebum secretion, or damage to epidermal integrity (Bond *et al.*, 2020). *Malassezia* infection is generally secondary and often associated with other conditions such as allergies, atopic dermatitis, or underlying chronic skin diseases (Bajwa *et al.*, 2017). Clinically, dermatitis due

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to *Malassezia* is characterized by severe pruritus, alopecia, hyperpigmentation, seborrhea, and a characteristic unpleasant odor, which can cause significant discomfort in the animal.

Malassezia infection is reported as one of the most common causes of dermatitis in dogs and can play a role as either a primary or secondary agent in skin disorders. Clinical data show that *Malassezia* infection can account for 43% of all skin disease complaints in dogs, making it one of the most numerous skin pathogens after pyoderma (Kristianty *et al.*, 2017). This finding is consistent with an epidemiological report in the Badung region which recorded a *Malassezia* infection prevalence of 58% in dogs with dermatitis (Sudipa *et al.*, 2021). Based on currently published data, these findings indicate that *Malassezia* is a common agent found in cases of canine dermatitis in several regions of Indonesia, especially in young animals or animals with unstable immune conditions, thus requiring appropriate diagnostic and management strategies to prevent worsening of the condition and disease recurrence.

The purpose of writing this case report is to report the management of dermatitis due to *Malassezia* spp. infection in a domestic puppy and to evaluate the clinical response to the therapy provided. It is hoped that this case report can serve as a reference for veterinary practitioners in the management of *Malassezia* dermatitis in dogs, especially in young animals.

RESEARCH METHODS

Signalment and History

A 3-month-old domestic dog, showing skin condition consisting of generalized alopecia on the face, ears, and legs, accompanied by skin color changes (hyperpigmentation) and thick crust layers covering several parts of the body. The skin surface appeared thickened and rough, suggestive of possible lichenification, indicating chronic inflammation. The case dog also appeared to scratch frequently and displayed restless behavior, indicating severe pruritus. The patient's appetite, defecation, and urination were reported as normal.

Physical Examination

Physical examination was conducted through inspection, palpation, and auscultation with results showing a heart rate of 120 beats/minute, respiratory rate of 24 breaths/minute, Capillary Refill Time (CRT) value < 2 seconds, and a body temperature of 38.5°C. Examination of the oral mucosa and conjunctiva appeared normal, without signs of dehydration or anemia. General systemic physical examination did not show abnormalities. However, results of dermatological inspection revealed generalized alopecia on the face, ears, neck, and extremities, accompanied by hyperpigmentation and thick crusts on the skin surface with a pruritus score of 6/10, indicating moderate to severe pruritus (Strzok *et al.*, 2022). The skin felt thickened and rough upon palpation, suggesting possible lichenification due to chronic inflammation. When palpating the affected areas, the dog did not show a pain reaction, but a high frequency of scratching and restless behavior was observed, indicating severe pruritus.

Laboratory Examination

Laboratory examinations were conducted to support the clinical diagnosis in this case. A Complete Blood Count (CBC) was performed to evaluate hematological status and the possibility of a systemic inflammatory response. Additionally, skin scraping was performed to detect the presence of ectoparasites such as mites, which are commonly the cause of dermatitis in young dogs. Acetic Acid Tape Preparation (ATP) cytology examination was used to identify the presence of microorganisms such as *Malassezia spp.* or bacteria on the skin surface, as well as to evaluate inflammatory cells. Meanwhile, an otic swab examination was taken from the ear canal to assess the presence of secondary infection in the external auditory canal, which

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often accompanies chronic dermatological conditions. All these examinations aimed to obtain comprehensive diagnostic data to determine the etiology and appropriate therapeutic plan.

Diagnosis dan Prognosis

Based on history, clinical examination, and the results of supporting examinations in the form of Acetate Tape Preparation (ATP) cytology which showed the presence of an excessive number of *Malassezia spp.*, as can be seen in Figure 1, the patient was diagnosed with dermatitis due to *Malassezia spp.* infection (Malasseziosis) with a good prognosis because the patient's general condition was still good and no systemic complications or other primary skin diseases were found, and malasseziosis generally responds well to appropriate antifungal therapy.

Therapy

Therapy for the patient was carried out by bathing with the antifungal shampoo Sebazole® as the primary therapy to reduce the number of *Malassezia sp.* colonies and improve skin condition (Mudiana *et al.*, 2023). As adjuvant therapy, apple cider vinegar was used after being diluted in a 1:1 ratio (5 mL apple cider vinegar: 5 mL water), resulting in a final acetic acid concentration of approximately 2.5%, then applied topically twice daily to help lower skin pH and inhibit fungal growth (Atro *et al.*, 2015). *Virgin Coconut Oil* (VCO) was applied undiluted at the same frequency, functioning as an emollient, anti-inflammatory, and natural antifungal through its lauric acid content (Varma *et al.*, 2018). Symptomatic therapy was given in the form of Diphenhydramine intramuscularly at a dose of 1 mg/kg BW twice daily for seven days to relieve pruritus.

RESULT AND DISCUSSION

Result

Therapy results were analyzed descriptively by comparing the patient's clinical condition before and after therapy, as presented in Table 3 regarding the progress of clinical improvement during the treatment period. In the first week of treatment, the patient's skin condition began to show initial improvement, characterized by reduced erythema and hyperpigmentation in several body areas and decreased pruritus intensity, although alopecia was still clearly visible and significant hair growth had not yet been observed. In the second week, clinical improvement was more apparent, with most of the skin crusts having disappeared, pruritus further reduced, and the beginning of new hair growth seen in previously alopecic areas. Entering the third week, previously bald areas were covered with fine hair, no new lesions were found, and pruritus decreased drastically. In the fourth week, the patient's skin and hair condition showed complete recovery, characterized by the absence of alopecia, crusts, or signs of skin irritation, and scratching behavior had completely disappeared.

Discussion

The patient was diagnosed with dermatitis due to *Malassezia spp.* infection (malasseziosis), a skin disease caused by overgrowth of the lipophilic fungus *Malassezia* which is normally a commensal flora of dog skin. Disruption of the skin barrier balance causes this fungus to develop as an opportunistic pathogen and trigger an inflammatory process. Clinically, malasseziosis is characterized by pruritus, alopecia, hyperpigmentation, crust formation, and skin thickening due to chronic inflammation, as found in the patient (Guillot *et al.* 2020). This finding is supported by skin cytology results showing the presence of an excessive number of *Malassezia spp.* as the main cause of dermatological disorder in the patient (Souza, 2019).

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The patient's healing process showed a good clinical response to the consistently administered topical and systemic therapy, as presented in Table 3. The control of *Malassezia* dermatitis in the patient emphasized the use of the antifungal shampoo Sebazole®, where the effectiveness of ketoconazole and sulfur has been proven to reduce *Malassezia* colony count on the skin (Prayuda *et al.*, 2023). Topical antifungal therapy is recommended in the management of *Malassezia* dermatitis because it can directly suppress the growth of lipophilic fungi on skin lesions (Bajwa *et al.*, 2017). Regular use of topical azoles has been proven effective in reducing pruritus, crust formation, and skin inflammation in cases of *Malassezia* dermatitis in dogs (Hobi *et al.*, 2024). In this case, Sebazole® shampoo application was performed periodically to help control fungal infection, clean crusts and scales, and gradually improve skin condition.

A combination of natural ingredients, namely apple cider vinegar and VCO, was applied. Apple cider vinegar contains acetic acid, flavonoids, and polyphenols which have antibacterial and antifungal activity, although its antifungal effect is milder compared to synthetic agents (Pratiwi *et al.*, 2022). The use of apple cider vinegar is known to lower skin pH, thereby inhibiting the growth of pathogenic fungi and bacteria through disruption of microbial membrane function (Ousaaid *et al.*, 2022), and does not cause irritation while helping to maintain skin microbiome balance without damaging the epidermal barrier (Lydia *et al.*, 2021). On the other hand, VCO contains lauric acid, capric acid, and caprylic acid which have antifungal activity against *Malassezia*, *Candida*, and dermatophytes through a mechanism of disrupting fungal cell lipid membranes (Verallo-Rowell *et al.*, 2008), and has been proven to significantly inhibit fungal growth even at low concentrations (Ogbolu *et al.*, 2007). Furthermore, VCO acts as an emollient and mild anti-inflammatory agent, helping to accelerate skin regeneration and stimulate hair growth in alopecic areas (Adiyati *et al.*, 2014).

Symptomatic therapy in the form of diphenhydramine HCl also played an important role in controlling severe pruritus (Rohayu *et al.*, 2025). Diphenhydramine is a first-generation antihistamine that works by blocking H1 histamine receptors, thus effective in reducing itching and inflammatory reactions in dermatitis (Paraningtyas *et al.*, 2023). Pruritus control is a crucial aspect in dermatitis management because it can break the scratch cycle which risks worsening skin damage and triggering secondary infection (Kaler *et al.*, 2024). In this case, this therapy contributed to reducing the frequency of scratching and supporting the skin healing process. The combination of antifungal therapy using Sebazole®, natural ingredient-based therapy, and symptomatic therapy provided optimal clinical results, characterized by gradual improvement in skin condition until complete clinical recovery was achieved.

CONCLUSION AND SUGGESTIONS

Conclusion

Topical therapy using the antifungal shampoo Sebazole® as the primary therapy, combined with topical application of apple cider vinegar and VCO, yielded good clinical results in the management of *Malassezia* dermatitis in a dog. This combination therapy was able to gradually reduce pruritus, improve the condition of alopecic and lichenified skin, and support hair regrowth. Clinical improvement occurred progressively until complete healing was achieved in week 4, characterized by the disappearance of skin lesions, pruritus, and alopecia, and the return of normal skin and hair condition. The use of natural ingredients also helped restore the skin barrier and reduce inflammation, thereby supporting an optimal and safe healing process.

Suggestions

The use of apple cider vinegar and VCO can be considered as safe, natural ingredient-based adjuvant therapy in the management of *Malassezia* dermatitis in dogs, but its application must

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still be based on an accurate diagnosis and accompanied by veterinary supervision to achieve optimal therapy results and prevent recurrence.

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Tables

Table 1. Vital Signs Examination Result

Clinical examination	Normal Value	Result	Remark
Heart rate (beats/minute)	110-130	120	Normal
Pulse (beats/minute)	110-130	120	Normal
Capillary Refill Time (seconds)	<2	<2	Normal
Resporatory rate (breaths/minute)	15-30	24	Normal
Temperature (^{o}C)	37.8-39.2	38.5	Normal

Table 2. Hematology Examination Result

Parameter	Before Treatment	After Treatment	Reference Range	Result
WBC (x10^{3}/µL)	10.96	6.45	6–17	Normal
RBC (x10^{6}/µL)	4.55	5.80	5.5–8.5	Improved
Hemoglobin (g/dL)	9.4	13.0	11–19	Improved
Hematocrit (%)	27.2	39.2	39–56	Improved
MCV (fL)	59.7	67.2	62–72	Normal
MCH (pg)	20.7	22.5	20–25	Normal
MCHC (g/dL)	34.6	33.5	30–38	Normal
Platelets (x10^{3}/µL)	403	127	117–460	Normal

Abbreviations: WBC: White Blood Cell; RBC: Red Blood Cell; HGB: Hemoglobin; HCT: Hematocrit; MCV: Mean Corpuscular Volume; MCH: Mean Corpuscular Hemoglobin; MCHC: Mean Corpuscular Hemoglobin Concentration; PLT: Platelet; MPV: Mean Platelet Volume; PCT: Procalcitonin.

Table 3. Treatment Progress

Week	Result	Remark
Day 1		When first brought for examination, the dog showed severe alopecia on several parts of the body, especially on the face, ears, and extremities. The skin condition appeared dry, scaly, and showed signs of chronic inflammation. At this stage, therapy had not yet been given. The pruritus score was recorded as 6/10.

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Week	Result	Remark
Week 1		In the first week of treatment, the skin condition began to show initial signs of improvement. Hyperpigmented and alopecic areas, especially on the lateral abdomen, appeared more localized and did not expand. Although hair loss was still clearly visible, the skin surface appeared calmer without conspicuous erythema. Pruritus was still reported, but with lower intensity compared to the initial condition, characterized by a decrease in pruritus score to 5/10. Overall, these changes indicated a positive initial response to the administered therapy.
Week 2		After two weeks of treatment, significant improvement occurred in the skin and hair condition. Most of the areas previously affected by alopecia began to show new hair growth, accompanied by improved skin inflammation and decreased pruritus. Although there were still some small areas not fully recovered, the overall clinical condition showed very good progress, with the pruritus score dropping to 3/10.
Week 3		In the third week of treatment, previously bald areas began to be covered evenly with fine hair, and the level of pruritus decreased drastically. No new lesions or signs of active inflammation were found on the skin. The pruritus score decreased to 2/10, indicating that the skin condition was becoming more stable and approaching clinical recovery.

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Week	Result	Remark
Week 4		Entering the fourth week, the skin and hair condition appeared clinically recovered. Alopecia, crusts, or signs of skin irritation were no longer found, and pruritus completely disappeared (score 0/10). This result indicates the success of therapy and optimal recovery of the skin condition.

Figures

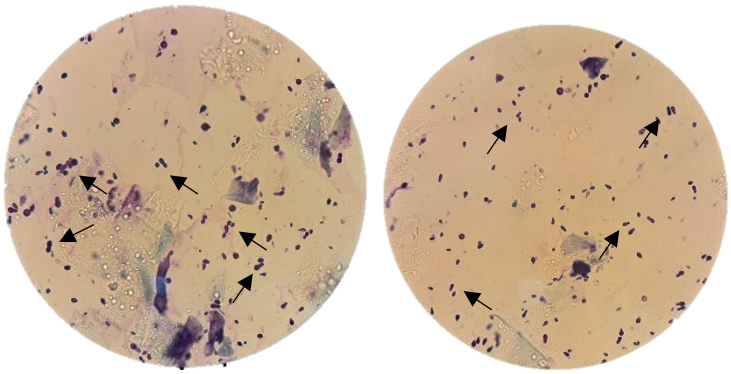

Figure 1. Skin cytology examination using the Acetate Tape Preparation (ATP) method shows the presence of a large number of *Malassezia sp*. Oval to elongated cells with thick walls, characteristically resembling a "peanut" or "footprint" shape, consistent with *Malassezia* morphology (Miller *et al.*, 2012). This finding is clearly visible under microscopic observation at 400× magnification.

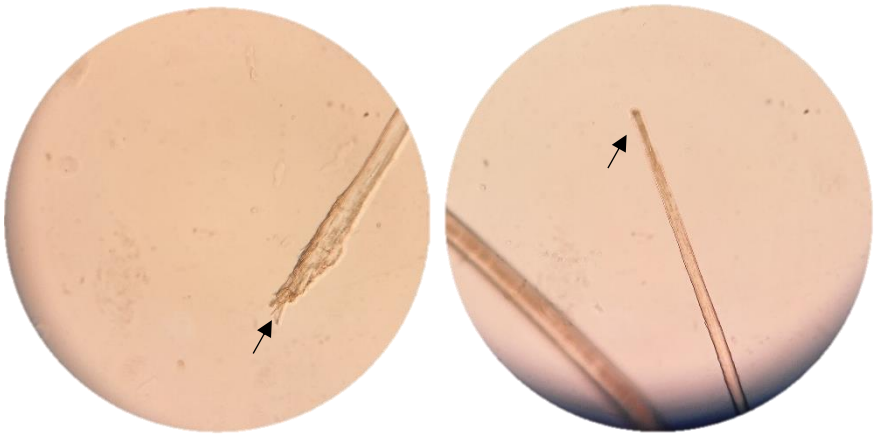

Figure 2. Result of trichogram examination at 100x magnification shows the hair in the telogen phase, characterized by pointed and intact hair tips, and hair roots that are smaller and tapered without an active epithelial sheath.