

Treatment of otitis externa caused by *Malassezia* spp. in a local dog: a non-systemic antifungal approach

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ABSTRACT: *Malassezia* spp. are part of the commensal microbiota on the skin and ears of dogs; however, under certain conditions, they can overgrow, triggering otitis externa. Systemic therapy is effective; however, its use is limited by its potential for resistance and hepatotoxic effects. This article reports a case of dextra otitis externa caused by *Malassezia* spp. in a 1.5-year-old male dog. On initial examination, the dog showed swelling of the right ear flap, scratching wounds, yellowish exudate, narrowing of the ear canal, as well as alopecia, erythema, and nodules on the ear flap and neck. The diagnosis was confirmed by clinical examination and cytology, which revealed the presence of *Malassezia* spp. The treatment consisted of ear cleaning with a 3% chlorhexidine solution (topical, q12h for 14 days), bathing with a 2% miconazole nitrate-medicated shampoo, and additional therapy with antibiotics, prednisone, chlorpheniramine maleate, and supplements. Evaluation at the 7-day post-treatment follow-up showed a marked clinical improvement. At the 25-day post-treatment follow-up, the patient recovered without recurrence. This case report confirms that topical antifungal therapy with supportive therapy is effective for the treatment of *Malassezia* spp. in dogs.

Keywords:

dog, fungal disease, malasseziasis, miconazole nitrate, topical therapy

■ INTRODUCTION

Malassezia spp. are commensal yeast of canine skin and ear canals; however, under certain conditions, they may overgrow and cause otitis externa. *M. pachydermatis* induces disease mainly through proliferation and enzyme-mediated tissue damage. Management requires antifungal therapy and correction of the predisposing factors. Topical agents, such as antiseptics and azoles, are commonly used, whereas systemic antifungals, such as ketoconazole and itraconazole, are reserved for severe cases (Puig *et al.* 2018). However, systemic therapy is limited by drug resistance, hepatotoxicity, and other side effects. Topical treatments remain an effective alternative (Sihelská *et al.* 2019). This case report describes the management of right-sided otitis externa in a local dog using topical antifungal therapy.

■ CASE

Anamnesis and Signalment: A 1.5-year-old unneutered local dog with a complete vaccination history was brought to the Hello Vet Bali Sedap Malam Branch clinic in Denpasar, Indonesia. The dog's owner complained of itching in the ears and neck. **Physical Examination:** body weight of 11.6 kg, rectal temperature of 38.9 °C, body condition score of 4 (scale 1-9), heart rate of 120 bpm, respiration rate of 30 bpm,

pink oral mucosa, capillary refill time of > 2 s, and skin turgor of < 3 s. The right ear flap was swollen, with nodules and lesions in the pinna area. Yellowish fluid was observed in the ear canal during otoscopy. Narrowing of the ear canal was also observed. Alopecia and erythema were observed in the ear flap and on the neck. **Laboratory Examination:** Cytology with DiftQuick staining was positive for *Malassezia* spp. (Figure 1). **Diagnosis:** Otitis externa due to malasseziasis. **Differential Diagnoses:** Dermatophytosis and demodicosis.

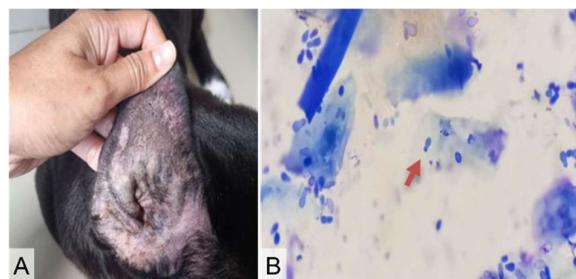


Figure 1. Local dog ear showing swelling and nodules, erythema, and scratching wounds (A). *Malassezia* spp. yeast undergoing oval, cylindrical, and bean-shaped budding (400x) (B).

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Treatment: The ears were flushed with an ear cleaner (Ox-fresh ear cleaner). The outer ear and neck were cleaned with 3% chlorhexidine (topical) q12h for 14 days. Bathing with Malaseb Medicated Shampoo (active ingredients: miconazole nitrate 2% and chlorhexidine gluconate 2%, topical) every 4 days for 14 days. Antihistamine therapy with diphenhydramine HCl SC 1 mL/kg once (Vetadryl, Sanbe). Anti-inflammatory dexamethasone SC 1mL/kg once (Rheindexa, Rheinvet). Antibiotic amoxicillin SC 1 mL/kg once (Intramox, Holland). The oral therapy (PO) cephalexin (15 mg/kg q12h 7d), prednisone (0.5 mg/kg q12h 5d), chlorpheniramine maleate (4 mg/dog q12h for 7 days), Livron B Plex (1 tablet/dog/day for 7 days), and Kalvidog (1 tablet/dog q12h for 14 days).

■ RESULTS AND DISCUSSION

The dog was brought to the clinic on day 1 with the complaints described above. In the initial stage, the dog received topical antifungal therapy (bath and antiseptic), injections, oral medications, and supportive care, as described above. After undergoing therapy for seven days, the dog was brought back for a follow-up seven days post-therapy and showed marked improvement. Erythema in the alopecia area appeared to have decreased, exudation in the ear canal was no longer observed, and the auricle showed no signs of stenosis or inflammation. This is due to the effect of miconazole, which inhibits ergosterol synthesis and reduces the *Malassezia* population, and chlorhexidine, which damages the microbial membrane and reduces irritating metabolites, synergistically reducing the microbial load and, thereby, inflammation (Thangavelu *et al.* 2020, Hoes *et al.* 2022). However, inflammatory signs were still present; therefore, oral prednisone and chlorpheniramine maleate therapy were continued for five days. 25 days post therapy, the patient returned for a follow-up visit and was found to be clinically healthy. Although antifungal therapy rapidly reduces *Malassezia*, inflammation often persists. Prednisone fills this gap by suppresses the residual inflammatory response, while antifungals continue to act (Rodrigues & Vandenabeele 2021).

During the physical examination, a yellowish oily exudate was observed. Otitis caused by *Malassezia* spp. is typically characterized by dark, moist, waxy exudate accompanied by erythema and pruritus, as well as increased yeast colonization (Puig *et al.* 2019). In addition to the ear, erythema and alopecia lesions were observed on the neck (ventral part). This is consistent with Bajwa's (2023) statement that the body parts of dogs that are often involved include the auricle, external ear canal, muzzle area, lower neck, ventral side of the body, inner thighs, and feet.

Topical therapy for otitis externa caused by *Malassezia* spp. usually includes imidazole compounds (e.g., clotrimazole and miconazole), antiseptics such as chlorhexidine, and lime-sulfur preparations (Chiavassa *et al.* 2014). In our case, a combination therapy of chlorhexidine antiseptic and miconazole nitrate antifungal was used in the form of shampoo and

topical antiseptic. The mechanism of action of chlorhexidine involves disruption of the cell membrane. Chlorhexidine molecules bind to negatively charged bacterial cell walls, increasing permeability and causing subsequent cell lysis. This membrane tropic activity is also effective against fungi and yeasts, including *Malassezia* spp. (Thangavelu *et al.* 2020). Miconazole nitrate exerts several antifungal mechanisms, including the inhibition of ergosterol synthesis and induction of oxidative stress. Although resistance may be observed in chronic cases, this compound remains effective in treating *Malassezia* spp. infections in dogs, especially when used in combination with other agents (Hoes *et al.*, 2022). Topical therapy using miconazole nitrate combined with chlorhexidine shows recovery within 3–6 weeks, with marked clinical improvement often observed within the first 2–3 weeks (Hoes *et al.* 2022; Maynard *et al.* 2011; Negre *et al.* 2009).

■ CONCLUSION

Topical antifungal therapy combined with supportive therapy has been shown to be effective in treating otitis externa caused by *Malassezia* spp. in dogs, as demonstrated by marked clinical improvement within seven days and complete recovery without recurrence up to 25 days after therapy.

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