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Monday-Tuesday protocol (pulse therapy) using itraconazole to treat *Malassezia Pachydermatis* infection in a golden retriever

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Abstract
A 6-year-old female Golden Retriever with a history of significant pruritis, erythema, alopecia, musty odor, greasy scales, and generalized erythema presented. Monopolar budding yeasts were found in the impression smear during cytological examination. On days 0 and 21, mean yeast counts and clinical lesion scores were noted. Itraconazole tablets were administered twice weekly (Monday and Tuesday) at a dose of 5 mg/kg for a total of six weeks of treatment. Shampoo containing chlorhexidine and ketoconazole was prescribed to be used topically twice per week. Dog made a full recovery after six weeks, free of skin lesions and pruritis.

Keywords: Monday-Tuesday, pulse therapy, malassezia, itraconazole

Introduction
Malassezia yeasts are commensals of skin and causes skin disease whenever the cutaneous protective mechanism is disrupted or immune-compromised state [1]. It is also known as elephant skin disease [2]. There is no gender or age predisposition but breeds which have skin folds are predisposed to get *Malassezia* overgrowth. Breeds like Basset hounds are often affected by seborrheic dermatitis associated with *M Pachydermatis* [3]. In diseases like atopic dermatitis, the microclimate of skin will be changed because of pruritis, added moisture by licking and increased production of sebum. The yeast organisms can act as allergen in atopic dermatitis cases and causes hypersensitivity [1]. Clinical signs include erythema, alopecia, itching and seborrhea in acute conditions whereas chronic cases show hyperpigmentation, greasy scales, lichenification and malodor [4]. Diagnosis of *Malassezia* species can be done by cytology and fungal culture techniques. Commonly used sampling methods are impression smear, swab and adhesive tape techniques. Among all techniques the fungal culture and adhesive tape method can identify the yeast organisms more frequently [5]. Treatment includes azoles like ketoconazole, itraconazole where former have side effects like vomiting, diarrhea, hepatotoxicity [6]. Itraconazole have capacity to retain in skin especially stratum corneum layer (lipophilic and keratinophilic property) for longer time [4, 7] and sebum concentration are usually 5-10 times more than plasma. This peak concentration remains for about 7 days and this was basis for pulse administration of itraconazole. In pulse administration, the drug will be given intermittently with longer interval between doses [4]. Pulse administration considerably reduces adverse effects, cost of treatment and improves client compliance. Moreover, this treatment regimen is very helpful in geriatric and hepatic patients with *Malassezia* dermatitis [2]. Therefore, the present case reports a successful treatment of *Malassezia* dermatitis in a dog by using pulse administration (Monday-Tuesday protocol in this case) of itraconazole.

Case description
A 6-year-old female Golden Retriever with a history of mild to moderate itching over the previous 6 days, malodor, and widespread alopecia appeared. A dermatological examination found greasy scales, musty odor, erythema at various places, and slight hyperpigmentation at the axillae (Fig 1-4). Animal was evaluated for cytological examination on day 0 and 21. Giemsa staining technique was used to stain impression smears taken from six body areas that

are primarily affected with *Malassezia* (Ventral neck, right ear, left ear, axillae, perineum, interdigital spaces). Each impression smear was microscopically examined for presence of *Malassezia* yeasts. The six sites were assigned with clinical lesion scores (CLS) used in previous studies [4, 8]. Each site was evaluated for four parameters (Erythema, greasy scales, hyperpigmentation or lichenification and odor) each scoring from 0 to 3 (Table 1). Scores from six sites are summed up on 0th day and 21st day. Total number of yeast organisms were counted in ten consecutive oil immersion fields of each impression smear from six sites and mean yeast count (MYC) was obtained. On the basis of history, impression smear cytological findings (Fig 5&6) and typical clinical lesions the diagnosis of *Malassezia Pachydermatis* was made. Treatment was initiated with Itraconazole @5mg/kg P/O for two consecutive days in a week with 5 days gap and followed similarly for 6 weeks. Here, the case was presented and treatment began on Monday. To make it easier for the owner to remember the repeat cycle of the therapy, it was suggested to say "Monday and Tuesday" each week. This is nothing but pulse administration of itraconazole. Topically ketoconazole + chlorhexidine shampoo was advised @twice a week. Omega 3 and omega 6 fatty acid supplements were used daily until complete recovery. The CLS on day 0 was 46 and it significantly reduced to 11 (more than 50% reduction) on day 21. MYC count was 67 on day 0 and it reduced to 9 on day 21. Treatment continued for 6weeks and the erythema, itching, malodor reduced drastically (Fig 7&8).

Table 1: Parameters evaluated for clinical lesion scoring

	Scoring of clinical features: Absent= 0; Mild=1; Moderate=2; Severe=3							
	Erythema		**Greasy scales**		**Hyperpigmentation and lichenification**		**Odor**	
	0th day	**21st day**	**0th day**	**21st day**	**0th day**	**21st day**	**0th day**	**21st day**
Ventral aspect of neck	2	0	2	1	1	1	2	0
Axillae	2	0	2	1	2	1	2	1
Right ear	3	0	3	1	2	0	2	1
Left ear	2	0	3	1	2	0	2	1
Feet	1	0	1	0	1	0	2	0
Perineum	2	0	2	1	2	1	2	0
Total	12	0	12	5	10	3	12	3

Discussion

Though the *Malassezia* species are commensals, it is difficult to find in cytological samples from clinically normal dogs. More number of yeast organisms are present at periorbital areas and lowest at axilla, inguinal regions [1, 5]. One study revealed that there was no significant difference between once daily use and pulse therapy of itraconazole, but the culture scores of ear samples were significantly reduced with pulse therapy [4]. In a study the efficacy of terbinafine was compared between once daily and pulse protocol administration [8]. Basset hounds are frequently presented with *Malassezia* associated seborrheic dermatitis and miconazole-chlorhexidine based shampoo was successful in controlling the disease [3]. The pulse administration of itraconazole reduces treatment cost and side effects associated with this drug. Its great potential to distribute to stratum corneum and sebaceous glands is the reason behind the successful outcome from pulse therapy [4]. In this instance, pulse therapy was referred to as the Monday-Tuesday protocol to make it easier for the owner to recall the treatment cycles. If the case is presented on a different day of the week than Monday, the authors don't specifically advise to wait until Monday to initiate treatment.

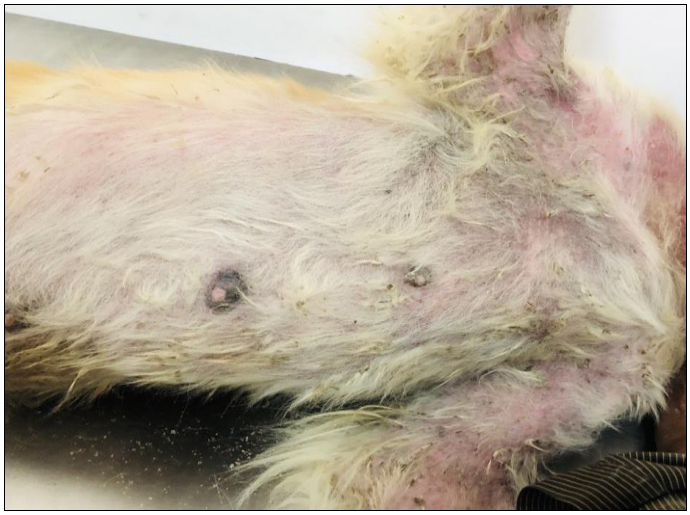

Fig 1: Erythema, Greasy scales and alopecia at axillae

Fig 2: Mild hyperpigmentation at inguinal area

Fig 3: Perineal area with hyperpigmentation and alopecia and erythema

Fig 4: Erythema and discharge from ears

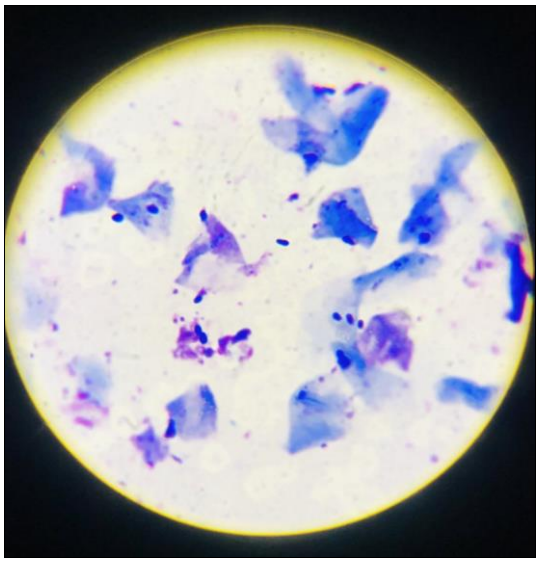

Fig 5: *Malassezia Pachydermatis* with corneocytes

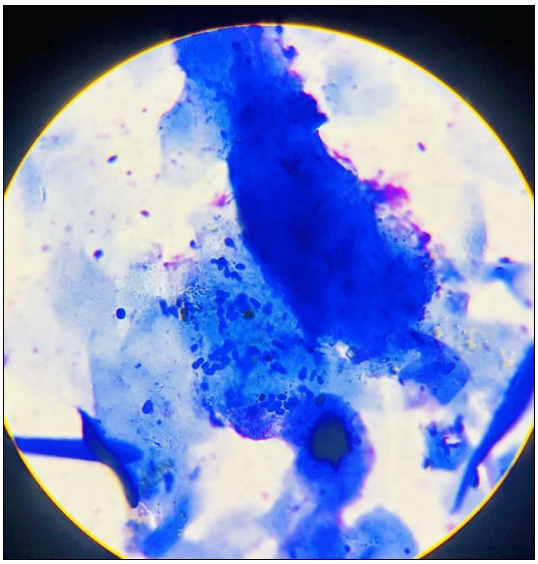

Fig 6: *M. Pachydermatis* in greasy substance on impression smear

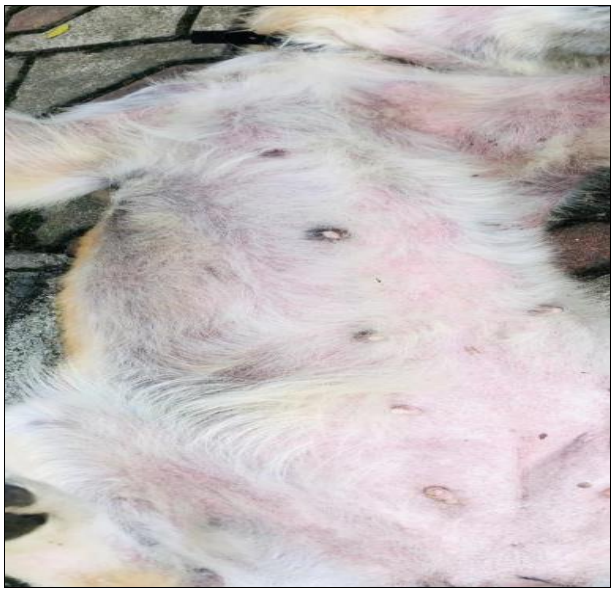

Fig 7: Absence of erythema and greasy scales at ventral abdomen

Fig 8: Dog after 42 days

References

1. Bond R, Morris DO, Guillot J, Bensignor EJ, Robson D, Mason KV, *et al*. Biology, diagnosis and treatment of Malassezia dermatitis in dogs and cats Clinical Consensus Guidelines of the World Association for Veterinary Dermatology. Veterinary dermatology. 2020;31(1):27-e4.

2. Selvi D, Kshama MA, Ramesh PT. Diagnosis and therapeutic management of elephant skin disease in a geriatric pet with itraconazole pulse therapy; c2023.
3. Bond R, Rose JF, Ellis JW, Lloyd DH. Comparison of two shampoos for treatment of Malassezia pachydermatis-associated seborrhoeic dermatitis in basset hounds. Journal of Small Animal Practice. 1995;36(3):99-104.
4. Pinchbeck LR, Hillier A, Kowalski JJ, Kwochka KW. Comparison of pulse administration versus once daily administration of itraconazole for the treatment of Malassezia pachydermatis dermatitis and otitis in dogs. Journal of the American Veterinary Medical Association. 2002;220(12):1807-1812.
5. Kennis RA, Rosser EJ Jr, Olivier NB, Walker RW. Quantity and distribution of Malassezia organisms on the skin of clinically normal dogs. Journal of the American Veterinary Medical Association. 1996;208(7):1048–1051.
6. Bensignor E. Oral itraconazole as a pulse therapy for the treatment of canine Malassezia dermatitis: A randomised, blinded, comparative trial. Eur. J Companion Anim. Pract. 2008;18:69-72.
7. Vlaminck KMJA, Engelen MACM. Itraconazole: A treatment with pharmacokinetic foundations. Veterinary Dermatology. 2004;15:8-8.
8. Berger DJ, Lewis TP, Schick AE, Stone RT. Comparison of once-daily versus twice-weekly terbinafine administration for the treatment of canine Malassezia dermatitis: A pilot study. Veterinary dermatology. 2012;23(5):418-e79.