SHORT COMMUNICATION
Open Access

Journal of Veterinary and Animal Sciences
ISSN (Print): 0971-0701, (Online): 2582-0605
https://doi.org/10.51966/jvas.2022.53.3.498-502

Occurrence of canine malassezia dermatitis and otitis in Thrissur, Kerala#

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Citation: Deshpande, P., Justin Davis, K., Vijayakumar, K., Tresamol, P. V. and Surya Sankar. 2021. Occurrence of canine malassezia dermatitis and otitis in Thrissur, Kerala.
J. Vet. Anim. Sci. **53**(3): 498-502
DOI: https://doi.org/10.51966/jvas.2022.53.3.498-502

Received: 17.10.2021 *Accepted: 07.12.2021* *Published: 30.09.2022*

Abstract

The aim of this study was to assess the occurrence of malassezia infection in dogs from Thrissur in relation to various predisposing factors such as age, breed, sex and season. One hundred and sixty-four cases of malassezia infection were identified between March 2021 and August 2021. The highest occurrence was noted in the age group of one to six years while least was seen in geriatric dogs above six years of age. Breed predisposition was found in Labrador and Pugs. Occurrence was higher in females than in males. August, July and June were the most favourable months for malassezia infection, while least cases were seen in May.

Keywords : *Malassezia, predisposing factors, diagnosis*

Malassezia pachydermatis (*M. pachydermatis*) is a lipophilic yeast belonging to the genus *Malassezia* of *Basidiomycetes*. They are part of normal commensals of canine skin, but are also known to cause dermatitis and otitis in dogs. Host, pathogen and environmental factors predispose the animal to canine malassezia dermatitis and otitis. Host related factors include age, sex, breed differences, allergies, endocrinopathies, neoplasia *etc*. Pathogen factors like cell wall composition and virulence factors possessed by the yeast, and environmental factors like temperature and moisture are known to predispose the occurrence of malassezia infection.

The present study was conducted in the Department of Veterinary Epidemiology and Preventive Medicine, CVAS, Mannuthy, from March 2021 to August 2021. The objectives were

#Forms part of the MVSc thesis submitted by the first author to the Kerala Veterinary and Animal Sciences University, Pookode, Wayanad, Kerala.

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to assess the occurrence of malassezia dermatitis and otitis among dogs in Thrissur and distribution pattern of disease in different age groups, breeds, sex and environmental conditions.

Two hundred and fifty dogs brought to the Teaching Veterinary Clinical Complex, Mannuthy and University Veterinary Hospital, Kokkalai with a complaint of dermatitis and otitis resembling malassezia infection with symptoms such as signs like erythema, alopecia, pruritus, malodour, hyperkeratosis, lichenification, hyperpigmentation, inflammation of ear canal with malodour and thick wax were screened for the presence of *Malassezia* yeast. Clinical samples collected for examination included impression smear and adhesive tape smears as per the methods described by Gagana (2021). The smears were dried and stained using Field stain.

Out of 250 dogs screened, 164 dogs were affected with *Malassezia* yeast on cytological examination. The dermatitis lesions were seen most commonly on the abdomen (Fig. 1), inner flanks, ventral neck, face (Fig. 2), interdigital and perianal region. Most common clinical signs observed were pruritus, alopecia, erythema, hyperpigmentation and lichenification with or without malodour. The distribution and appearance of lesions were in accordance with the clinical signs described by Mircean *et al.* (2010). Erythema of pinna, crusting and copious wax with pungent smell with otitis externa were the most common clinical signs of malassezia otitis. Bilateral otitis due to *Malassezia* spp. was more common than unilateral otitis which was in accordance with findings of Kiss *et al.* (1997) and Karlapudi (2017).

On cytological examination with Field staining, the impression smear slides showed the presence of human foot-print shaped budding yeast cells along with epidermal cells (Fig. 3). Swabs made from infected ears showed budding yeast cells, cocci, pus cells and inflammatory cells under 100X magnification (Fig. 4). No hyphae or pseudohyphae were observed. Impression smears on tapes revealed the presence of large number of *Malassezia* yeast attached to corneocytes and neutrophils (Fig. 5) which was similar to study done by Gagana (2021). The yield of recovering *Malassezia* by tape smear was superior than impression smears using glass slide which was in accordance with Saranya (2011).

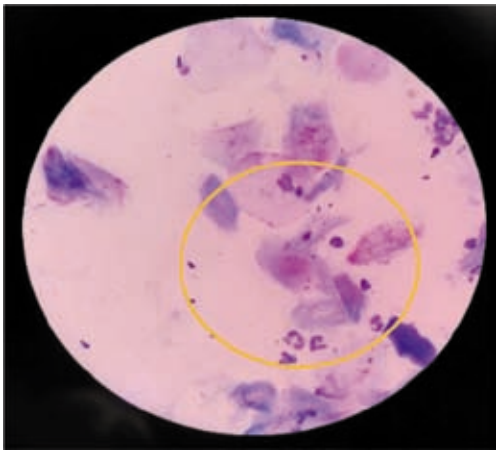

Fig. 3. Impression smear with yeast, corneocytes and neutrophils

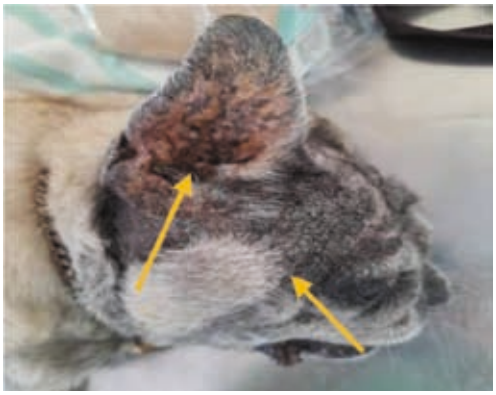

Fig. 1. and 2 Lesions of malassezia otitis and dermatitis

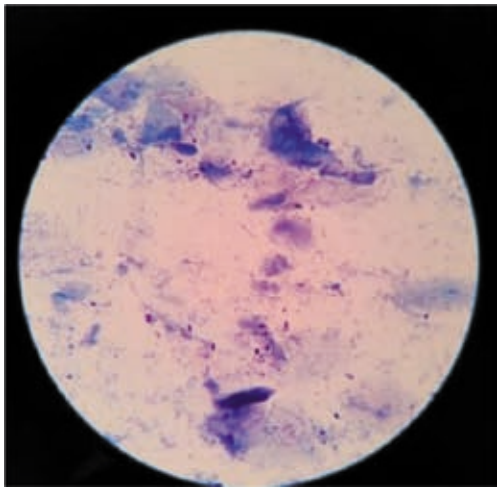

Fig. 4. Ear swab with malassezia yeast, and bacteria

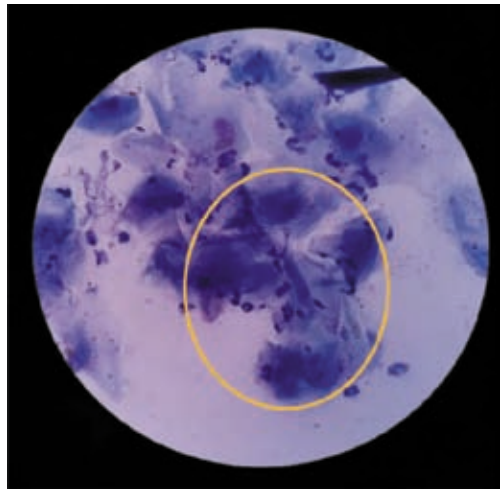

Fig. 5. Adherence of yeast to canine corneocyte

Most dogs showing malassezia infection (60.9 per cent) belonged to the age group of one to six years, followed by dogs under one year of age (24.4 per cent) and dogs more than six years of age (14.02 per cent) (Fig. 6). These results were in accordance with Girao *et al.* (2006) and Saranya (2011) and Gagana (2021), who reported the highest susceptibility of age groups four to six years, one to six years and one to five years, respectively. In this study, dogs less than one year of age were found to be more susceptible than dogs more than six years of age. This was contrary to the study conducted by Gagana (2021) who reported higher incidence in dogs more than five years of age whereas, Zur *et al.* (2011) found higher prevalence of malassezia otitis in dogs less than one year of age, when compared to geriatric dogs.

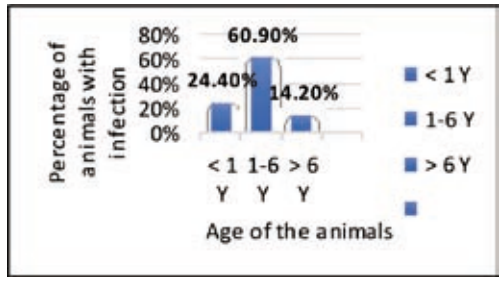

Fig. 6. Age wise distribution of malassezia infection

Female dogs (54.87 per cent) were more susceptible when compared to male dogs (45.12 per cent). This was in accordance with a study done by Gagana (2021), but contrary to study done by Conkova *et al.* (2011) who reported higher incidence in male than female dogs and Bardshiri *et al.* (2014), who reported no significant difference in occurrence of malassezia infection among either sex. Apart from nutritional and hormonal imbalances, stress due to oestrum, parturition and lactation might predispose females to malassezia infection (Saranya, 2011). Higher incidence were reported in Labrador Retrievers (34.14 per cent) followed by Pugs (18.29 per cent), crossbreed dogs (12.8 per cent) and German Shepherds (7.3 per cent) (Fig.7). A similar predisposition to malassezia infection was reported by Gagana (2021).

Forty-nine per cent of the dogs with *Malassezia* infection also showed the presence of organisms like cocci, rods, fungal spores and demodex mites. Zur *et al.* (2011) also reported the occurrence of otitis due to concomitant infection by rods, cocci and *Malassezia* yeast which was more than otitis due to individual organism. Although co-infection due to *Malassezia* spp. and *Demodex* spp. were seen occasionally, no interaction between these was reported (Mason *et al.*, 1996).

Highest incidence of *Malassezia* cases were seen in the month of August (26.8 per cent) followed by the month of July (18.9 per cent) and June (18.2 per cent). Lowest incidence of *Malassezia* infections were seen in the month of May (8.5 per cent) (Fig. 8). This was in accordance with Kumar *et al.* (2002) who reported higher incidences in months

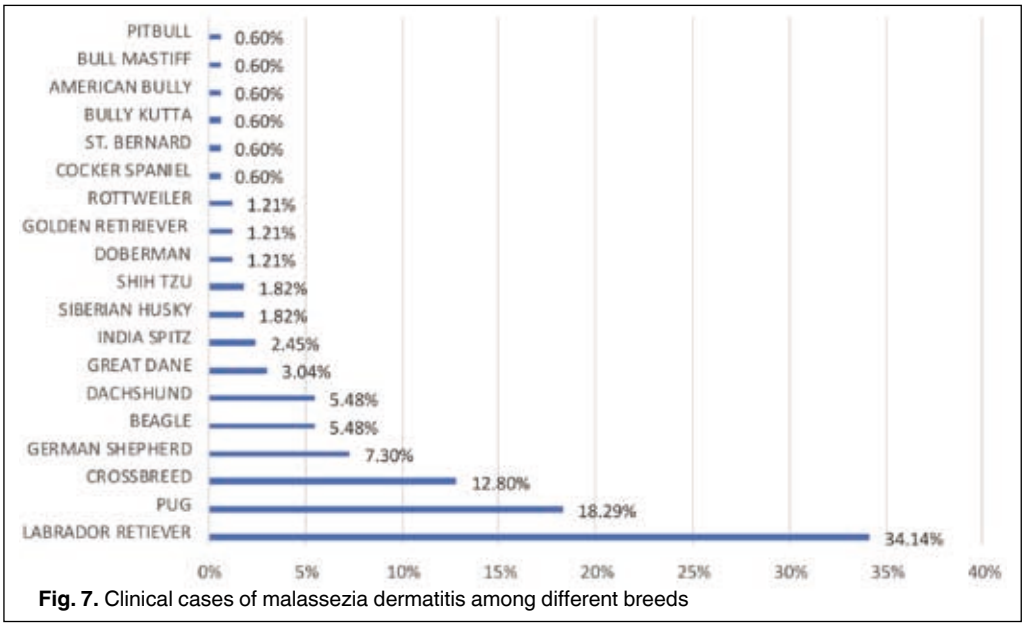

Fig. 7. Clinical cases of malassezia dermatitis among different breeds

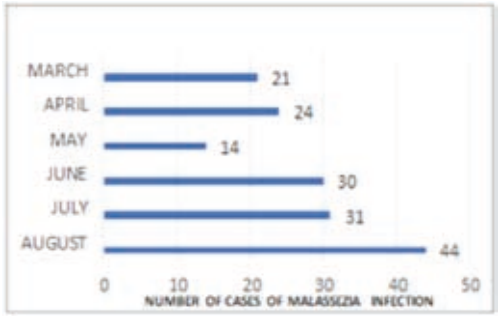

Fig. 8. Month wise occurrence of malassezia infection

of June and August in Haryana. Conkova *et al.* (2011) reported the highest incidence of Malassezia in autumn followed by spring and least in summer. Chen and Hill (2005) reported that humid climate and high temperature were associated with malassezia dermatitis. These finding justify the result of present study, since the state of Kerala receives rainfall starting from the month of June leading to increased ambient humidity.

Summary

In this study, breeds like Labrador Retrievers, Pugs, German Shepherds and crossbreeds, belonging to age group one to six years were found highly susceptible to *Malassezia*. Highest incidence of disease was also seen in the months receiving high rainfall (June to August). Identifying the predisposing factors of malassezia infection in canines can help in formulating prevention, control and treatment measures.

Acknowledgement

The financial support provided by Kerala Veterinary and Animal Sciences University is acknowledged.

Conflict of interest

The authors declare that they have no conflict of interest.

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